Wednesbury to Brierley Hill

Business Case
Midland Metro Wednesbury to Brierley Hill Extension
June 2017
The Midland Metro Alliance is a team of planning, design and construction specialists responsible for building a number of new tram extensions over the coming decade on behalf of the West Midlands Combined Authority. These exciting extensions will help deliver a lasting legacy, aiding social and economic regeneration across the region.

Building on lessons from past projects and best practice from across the world, Midland Metro Alliance has goals which will ensure the 10 year plan will only be successfully delivered if all parties work together. This will give the best outcome for the travelling public and the local economy.
FOREWORD BY ANDY STREET — MAYOR FOR THE WEST MIDLANDS

As the newly elected Mayor for the West Midlands, I am delighted to submit to you this Business Case for the Wednesbury to Brierley Hill Extension of the Midland Metro.

One of my key manifesto promises was to start work on this extension within my first term, and this important first step, seeking to obtain the funding and approvals from Central Government, is one that I am proud to take within my first month as Mayor.

This route will be a key part of the tram network across the region, which will play a significant role in the regeneration and economic growth for the West Midlands. Our patronage on the existing service between Birmingham and Wolverhampton city centres is at an all-time high – 7.89 million passengers took the tram between June 2016 and May 2017.

Extensions are planned in Wolverhampton City centre and across Birmingham (including both Centenary Square and Eastside), and out to UK Central via north Solihull. The West Midlands Combined Authority is committed to delivering a world class public transport network across the conurbation, which links directly to our HS2 stations.

The Wednesbury to Brierley Hill line presents a tremendous economic and regeneration opportunity to the Black Country as well, which is demonstrated in the strength of the attached business case and the benefit to cost ratio of 2.5:1. It will align initiatives in employment, education, health and tourism along the 11km corridor, making the whole greater than the sum of its parts. In terms of housing, upwards of 50,000 homes will be stimulated by the project, and approximately 170 hectares of brownfield land brought back into use.

The project will dramatically reduce journey times along the corridor to the Curzon Station HS2 Hub, for example, the current journey from Dudley Bus Station to Curzon Street would be reduced from 65 to 40 minutes, and the scheme will more than halve journey times from the more remote stops along the route into central Birmingham.

As you are aware, we are also working on a case for transferring the ownership of the line from Network Rail to the West Midlands Combined Authority which we think will help to ensure we are able to control costs and deliver to timetable whilst making provision for future national rail use of the route.

As part of our agreed devolution deal with Government, the submission of this case marks a milestone for the West Midlands Combined Authority, and the start of our conversation about how we can, together, look at the innovative mechanisms of funding and financing, alongside Mayoral powers, to ensure we can draw down the funding contribution from Government which is critical to the successful delivery of this transformational project.

I commend this Business Case for your consideration and approval.

Andy Street
Mayor for the West Midlands
Wednesbury to Brierley Hill

Business Case
Midland Metro Wednesbury to Brierley Hill Extension
Strategic Case
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S1. Executive Summary

Introduction

The Wednesbury to Brierley Hill Metro Extension is in the unique position of having a valid Transport and Works Act Order in place, with funding commitments for initial development (from the Black Country Local Enterprise Partnership and the West Midlands Combined Authority) and widespread support from local authorities and the business community.

The route makes use of one of the few remaining disused railway alignments left in the West Midlands, the former South Staffordshire Railway from Walsall to Stourbridge. It will provide a mainly segregated Metro service with the opportunity for fast and reliable connections between important towns and cities, in a part of the West Midlands that has historically suffered from a lack of rail based options. It will also make provisions for long-term plans to reintroduce freight traffic into the disused railway. The Metro is planned to adopt a tram-train operation so as to allow the use of both Metro trains and conventional freight services to be used, thus allowing freight traffic to avoid many congested railway locations across the West Midlands network; improving both journey time and reliability.

While the local rail network has seen an increase in passenger journeys of 134% over the last 10 years, this important part of the Black Country has not realised those benefits. The recent extension of Metro into Birmingham City Centre has resulted in increased passenger demand, with patronage up by 31% since July 2016, which, compared to the previous year, was the system’s busiest ever operational week. The extension to Brierley Hill will deliver similar transport, economic and social benefits.

Since the Transport and Works Act Order for the Wednesbury to Brierley Hill Extension was authorised in 2005 there have been a range of significant changes in and around the Black Country that demonstrate the need for this route to be implemented. For example, there are major plans for jobs and homes at the Brierley Hill Enterprise Zone and the Black Country Garden City, and there is significant potential when the Black Country has more connections (via the Metro network) to HS2, Birmingham Airport and UK Central.

These matters are set out in the Strategic Context section with supporting evidence from a wide range of national, inter-regional, regional, sub-regional and local policies.
The updated Business Case will consider new service pattern opportunities to provide connections and access to a wider market. This is particularly the case with the introduction of HS2 in Birmingham, but there are other opportunities for Midland Metro to link into the local bus and rail networks, and also provide the opportunity to address health issues by enabling more people to walk or cycle to a Metro stop.

The previous Business Case considered a range of alternatives to Midland Metro and concluded that Metro is the best option. There is limited potential to operate a bus service on the disused railway, as that would also preclude the potential for freight on the railway which would be unacceptable to the land owner Network Rail. There is also very little potential for segregated routes on the local roads. The option of introducing a local rail service has lower frequencies, does not cover the operating costs and does not provide direct access to the key centres (Brierley Hill, Dudley and Merry Hill).

**Scheme Objectives**

The objectives of the Wednesbury to Brierley Hill Extension establish the framework against which the success of the scheme can be judged and support the vision. The core objectives are:

- Support regeneration in areas of high deprivation through improved connectivity with areas of opportunity;
- Support economic development by improving the accessibility of (major) employment and residential sites;
- Enhance the prosperity of Black Country residents and businesses through providing better access to employment and a wider workforce;
- Improve the education and skill base of the residents of Sandwell and Dudley by providing wider access to universities and colleges throughout the West Midlands.
- Encourage modal shift from private car by delivering a high quality and reliable public transport service;
- Support an integrated transport network through providing seamless interchange; and
- Deliver a high quality public transport service in a manner that supports local environmental and safety benefits.

**The Black Country**

The Black Country comprises the Boroughs of Dudley, Sandwell, Walsall and the City of Wolverhampton. The 2011 census identifies the population 1,139,781, which makes up 20% of the West Midland Region’s population.

With an area of some 356 square kilometres, the Black Country forms the western part of the West Midlands Metropolitan Area, the largest conurbation outside London. The area is bordered by Birmingham to the east, Staffordshire to the north, Shropshire to the west and Worcestershire to the south.

The history of the region has made it one of the most important areas in the UK, being at the core of the development and expansion of the Industrial Revolution. The decline of industry has left its mark, with the closure of mines, steelworks, refineries and factories over several decades, leading to an increase in social deprivation and unemployment.
There is a desire and an increasing need to improve connectivity in and around the Black Country to address the challenges that need to addressed in the Black Country. This is evidenced by the Index of Multiple Deprivation (IMD), which includes the criteria:

- Income;
- Employment;
- Health Deprivation and Disability;
- Education, Skills and Training;
- Barriers to Housing and Services;
- Crime; and
- Living Environment.

Areas of Deprivation

There are 44 areas across Sandwell and Dudley that fall within 10% of the most deprived areas in England (23 Sandwell and 21 Dudley). A significant proportion of these fall within a 2km catchment area of the Metro Extension where over 25% of the population fall within the 10% of the most deprived areas in England and over 55% fall within the 20% most deprived areas.

The areas of Sandwell and Dudley that are within 2km of the line will gain the most benefit from the Wednesbury to Brierley Hill Extension, and therefore the line will provide greater connectivity to a range of good employment opportunities for some of the most deprived residents in England.

Unemployment

The main areas, Dudley and Sandwell, in which the Brierley Metro extension will occur have unemployment rates significantly above the nation average (approximately 5%) at 6.8% and 7.7% respectively. These areas will benefit significantly as a result of the greater connectivity to large employment markets provided by Birmingham City Centre and other parts of the West Midlands that the Wednesbury to Brierley Hill Extension provides.

Wolverhampton has the highest unemployment rate in the West Midlands at 10%, and this area will also benefit from the Brierley Hill Metro extension as it becomes better connected with other areas of the West Midlands.

The 2011 census suggests that the majority of employed residents in Sandwell and Dudley work within the local area (between 62% and 73%). The Wednesbury to Brierley Hill Extension will provide frequent high quality linkages to Birmingham and the rest of the West Midlands, which will offer the ability to work outside the local area thereby increasing the employment opportunities and prospects for the local residents.

Public Transport Provision

The Black Country incorporates several important transport routes for a majority of modes, including buses, trains and trams connecting the larger regional centres such as Wolverhampton, Walsall, Dudley, West Bromwich, Stourbridge and Birmingham. However, the majority of the provision is made up of many suburban services of lower frequency that provide public transport access to the smaller local neighbourhoods.
While provided with a large number of bus connections, Dudley and Brierley Hill are somewhat rare examples in the UK of large urban areas or regional centres that do not have a direct rail connection, either by National Rail or by Light Rail, to the major urban centres. As a result, the areas around the proposed Wednesbury to Brierley Hill Extension have poor public transport linkages to the major employment and retail areas outside of their immediate area.

Current Midland Metro Network

Midland Metro Line 1 opened in 1999 and operates mainly on what was formerly the alignment of the Great Western Railway mainline from Birmingham Snow Hill to Wolverhampton Low Level. The Birmingham City Centre Extension, which opened fully in May 2016, extended the route from the existing St Paul’s stop, with the tram running adjacent to Snow Hill railway station, before running on-street to a terminus outside New Street station. Three intermediate stops opened as part of the extension, serving the heart of the city’s business and shopping districts, at St Chads (Snow Hill), Bull Street and Corporation Street.

Midland Metro Line 1 connects the town centres of West Bromwich, Wednesbury and Bilston to Birmingham and Wolverhampton, with patronage levels being around 5 million per annum prior to the opening of Grand Central. Park and ride (P&R) is available at four stops on the route (Priestfield, Wednesbury Parkway, Black Lake and The Hawthorns) offering more than 500 spaces, with an occupancy level of 96% in 2012/13. Midland Metro has a wide catchment, supported by the P&R facilities and the integrated ticketing available.

This demonstrates the attractiveness of the current system and the significant role Midland Metro plays as part of the wider public transport network.

The Wednesbury to Brierley Hill Scheme

Summary of Problems and Opportunities

There are a wide range of key difficulties and challenges across the Black County, including:

- **Socio-Economic Difficulties:**
  - Growth in population;
  - Decline in traditional industrial manufacturing jobs;
  - Poor skill base with limited academic qualifications of resident population;
  - Significant areas of deprivation; and
  - Poor access to employment areas.

- **Transport Difficulties:**
  - Lack of direct rail service between Dudley, Brierley Hill and surrounding urban centres;
  - Heavy reliance on the car as a mode of transport;
  - Heavy congestion within sub-regional centres; and
  - Poor links with the wider transport network for travel to work to main urban centres, such as Wolverhampton and Birmingham.
Opportunities:
- Facilitate a sustainable transport network;
- Reduce the need to travel by car;
- Provide a direct rail link to Wolverhampton and Birmingham and a future link to HS2 and Birmingham International Airport;
- Relieve rail freight congestion in and around Birmingham; and
- Sustaining manufacturing and export growth across the Black Country and Birmingham by reducing car trips from the network.

Wednesbury to Brierley Hill Extension Scheme Description

The Wednesbury to Brierley Hill Extension forms a significant part of the Metropolitan Rail and Rapid Transit Network which is outlined in the West Midlands Strategic Transport Plan - Movement for Growth. This network is based on suburban rail, metro - light rail, tram-train, very light rail and Sprint Bus Rapid Transit lines running on suitable routes of one single network. It will be integrated with local bus services and underpinned by park and ride, passenger information, promotion and ticketing. This system will be easy to understand, use and be provided with high standards of customer care.

The Transport and Works Act Order for the Wednesbury to Brierley Hill Extension has been in place since 2005, and was implemented in 2009 through works in Dudley Town Centre. The proposed route is 11km operating between Wednesbury and Brierley Hill through the Metropolitan Boroughs of Sandwell and Dudley. There are 17 proposed stops (depending on surrounding developments) serving the interchange with the existing Wolverhampton to Birmingham route, the Black Country Garden City, Great Bridge Town Centre, Dudley Town Centre, the Waterfront, Merry Hill, Brierley Hill Enterprise Zone (EZ) and High Street.

The route between Wednesbury and Dudley follows a disused heavy rail corridor alongside which are many of the key development sites in the Garden City. It then passes through Dudley Town Centre on street before running adjacent to Duncan Edwards Way and re-joining the disused railway corridor at Cinder Bank. At Harts Hill the route deviates away from the railway line to pass through the Waterfront, Merry Hill and Brierley Hill EZ prior to terminating at Brierley Hill.

In addition to the significant potential for integration with the bus and rail networks, the Wednesbury to Brierley Hill extension also links into local cycling and walking facilities, an example being upon the completion of National Cycle Network Route 54 (Stourport to Derby), which will provide an alternative for pedestrians and cyclists in the Dudley area to access the Metro.

Strategic Case

Overview

The metro extension will create a sustainable, fast and congestion free link between Brierley Hill, Dudley, Wolverhampton and Birmingham. Future development of the Midland Metro will provide a further direct link to HS2 and Birmingham International Airport.
Economic Prosperity and Growth

Consultation, planning and policy documents produced by West Midlands Combined Authority, Dudley Metropolitan Borough Council and Sandwell Metropolitan Borough Council highlight the importance of major employment and residential developments being highly accessible by rapid transit in order to maximise the accessibility of the sites.

Effective integration with transport is invaluable to ensure that development and regeneration sites deliver economic and social benefits for the West Midlands region, and supports the wider proposals set out by the local authorities and the Black Country LEP.

The proposed Midland Metro extension between Wednesbury and Brierley Hill via Dudley Town Centre will be the linchpin to enable economic growth for the area to be realised. The Metro extension supports a broad range of policies including national objectives, regional and sub-regional strategic visions, and local district centre aspirations.

The Midlands Engine for Growth Prospectus aims to respond to the Government ambitions that the Midlands economy could grow by £34 billion by 2030 and create a further 300,000 jobs by the end of this 2020.

Midlands Engine sets out the importance of connectivity “across the Midlands is essential for supporting and attracting businesses as well as highly skilled workers. Midlands Connect will develop the vision for our regional connectivity and set out the long-term transport strategy for the Midlands Engine”.

The Black Country Local Enterprise Partnership - Strategic Economic Plan (SEP) highlights the strategic employment land across the region (including the land in the Brierley Hill EZ). It notes that Business Services and manufacturing are key to the five transformational sectors in the strategy to deliver growth. The strategy aims to create 113,000 jobs and £16.5bn of GVA by 2033.

The combined Black Country Core Strategy (BCCS) incorporates the four local planning authorities of Dudley, Sandwell, Walsall and Wolverhampton. Together they aim to develop and respond to the sub-region’s challenges and opportunities by setting out their aspirations within the Core Strategy. The overall vision has three themes:

- **Creating Sustainable Communities** through regeneration orientated to high quality community provision, taking into account specific requirements for transport, healthy living and affordable housing;
- **Delivering Environmental Transformation** by providing high “...quality, liveable and distinctive places...” within both the natural and built environment, enhancing the Black countries diverse and historic heritage; and
- **Providing Economic Prosperity** by becoming attractive to new investment, businesses and promoting urban regeneration to support the local economy.

The BCCS designated Brierley Hill as Dudley Borough’s Strategic Centre that will “bring together a powerful combination, with the adjacent Merry Hill shopping centre, to give work and retail opportunities connected via the new Metro to local district centres, housing and leisure opportunities”.
The **West Midlands Strategic Transport Plan ‘Movement for Growth’** sets out the long term aims to provide guidance for future improvements to the wider transport network in the region over a twenty-year period. Midland Metro is recognised as a key aspect of an integrated Rapid Transit Network, and future expansion along the Wednesbury to Brierley Hill corridor is identified as part of a long-term metropolitan rail and rapid transit network.

‘Movement for Growth’ outlines five key challenges that the West Midlands faces, each of which an excellent transport system is part of the solution. Improved transport is expected to:

- Support economic and population growth by linking ‘jobs and people’ and ‘products and markets’;
- Meet the challenges of capacity and congestion greater demand for movement brings;
- Reduce the environmental impacts from transport;
- Improve people’s health through the encouragement of more active lifestyles; and
- Improve social well-being by raising the standard of living by improving access to leisure and essential services.

It will enable the Black Country to achieve economic prosperity, attract businesses and increase opportunities for those with smaller incomes; wealth creation and accessibility to surrounding areas is vital. The extension will improve access to the employment opportunities in the wider West Midlands area ensuring those in the deprived areas that surround the line can access the job opportunities in these important and growing employment districts such as Birmingham City Centre.

Furthermore the introduction of the Wednesbury to Brierley Hill extension will result in the “unlocking” of local development sites that are dependent on the scheme going ahead. Such development will enable further growth and job creation.

A journey time comparison between the proposed Metro route and existing bus routes servicing Birmingham City Centre shows that with the scheme in place, public transport times will reduce by around 50%, which will significantly improve the potential employment prospects for residents of Sandwell and Dudley.

Compared to average car journeys from this area to Birmingham City Centre, the proposed Wednesbury to Brierley Hill scheme will be slightly slower than the car. However, the high prices for car parking in Birmingham City Centre and the unreliability of car journey times to the city impacts on the use of the car as a mode of travel to work, which acts as a barrier to employment in the city for residents of Sandwell and Dudley. Users of the Metro scheme will not be subjected to the journey time reliability issues and car parking charges that deter the use of the car and will therefore provide greater opportunity for residents to access employment in the city centre.

**Reducing the Reliance on Private Transport**

With no existing direct rail link from Brierley Hill or Dudley, bus and car usage is higher than the national average. With this high proportion of car usage, congestion is a major issue in the Black Country. With the introduction of the extension, access to major centres such as Wolverhampton and Birmingham City Centre on the existing Metro route will improve reducing car usage and having positive impacts on air quality.
Creating a World Class Sustainable Transport System

The West Midlands Strategic Transport Plan, Movement for Growth sets out its vision in the following statement:

"We will make great progress for a Midlands economic ‘Engine for Growth’; clean air; improved health and quality of life for the people of the West Midlands. We will do this by creating a transport system befitting a sustainable, attractive and economically vibrant conurbation in the world’s sixth largest economy”.

The Transport Infrastructure investment strategy contained in this document has three key aims:

- Improved national and regional links to boost our economy;
- Improved links across the Metropolitan Area to provide better access to jobs, leisure and services; and
- Improved links within local communities to reduce the reliance on cars for short distance trips.

To achieve these aims, the strategy will develop:

- Regional infrastructure to improve movement across the West and East Midlands and to maximise the opportunities provided to us from HS2;
- A high quality metropolitan public transport network –so people can easily get across the conurbation in a space efficient, environmentally friendly way;
- A metropolitan main road network (“Key Route Network”) to provide for the main flows of people and freight using public and private transport;
- A metropolitan cycle network – to provide a “flagship” for cycling through a network of high quality cycle routes to serve main cyclist flows; and
- A ‘smart’ mobility platform to make better use of transport capacity, giving people a wider set of travel options and better information on those options.

This investment in transport will help achieve our aims and tackle our current and future challenges by:

- Supporting economic and population growth by linking ‘jobs and people’ and ‘products and markets’;
- Meeting the challenges greater demand for movement brings (capacity and congestion);
- Reducing the environmental impacts from transport (CO2 emissions, air quality);
- Improving people’s health through the encouragement of more active lifestyles; and,
- Raising the standard of living by improving access to leisure and essential services.

HS2 - Unlocking the benefits: West Midlands Connectivity Package

In November 2013, the Government laid a Hybrid Bill before Parliament to secure the powers to construct and maintain Phase 1 of High Speed 2, the planned high-speed railway between London, Birmingham, Manchester and Leeds. This bill received Royal Assent in March 2016, demonstrating the firm commitment of the Government to delivering a high-speed railway between London and the West Midlands, with stations at Birmingham Curzon Street and Birmingham Interchange. In November 2015, the Government released a Command Paper reaffirming its commitment to the full ‘Y’ network, and set out specific plans to accelerate
construction of Phase 2A to Crewe on the existing West Coast Main Line, demonstrating its obligation to the entire High Speed 2 network.

Construction of High Speed 2 therefore represents current active government policy, and will include two stations in the West Midlands; at Curzon Street in Birmingham City Centre and at Birmingham Interchange, near Birmingham Airport and the NEC. The ‘High Speed 2: Get Ready’ report, published by the HS2 Growth Taskforce in March 2014, stressed the need to integrate High Speed 2 into local transport networks in order to maximise the benefit to the wider economy, with HS2 stations becoming strategic nodes that connect with inter-city, regional and intra-city transport links. Local authorities and Local Economic Partnerships were challenged to consider how HS2 will be a catalyst for development and growth, and result in detailed connectivity packages in their Local Plans and Strategic Economic Plans respectively.

In response to the proposals for HS2, Transport for West Midlands (TfWM) developed a connectivity package to improve regional and local transport links to HS2 in order to maximise economic benefits across the region. The package contains three strategic outcomes:

- Capitalising on the network approach;
- Unlocking growth assets; and
- Linking the West Midlands to the HS2 network.

Improved regional connectivity to High Speed 2 supports all three outcomes, and the package identifies the importance of new rapid transit connections linking Curzon Street to the rest of Birmingham and the West Midlands.

The HS2 Growth Strategy: Connectivity Programme, published by the Greater Birmingham and Solihull LEP identifies the importance of ensuring the benefits from HS2 are spread as far as possible across the region. It includes four key aspects:

- **Connectivity to HS2 Stations**: Providing excellent local and sub-regional connectivity to HS2 stations from across the West Midlands, thereby improving access to businesses and job opportunities;
- **An Integrated HS2**: Ensuring the delivery of a fully integrated network between HS2 and the local transport network to maximise accessibility to the HS2 network;
- **Midlands Connect**: a regional transport group made up of all the East and West Midlands Authorities that is preparing a transport strategy for the combined region that aims to maximise connectivity within and to the area through the utilisation of the capacity released by HS2 on the conventional rail network, major enhancements to the classic rail and highway networks and the optimisation of the Midlands’ local rail and road networks for the arrival of HS2; and
- **International Connectivity**: Providing direct international services from the West Midlands to Europe via a direct rail link between HS2, HS1 and the Channel Tunnel.

The Wednesbury to Brierley Hill Metro scheme is a critical element of the HS2 Connectivity programme as it will ensure that the residents of Sandwell and Dudley will have high quality access to the HS2 station at Curzon Street, and therefore will be able to realise the significant economic benefits that HS2 is predicted to produce for the West Midlands area. It is proposed that the route will be completed as far as Birmingham by 2032, being available to
ensure that residents of the Black Country can access the significant number of construction jobs associated with HS2 using public transport.

**Supporting Local Growth and Prosperity**

The Wednesbury to Brierley Hill Metro scheme supports a range of local initiatives that aim to enhance the growth prospects for the area and improve the prosperity of residents in the Black Country. Specific initiatives include:

- **Brierley Hill Business and Innovation Enterprise Zone** – 70 Ha of new and regenerated business space that reflects the strategic aims of the Black Country Local Enterprise Partnership (LEP) to “grow the regional global supply chain with the world class skills it demands, to maximise the benefits of the central location in the UK, to exploit the industrial and geological heritage and to provide high quality housing to meet the needs of a balanced growing population”. It is expected this will deliver:
  - Up to 7,000 net new jobs;
  - An estimated 373 new businesses;
  - GVA Uplift of £589.7m per annum; and
  - £165m in business rates uplift over 25 years.

- **The Merry Hill Masterplan** - still being developed by the site’s owners, Intu, and is expected to be available in early 2017. The scale of investment and change expected at Merry Hill and the Waterfront is significant. As a sub-regional shopping and employment centre, the growth Merry Hill will contribute to the wider regeneration of the area and has the potential to deliver 3,000 homes and over 300,000 sqm of commercial opportunities.

- **The Black Country Garden City** - prospectus has been produced in partnership between the Black Country LEP, local authorities and the Homes and Communities Agency. The document states that they “are working together to create new aspirational locations for quality housing development”. The Prospectus states there is potential for “45,000 new homes over a 10-year period” and “to lever £6 billion investment”.

- **Brierley Hill AAP** - adopted August 2011 and seeks to make Brierley Hill a vibrant, inclusive and accessible town centre by growing its reputation of importance to local employment and retail. It is estimated that the development at Brierley Hill could provide 10,000 new jobs of which some 60% would be taken by Dudley residents.

- **The Strategic Economic Plan (SEP)** sets out the vision, objectives, strategy and actions to improve the quality of life of everyone who lives and works in the West Midlands. It recognises that a stronger West Midlands is not just good for its residents and businesses - but for the UK economy.

As a key element of the transport investment that is proposed to deliver the Strategic Economic Plan, the Wednesbury to Brierley Hill Extension is core to ensuring that all these initiatives are realised by the residents of Sandwell and Dudley by providing enhanced accessibility to the area and also linkages to HS2.
S2. Introduction

General Overview

2.1 The expansion of light rapid transit is a key objective for the West Midlands. The provision of an LRT system was first identified in the transport strategy of the West Midlands Passenger Transport Authority (WMPTA) (now Transport for West Midlands) in 1986 as a solution to existing and future transport issues in and around the conurbation of Birmingham.

2.2 The Wednesbury to Brierley Hill Metro Extension is in the unique position of having a valid Transport and Works Act Order in place, with funding commitments for initial development (from the Black Country Local Enterprise Partnership and the West Midlands Combined Authority) and widespread support from local authorities and the business community.

2.3 The Midland Metro extension supports a broad range of policies including national objectives, regional and sub-regional strategic visions, and local district centre aspirations and it is envisaged that it will be the linchpin to enable economic growth for the area to be realised.

2.4 The Black Country and the West Midlands currently underperform in the UK, with low productivity from the Black Country contributing a significant proportion of the West Midlands output gap. The low productivity of the sub-region must be addressed in order for the Black Country, and the West Midlands, to achieve their aspirations. For the West Midlands region in its entirety, to achieve its growth and regeneration targets, the Black Country must be viewed as a priority.

2.5 Without additional public transport investment any growth and regeneration is likely to result in an increase in private car usage and congestion. The implication of this is that the area is unlikely to meet economic and environmental commitments, as well as its responsibility to tackle climate change by reducing emissions.

2.6 The challenge of achieving economic growth without a significant increase in highway congestion, which then constrains growth, will require action in the Black Country beyond simple pro-growth economic policies – investments will need to be taken to reduce the reliance on the private car. Within the Black Country the highest return for investment is likely to be improving public transport connectivity within the Black Country Access Corridor.
(encompassing Walsall, Brierley Hill and Stourbridge), and the provision of an integrated rapid passenger transport scheme along the corridor is considered to be of fundamental regional importance in order to ensure investment in health, education and employment.

2.7 A new link between Brierley Hill and Wednesbury assists in achieving local and regional policy objectives by increasing accessibility between key centres along the route and encouraging sustainable modes of travel throughout the West Midlands and to/from Birmingham City Centre in particular.

2.8 There are three committed Metro extensions currently being progressed in the region. The extension from Wednesbury to Brierley Hill will complement these extensions and enhance connectivity to a range of locations. The three committed extensions include:

- **New Street to Edgbaston** – serving Birmingham Westside;
- **Birmingham Eastside** – serving HS2 and the Curzon development area; and
- **Wolverhampton City Centre** – serving the Bus and Railway Stations.

**Scheme Objectives**

2.9 The objectives of the Wednesbury to Brierley Hill Metro Extension establish the framework against which the success of the scheme can be judged and support the vision. The core objectives are:

- Support regeneration in areas of high deprivation through improved connectivity with areas of opportunity;
- Support economic development by improving the accessibility of (major) employment and residential sites;
- Enhance the prosperity of Black Country residents and businesses through providing better access to employment and a wider workforce.
- Improve the education and skill base of the residents of Sandwell and Dudley by providing wider access to universities and colleges throughout the West Midlands.
- Encourage modal shift from private car by delivering a high quality and reliable public transport service;
- Support an integrated transport network through providing seamless interchange; and
- Deliver a high quality public transport service in a manner that supports local environmental and safety benefits.

**Overview of the Strategic Case**

2.10 This document presents the strategic case for the Wednesbury to Brierley Hill Metro Extension. It explores the existing policy background and the current issues it is aiming to address. It will also outline how the scheme fits with local, regional and national objectives and planning policy.

2.11 This document will consider the following areas:

- Chapter S3: Options Assessment;
- Chapter S4: Proposed Wednesbury to Brierley Hill Extension;
- Chapter S5: Black Country Demography;
- Chapter S6: Economic, Prosperity and Growth; and,
- Chapter S7: Transport.
S3. Options Assessment

Overview

3.1 In 2010, Steer Davies Gleave produced a report entitled WBHS Corridor Options Economic Assessment\(^1\) which looked at options for the development of a public transport scheme for the Black Country Access corridor that can complement the reinstatement of rail freight in this region.

3.2 This report considered four options including:

- Heavy rail;
- Tram;
- BRT; and
- On-highway Bus Priority.

3.3 For each mode option a range of routes and services were considered for part or the entire Black Country Access corridor. Each of these mode and service options were assessed in terms of:

- Costs – including estimated Construction, Maintenance and Operational costs;
- Patronage and Revenue; and
- Outline Public Transport benefits.

\(^1\) SDG, Black Country Access WBHS Corridor Options Economic Assessment TN Draft v3.0, February 2010
Conclusions of Options Assessments

3.4 The report concluded that the Tram options provide the quickest journey times between key centres and as such achieve the greatest patronage. Those options that connect directly to Metro Line 1 also provide a direct link to Birmingham and Wolverhampton resulting in higher levels of patronage and subsequent benefits compared to shuttle options that only connect the local towns within the corridor and require interchange to access other areas.

3.5 The best performing Tram option served Dudley Town Centre, Brierley Hill, Stourbridge and Metro Line 1.

3.6 The BRT option also achieves considerable journey time savings due to the segregated nature however the savings are not as great as for the Tram based options. The level of segregation also means that the capital costs are only slightly lower than the Tram option. Another key constraint is the lack of compatibility between heavy rail and BRT which means it would not be acceptable to the landowner Network Rail.

3.7 The bus options have the advantage of connecting all the key centres, however, they were shown to have the slowest journey times thereby generating few benefits. In addition, patronage levels were generally lower than the Tram for the equivalent route option.

3.8 The heavy rail options achieve the lowest BCRs as they are confined to the rail corridor and do not penetrate the important local centres of Dudley, Brierley Hill and Merry Hill. Furthermore, the revenue associated with the rail options did not cover the predicted operating costs and therefore they would have to be subsidised.

Recommendations

3.9 The strategic picture within the corridor has changed little since the earlier considerations, highlighting the need for transformational investment to support jobs and growth, however the approval of HS2 and related growth hub proposals adjacent to the two West Midlands stations enhances the urgent need for the investment.

3.10 Therefore, review of this 2010 study confirms that the preferred option for the development of a public transport corridor to serve the Black Country is a Tram/LRT based system that connects Brierley Hill, Dudley Town Centre and Wednesbury to Birmingham and Wolverhampton via the existing Metro Line 1.

3.11 This preferred option also paves the way for the introduction of rail freight on the Walsall to Stourbridge corridor by reinstating the currently derelict corridor and enhancing the likelihood of the reintroduction of freight along the Stourbridge to Walsall route, removing lorries from the congested M5/M6 corridor and freeing up train paths on the congested West Midlands rail network. It will also allow for future extension to Stourbridge and to Walsall.
S4. The Proposed Wednesbury to Brierley Hill Extension

4.1 This section sets out key elements of the Wednesbury to Brierley Hill Scheme. The section is structured in the following way:

- Background to the scheme and context.
- Objectives of the scheme.
- Detailed description of the route.
- Service specification.
- Predicted patronage.

Overview of the scheme

4.2 The Wednesbury to Brierley Hill Metro Extension is in the unique position of having a valid Transport and Works Act Order in place, with funding commitments for initial development (from the Black Country Local Enterprise Partnership and the West Midlands Combined Authority) and widespread support from local authorities and the business community. The Transport and Works Act Order has been in place since 2005, and was implemented in 2009 through works in Dudley Town Centre.

4.3 The scheme is a significant element of the Metropolitan Rail and Rapid Transit Network outlined in Movement for Growth: The West Midlands Strategic Transport Plan². The network is based on suburban rail, metro - light rail, tram-train, very light rail and Sprint Bus Rapid Transit lines running on suitable routes across a single integrated network. It will be complemented by local bus services and underpinned by park and ride, passenger information, promotion and ticketing. This system will be easy to understand, use, and be delivered with a high standard of customer care. The full network is shown in Figure 4.1.

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² West Midlands Combined Authority, Movement for Growth: The West Midlands Strategic Transport Plan, 2016

4.4 The metro extension makes use of the disused railway alignment of the South Staffordshire Railway, one of only a few remaining abandoned rail corridors in the West Midlands. It will provide a mainly segregated service with the opportunity for fast and reliable light rail connection between important towns and cities in a part of the West Midlands that has historically suffered from a lack of rail based options. The scheme has also been designed to facilitate future tram-train operation that will allow for freight trains to avoid ‘hot-spots’ on the network and improve journey times and reliability (See Figure 4.2).

4.5 The proposed route is 11km operating between Wednesbury and Brierley Hill through the Metropolitan Boroughs of Sandwell and Dudley. The scheme connects a number of major urban centres and significant employment and residential/retail areas, including the Black Country Garden City, Great Bridge Town Centre, Dudley Town Centre, the Waterfront, Merry Hill, Brierley Hill Enterprise Zone (EZ) and Brierley Hill High Street.

4.6 There are 17 proposed stops along the route. Four of these are provisional stops to facilitate the construction of major development/regeneration schemes; the inclusion of these stops will be considered in the next stage of scheme development and they may be included in the Final Business Case if appropriate. These stops are:

- Golds Hill, Great Bridge – brownfield land opportunity; development currently difficult due to poor accessibility.
- Flood Street, Dudley – Redevelopment opportunity site around vacant Falcon House and large surface car parks.
- New Road, Dudley – Brownfield opportunity between A461 and New Road.
- Canal Street – opportunity to serve the Brierley Hill Enterprise Zone site; development currently difficult due to poor accessibility.

4.7 The scheme provides the potential for integration with the bus and rail networks and also links into local cycling and walking facilities (an example being the upcoming National Cycle Network Route 54 from Stourport to Derby).
Figure 4.1: Metropolitan Rail and Rapid Transit Network
Figure 4.2: Wednesbury to Brierley Hill Extension
Objectives of Brierley Hill Metro Extension

Key Scheme Objectives

4.8 The key objectives of the Wednesbury to Brierley Hill Extension establish the framework against which the success of the scheme can be judged and support the vision. The core objectives are:

- Support regeneration in areas of high deprivation through improved connectivity with areas of opportunity;
- Support economic development by improving the accessibility of (major) employment and residential sites;
- Enhance the prosperity of Black Country residents and businesses through providing better access to employment and a wider workforce.
- Improve the education and skill base of the residents of Sandwell and Dudley by providing wider access to universities and colleges throughout the West Midlands.
- Encourage modal shift from private car by delivering a high quality and reliable public transport service;
- Support an integrated transport network through providing seamless interchange; and
- Deliver a high quality public transport service in a manner that supports local environmental and safety benefits.

Challenges

4.9 The document Movement for Growth: The West Midlands Strategic Transport Plan identifies five generalised transport challenges for the region. Although not specific to the Brierley Hill Metro, the scheme is expected to have a positive impact on addressing the challenges set out below:

- Economic Growth and Economic Inclusion;
- Population Growth and Housing Development;
- Environment;
- Public Health; and
- Social Well-Being.

4.10 Furthermore, in addition to having a positive impact on the wider region, the scheme is expected to address specific socio-economic and transport difficulties within Black Country:

Socio-economic Difficulties

- Growth in population;
- Decline in traditional industrial manufacturing jobs;
- Poor skill base with limited academic qualifications of resident population;
- Significant areas of deprivation; and
- Poor access to employment areas.

Transport Difficulties

- Lack of direct rail service between Dudley, Brierley Hill and surrounding urban centres.

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3 West Midlands Combined Authority, Movement for Growth: The West Midlands Strategic Transport Plan, 2016

• Heavy reliance on the car as a mode of transport;
• Heavy congestion within sub-regional centres; and
• Poor links with the wider transport network for travel to work to main urban centres, such as Wolverhampton and Birmingham.

Opportunities

4.11 Whilst the scheme will be beneficial in terms of addressing current local and regional level challenges, the construction of the scheme will also:

• Facilitate a sustainable transport network;
• Reduce the need to travel by car;
• Provide a direct rail link to Wolverhampton and Birmingham, and a future link to HS2 and Birmingham International Airport;
• Relieve rail freight congestion in and around Birmingham; and
• Sustain manufacturing and export growth across the Black Country and Birmingham by reducing car trips from the network.

Route Description

Wednesbury to Birmingham New Road

4.12 The first section of the route travels approximately 4.6km from where the line diverges from the existing Metro Line 1 at Wednesbury Great Western Street to where it commences on-street operation beyond the Birmingham New Road (A4123).

4.13 From the junction, immediately to the south of Wednesbury Great Western Street tram stop, the line forms part of a Y-Junction that allows for access onto the route from both the Wolverhampton and Birmingham directions. To the north of the junction is the Wednesbury Tram Depot, the main servicing location for the Midland Metro.

4.14 Wednesbury itself is a major traffic generator, sporting a large bus station with connections across the West Midlands as well as being a sizable regional centre with a large Morrisons superstore and museums. Currently, the town is served by two tram stops on the Midland Metro, Wednesbury Parkway and Wednesbury Great Western Street, both of which are within 0.5km of the town centre.

4.15 The route descends a shallow incline onto the trackbed of the former South Staffordshire Railway line, which once operated through services from Stourbridge to Lichfield via Walsall and Dudley. The route was once a popular avoiding line for both freight and passenger services wishing to bypass congestion in central Birmingham, and though its intermediate stations were closed in 1964 when stopping passenger services ceased under the Beeching Act. Freight services currently operate along parts the line, although they ceased along the section of the line to be used for the metro in 1989.

4.16 South of Wednesbury, the route follows the course of the River Tame and the Walsall Canal. As mentioned, a majority of the trackbed remains intact along this section, including bridges across these waterways. The immediate vicinity of the route’s course primarily consists of industrial estates and retail parks, though a selection of new residential developments are planned to be constructed, primarily on brownfield sites that were former industrial areas that have been made redundant. The route also passes through the remains of Great Bridge North station, closed to passengers in 1964, its former site now partially covered by the Black Country New Road.
At Dudley Port, the route passes beneath the Wolverhampton to Birmingham mainline. The station is elevated and formerly consisted of a bi-level layout, with South Staffordshire line services calling at the low-level station, accessing the high-level station by way of a ramp and stairs. Dudley Port low-level station closed in 1964 but the trackwork and stairwells from the high-level station are still extant. The platforms, however, have been demolished and the former station forecourts are now occupied by a park and ride car park. Trains at Dudley Port consist of a half hourly service between Walsall and Wolverhampton via Birmingham New Street. The creation of a Tram/Train interchange at this location could possibly result in an increased frequency at this station in the future.

South of Dudley Port, the route continues through residential areas, passing to the north of the Coneygre Community Centre. Within this area there are multiple residential developments proposed to the north of the route, including a new housing development on the site of the former Dudley Guest Hospital. To the south multiple industrial and retail developments are also proposed, primarily to complement the existing Castlegate, a large leisure and business park, with eating venues, a cinema and Bowling Complex.

It then passes across the A4123 Birmingham New Road on a single-span steel bridge between two embankments.

Birmingham New Road to Dudley Bus Station

After crossing the A4123 Birmingham New Road, the line heads towards Dudley, crossing the A4037 Tipton Road and entering the site of the former Dudley Freightliner Terminal.

Once the busiest and among the most important container ports in the West Midlands, Dudley Freightliner Terminal opened in 1967 on the site of the former Dudley Town Station. The alignment of the terminal followed the route of the Dudley, Tipton and Wolverhampton railway to the north which closed in 1962, while the South Staffordshire Line followed a curve around to the northeast, passing under the A4037 and carrying on towards Wednesbury. The Terminal closed in 1989, with all equipment such as cranes being removed by the end of 1990. Today the site has been mostly repurposed as additional parking for both Dudley Zoo and the Black Country Living Museum.

Dudley Zoological Gardens opened in 1937 and is a 40-acre site that occupies parts of the grounds of Dudley Castle. It is among the largest and most popular zoos in the UK, with visitor numbers for the first half of 2016 to being 305,000. This was an 8% increase on 2015.

The Black Country Living Museum occupies a section of the former Dudley, Tipton and Wolverhampton Railway trackbed and was opened in 1975 to provide visitors with a glimpse back to a period when West Midlands manufacturing was at its peak circa 1900 to 1940. ‘Forging Ahead’ is the BCLM’s £21.7m, 10-year vision to create a world class heritage attraction in the heart of the Black Country, telling a unique story of worldwide significance to an estimated 500,000 people per year. The museum occupies 26-acres and consists of historical housing, industries, shops, as well as a working tramway and trolleybus system. Visitor numbers at the museum for the first half of 2016 were 295,889. This was an increase of 5% on 2015.

The Very Light Rail Innovation Centre and Test Track Project (VLR) is to be located on the Castle Hill site in Dudley. This £29 million scheme will support the development of the very light rail sector and potential growth of a new UK industry supplying domestic and international rail schemes. Its facilities will provide companies with a significant opportunity to develop new solutions predominately for very light rail. This is a well-regarded project
which has the support of a number of important national partners/employers including TFWM, Magmomatics, VivaRail, Woolley GMC, TDI, Big Bear Plastic Products Ltd, First Group plc, Arriva Rail North, Alstom and Siemens plc as well as national government (Department for Transport) with the result of bringing a number of key economic outcomes to the area including increased jobs, new businesses and improved skills. The metro scheme will assist employee and customer access to these facilities.

4.25 After crossing the A4037, the route climbs to street level and joins the A459 Castle Hill, where another stop, Station Drive, is proposed slightly north of the roadway so as not to disrupt traffic flow.

4.26 The route then climbs Castle Hill for 400m, running adjacent to the south wall of Dudley Castle, before turning left into Birmingham Street. Birmingham Street once provided through access from the north of the town centre to the south, but is now solely for the use of buses entering Dudley Bus Station.

4.27 Due to Dudley’s significance in the West Midlands as a major retail and cultural centre, the bus station has an extensive range of services across both the West Midlands and the rest of the UK, with National Express providing both suburban and regional bus services towards Birmingham, Wolverhampton, Walsall and Merry Hill, as well as InterCity services to Gatwick Airport, Blackpool and London Heathrow.

4.28 In addition to the construction of the Metro extension, Dudley Bus Station is intended to be rebuilt into a more functional interchange than what it is currently, though a final design as to how it will integrate the new Midland Metro and continue to retain its functionality has yet to be decided.

**Dudley Bus Station to Brierley Hill**

4.29 Upon departure from Dudley, the route crosses the B4171 Hall Street before running south down Flood Street towards the A461 Duncan Edwards Way. Before reaching the A461, the route takes a right turn and descends back down onto the South Staffordshire Railway Line just beyond the end of the disused Dudley Tunnel’s southern portal.

4.30 For approximately 2.6km, the route follows the existing trackbed of the South Staffordshire railway, passing through an extensive area of large industrial units separated into a variety of industrial parks. In this area, there are also a selection of future developments being considered, the largest of which is the Brierley Hill Enterprise Zone.

4.31 The Brierley Hill Enterprise Zone is a mixed development which consists of multiple sites across the Brierley Hill and Dudley areas. While specific concentration of the new or refurbished structures is destined to take place near Merry Hill, there is planned construction to the north at Kingswinford, and to the east on the banks of the Dudley Canal. According to the official proposal, the Enterprise Zone intends to cover a total of 70 hectares over a period of 25 years’ construction, being capable of supporting over 300 new businesses and offer 1.5million square feet of office space. The planned launch of the project is expected to be April 2017.

4.32 In addition, a Music Institute project will create a world-class higher education establishment at the Waterfront Business Park, Brierley Hill, Dudley, specialising in music. This will include the refurbishment of Cable Plaza, which has been unoccupied for six years, and building new student accommodation. The long-term aim is to create a music ‘village’ or ‘campus’ (similar in concept to SPARK Business Incubation Centre at the University of Wolverhampton
Business Park) with the institute at its heart; driving innovation, enterprise and research. This project will create a number of key economic outcomes for the area including, supporting the regeneration of Brierley Hill through increased footfall from the 600 students attending the music institute. Access to this Institute will be significantly improved through the implementation of the Brierley Hill Metro scheme, thus widening the potential catchment area.

4.33 After passing under the A4036 Pedmore Road, the route turns away from the South Staffordshire Line, and passes through the industrial estates of northeast Brierley Hill. After crossing the Dudley Canal on a new bridge, the route enters the existing Waterfront Business Park, running immediately past the front entrance to the main complex before joining Waterfront Way.

4.34 The Waterfront Business Park currently houses 35 businesses and consists of both high-quality office space and some retail space including shops and restaurants. It also has recreational use, its connection to the Dudley Canal being used to host a small marina for narrowboats, as well as some open public areas such as parks and plazas. The complex was constructed in the mid to late 1980s along with the Merry Hill Centre as a way of regenerating the economy of the local Brierley Hill area, being built on what were formerly steelworks.

4.35 Following Waterfront Way, the route then passes between the Dudley Canal and the Merry Hill parking area, crossing Level Street through the centre of the roundabout.

4.36 Merry Hill Shopping Centre is by far the largest traffic generator on the proposed network, and is among a small number of large shopping centres in the UK that has no direct connection to a railway. The centre was opened in 1985 on the site of the former Merry Hill steelworks, and consists of 54,002m² of retail space, mainly supported by large department stores such as Marks & Spencer, and Debenhams. Due to the centre’s significance and as a major traffic generator, Merry Hill also hosts a large bus station which provides frequent services across the West Midlands. There are plans being developed for a significant extension to the Merry Hill facility in the vicinity of the proposed Metro station.

4.37 After Merry Hill the Metro scheme diverges west to cross the Dudley Canal and enter its terminus at Brierley Hill, located 200 metres beyond the proposed bridge across the canal, and close to the High Street.

4.38 Brierley Hill is the main strategic centre for Dudley Borough and contains a range of retail and leisure facilities, as well as the local council offices and administration buildings. The High Street and surrounding area are proposed to be refurbished as part of an urban regeneration scheme to help make the High Street and central area more appealing to visitors, this includes, the construction of on-street cafes and restaurants, and the promotion of public transport alternatives such as the Metro extension to help reduce traffic from the town centre.

**Service Specification**

4.39 In order to maximise the direct economic benefits to the residents of Sandwell and Dudley in terms of access to employment, leisure and retail opportunities, the services using the Wednesbury to Brierley Hill route will have direct access all parts of the current/proposed Midland Metro system. The proposed service frequencies are shown in Table 4.1.
Table 4.1: Wednesbury to Brierley Hill – Service frequencies

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</thead>
<tbody>
<tr>
<td>AM Off-Peak</td>
<td>05:15</td>
<td>07:00</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>AM Peak</td>
<td>07:00</td>
<td>09:30</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Daytime Off-Peak</td>
<td>09:30</td>
<td>15:35</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>PM Peak</td>
<td>15:35</td>
<td>19:47</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>PM Off-Peak</td>
<td>19:47</td>
<td>23:59</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

4.40 The services will operate seven days a week and will mirror the time periods of the current Midland Metro system with trams running from around 5am to midnight on weekdays. This ensures the accessibility benefits of the scheme to local residents, employment areas and retail facilities are accessible throughout the majority of the week.

4.41 Journey times along the line have been optimised as much as possible to maximise the time benefits to passengers whilst ensuring that high levels of journey time reliability can be achieved. The end-to-end journey times for each of the proposed four current terminuses are as follows:

- Brierley Hill to Wolverhampton – 43 minutes
- Brierley Hill to East Side – 58 minutes
- Brierley Hill to Edgbaston – 66 minutes

4.42 The scheme will have a positive impact on congestion which is a major issue in the Black Country affecting both car and bus journey times. The unreliability of highway journey times coupled with high car parking prices currently act as barriers to employment for many residents of Sandwell and Dudley. The scheme is expected to provide a more reliable, higher quality mode of transport within the Black Country and between the Black Country and Birmingham and will provide an opportunity for residents to access employment using reliable mode of public transport. This will, in turn, reduce car usage and have a positive impact on air quality.

**Predicted Patronage**

4.43 The TfWM public transport model has been used to predict the change in Metro patronage as a result of the provision of the Wednesbury to Brierley Hill line and the additional services into Birmingham and Wolverhampton identified previously. The public transport demand used in the TfWM model was generated by running a full PRISM run.

4.44 The predicted additional patronage on the proposed Midland Metro system, as a result of the scheme, is around 4.91 million passengers per year in 2021 and 5.38 million passengers per year in 2031. This equates to an increase in patronage of 43% in 2021 and 44% increase in 2031.

4.45 The 2031 morning peak boardings and alightings for the extension line are shown in Figure 4.3. Approximately 60% of the passengers using the stops on the extension line use services between Brierley Hill and Birmingham. Around 40% of the passengers are expected to use
the Wolverhampton services, and of these passengers around 42% board or alight at Wolverhampton Interchange or Pipers Row.

4.46 The highest boardings and alightings are forecast to occur at Dudley Bus Station. As well as this stop being convenient for accessing Dudley Town Centre, this location is also a bus and metro interchange. The stop at Dudley Port is also forecast to be well utilised as it provides interchange between metro and rail and also has park and ride facilities.

4.47 Boardings and alightings at Merry Hill and Brierley Hill stops are also significant and the use of these stops is expected to be strengthened further by extra development planned in the local area, particularly on the Enterprise Zone site, at Merry Hill and within Brierley Hill that has not been included in the modelling as this is seen as ‘Dependant Development’.

4.48 Great Bridge and Horseley Road are forecast to be well utilised, however, some of these passengers are not new Metro passengers but existing metro users who switch from using a stop on Line 1 to either Great Bridge, Horseley Road or even Dudley Port.
Figure 4.3: Boardings and Alightings Along the Metro Extension (Morning Peak)
4.49 Figure 4.4 shows the impact of the new extension line on the boardings and alightings at stops along Line 1.

4.50 Stops in the Birmingham City Centre experience an increase in utilisation due to the new extension to Brierley Hill. In particular, boardings and alightings at Corporation Street, Upper Bull Street and Stephenson Street are expected to experience significant increases in passengers. These stops are adjacent to many offices, shops and retail centres within the city, as well as being within close proximity of Birmingham New Street, Snow Hill and Moor Street. Compared to the alternatives, the Brierley Hill metro extension is the fastest way of travelling between Dudley and Birmingham as it will be more frequent and direct than rail services and quicker than the current bus services.

4.51 Use of stops in Wolverhampton also increases for similar reasons. The increased utilisation of Pipers Row and Wolverhampton Interchange are most likely due to their proximity to major transport interchanges, traffic generators or other modes. Pipers Row is the new stop that will be built in the central retail area of Wolverhampton as part of the extension of the Midland Metro to Wolverhampton Interchange.

4.52 Outside of Wolverhampton and Birmingham, there is a notable increase at Wednesbury Great Western Street which is most likely due to its proximity to the new extension, and is likely to be the main boarding or alighting point for passengers wishing to travel between Wednesbury, Dudley, Merry Hill and Brierley Hill.

4.53 Figure 4.4 also shows a reduction in passengers using Wednesbury Parkway. As its name implies, this stop has a sizable Park & Ride facility serving Wednesbury, Wolverhampton and Birmingham, which makes it able to generate its own patronage for passengers changing from car to tram. Currently, the Wednesbury Parkway is the nearest Metro station for a majority of these regions, but with the addition of stops such as Great Bridge and Horseley Road, many passengers switch to alternative, closer stations rather than using Wednesbury Parkway.
Figure 4.4: Change in Boardings and Alightings on Metro Line 1 between Do Minimum and Do Something (Morning Peak)
S5. Black County Demographic

Summary

5.1 This section investigates the current demographics related to the population in the catchment area of the proposed Metro extension.

5.2 The Black Country is comprised of the Boroughs of Dudley, Sandwell, Walsall and the City of Wolverhampton. With an area of some 356 square kilometres, the Black Country forms the western part of the West Midlands Metropolitan Area, the largest conurbation outside London. The area is bordered by Birmingham to the east, Staffordshire to the north, Shropshire to the west and Worcestershire to the south.

5.3 The history of the region has made it one of the most important areas in the UK being at the core of the development and expansion of the Industrial Revolution. The decline of industry has left its mark, with the closure of mines and factories, over several decades, leading to an increase in social deprivation and unemployment. There is therefore a desire and an increasing need to improve connectivity in and around the Black Country to address the unemployment and deprivation challenges in the Black Country.

5.4 In addition to supporting a broad range of national and West Midlands objectives, the metro extension from Wednesbury to Brierley Hill is a crucial catalyst in fostering the economic growth of the Black Country and district centres of Dudley and Brierley Hill. It will enable the Black Country to achieve economic prosperity, attract businesses and increase opportunities for those on smaller incomes. The extension will improve accessibility to the employment opportunities in the wider West Midlands area ensuring the deprived areas that surround the line can access the job opportunities in these important and growing employment districts such as Birmingham city centre.

5.5 The areas of Sandwell and Dudley that are within 2km of the line will gain the most benefit from the Wednesbury to Brierley Hill Extension. These areas contain some of the most deprived residents in England who will benefit greatly from the improved connectivity and accessibility to a range of employment opportunities.
5.6 Since the Transport and Works Act Order for the Wednesbury to Brierley Hill Extension was authorised in 2005, there have been a range of significant changes in and around the Black Country that demonstrate the need for this route to be implemented. There are major plans for jobs and homes at the Brierley Hill Enterprise Zone and the Black Country Garden City, and with further potential for the region expected following the creation of improved connectivity (via the new Metro extension) to HS2, Birmingham Airport and UK Central.

Population

5.7 The 2011 census puts the population for the Black Country at 1,139,781. Table 5.1 summarises the main socio-economic characteristics of the Black Country, West Midlands Metropolitan Area, the West Midlands Region and England and Wales.

Table 5.1: Socio-Economic Characteristics (2011 Census)

<table>
<thead>
<tr>
<th>Population</th>
<th>Dudley</th>
<th>Sandwell</th>
<th>West Midlands</th>
<th>England and Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aged &lt;15</td>
<td>19.0%</td>
<td>21.5%</td>
<td>19.5%</td>
<td>18.9%</td>
</tr>
<tr>
<td>Aged 16 - 74</td>
<td>72.5%</td>
<td>71.3%</td>
<td>72.6%</td>
<td>73.3%</td>
</tr>
<tr>
<td>Total</td>
<td>68.6%</td>
<td>66.8%</td>
<td>68.3%</td>
<td>69.7%</td>
</tr>
<tr>
<td>Employed</td>
<td>60.7%</td>
<td>56.6%</td>
<td>59.9%</td>
<td>61.9%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>5.3%</td>
<td>7.3%</td>
<td>5.1%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Full Time Student</td>
<td>2.5%</td>
<td>2.9%</td>
<td>3.3%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Total</td>
<td>31.4%</td>
<td>33.2%</td>
<td>31.7%</td>
<td>30.3%</td>
</tr>
<tr>
<td>Retired</td>
<td>16.2%</td>
<td>13.0%</td>
<td>14.4%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Full Time Student</td>
<td>4.3%</td>
<td>5.3%</td>
<td>5.9%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Looking after home/family</td>
<td>4.6%</td>
<td>5.9%</td>
<td>4.6%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Economically Inactive</td>
<td>4.4%</td>
<td>5.8%</td>
<td>4.4%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Permanent Sick or Disabled</td>
<td>31.4%</td>
<td>33.2%</td>
<td>31.7%</td>
<td>30.3%</td>
</tr>
<tr>
<td>Other</td>
<td>35.9%</td>
<td>38.9%</td>
<td>32.4%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Aged 16 and Over Low or No Qualifications</td>
<td>19.1%</td>
<td>17.8%</td>
<td>23.1%</td>
<td>26.7%</td>
</tr>
<tr>
<td>Aged 16 and Over with Degree or Equivalent</td>
<td>23.5%</td>
<td>7.7%</td>
<td>11.7%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Managerial or professional</td>
<td>37.4%</td>
<td>34.1%</td>
<td>34.7%</td>
<td>35.6%</td>
</tr>
<tr>
<td>Intermediate or Technical</td>
<td>39.1%</td>
<td>47.4%</td>
<td>39.4%</td>
<td>36.2%</td>
</tr>
</tbody>
</table>

5.8 At the time of the 2011 census, both Dudley and Sandwell had unemployment levels significantly above the national average and slightly above the West Midlands average.

5.9 Sandwell has the lowest percentage of residents employed in a managerial or professional capacity in the West Midlands which is well below the West Midlands regional and UK national levels. In contrast, the proportion of those employed in a managerial or professional capacity in Dudley exceeds both the West Midlands and UK national levels. This is due to Dudley borough including more affluent neighbourhoods such as Kingswinsford. Both Sandwell and Dudley have high levels of employees in lower grade jobs.

5.10 With the provision of a high quality, reliable public transport connection to Birmingham and Wolverhampton from these districts, residents will be able to access a broader range of employment opportunities throughout the West Midlands, with the result of reductions in
unemployment and also opportunities for advancement into more skilled professions that exist outside the immediate area.

5.11 Sandwell has the highest percentage of population with no or low qualifications at 38.9%, while Dudley has an equivalent figure of 35.9%. These are higher than both the West Midlands and UK national averages.

5.12 There are a large number of universities and higher education establishments in Birmingham and Wolverhampton City Centres that will become more accessible to residents in these areas as a result of the Metro scheme, making higher education a more viable opportunity for potential students in the area. This will result in a more qualified population with a greater chance of employment in more skilled and lucrative careers.

**Deprivation**

5.13 The Indices of Deprivation 2015⁴ provide a set of relative measures of deprivation for small areas (Lower-layer Super Output Areas) across England. This is based on seven domains of deprivation which are combined to produce the overall Index of Multiple Deprivation:

- Income Deprivation
- Employment Deprivation
- Education, Skills and Training Deprivation
- Health Deprivation and Disability
- Crime
- Barriers to Housing and Services
- Living Environment Deprivation

5.14 Figure 5.1 shows IMD deciles for each LSOA within Sandwell and Dudley. The deciles are calculated by ranking all of the LSOAs in England from most deprived to least deprived and dividing them into 10 equal groups. The LSOAs in decile 1 fall within the most deprived 10% of LSOAs nationally and LSOAs in decile 10 fall within the least deprived 10% of LSOAs nationally.

5.15 A total of 345 LSOAs fall within 10% of the most deprived areas in England. 329 of these LSOAs are within Sandwell and 16 are within Dudley.

---

Figure 5.1: Indices of Multiple Deprivation Deciles (2015) for the LSOAs Black Country
5.16 The LSOAs within Sandwell and Dudley that are most impacted by the proposed scheme and have the largest proportion of areas that fall within the 10% most deprived areas within the UK include:

- Tipton Green;
- Great Bridge;
- Wednesbury South;
- Brierley Hill;
- Netherton, Woodside and St. Andrews;
- St James’; and
- St Thomas’.

5.17 Whilst there are a number of attractive and popular housing areas within the Black Country, there are areas which are dominated with low priced private housing and large areas of social rented housing stock. Some 5.1% of the total dwelling stock is classed as unfit and 20% of Black Country communities are in the 10% most deprived in the country.\(^5\)

5.18 The results shown in Table 5.2 compare the Index of Multiple Deprivation between the West Midlands Metropolitan Area and the LSOAs (Lower Layer Super Output Areas) which predominantly fall inside the 2km buffer of the Brierley Hill Metro extension.\(^6\)

<table>
<thead>
<tr>
<th>IMD</th>
<th>% within West Mids Met Area</th>
<th>% within 2km Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29%</td>
<td>23%</td>
</tr>
<tr>
<td>2</td>
<td>20%</td>
<td>32%</td>
</tr>
<tr>
<td>3</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>4</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>5</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>6</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>7</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>8</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>9</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>10</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>

5.19 Over 55% of the LSOAs within the 2km buffer of the proposed metro line are amongst the top 20% of the most deprived areas in England, much higher than the proportion within West Midlands Metropolitan area as a whole. The proportion of LSOAs within the top 30% of most affluent areas within England is substantially lower, just 7%, compared to the rest of the West Midlands Metropolitan area, of which almost 11% are within the top 30%.

5.20 The main aim of the Wednesbury to Brierley Hill metro scheme is to improve the prosperity of the residents within the catchment of the route through improved connectivity to the wider West Midlands and beyond.

5.21 The scheme will also encourage further investment into the area through regeneration and development of former industrial areas for new housing, employment and retail facilities through improved access to areas where development has been constrained for a number of years, partly due to their poor accessibility by public transport and a very congested highway.


\(^6\) Department for Communities and Local Government – English Indices of Deprivation 2015
network. This will improve the housing stock and opportunities for existing residents and will also encourage additional people to come into the area.

**Unemployment and Income**

5.22 The Office for National Statistics (ONS) estimates the population of the West Midlands Metropolitan Area at 2.8 million, of which, using a model based estimate for April 2015 to March 2016, approximately 8.1% are unemployed. The figures for the local authorities within the West Midlands Metropolitan Area are displayed in Table 5.3 below.

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Population</th>
<th>Unemployed Population</th>
<th>Unemployment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>1,101,360</td>
<td>105,730</td>
<td>9.6</td>
</tr>
<tr>
<td>Coventry</td>
<td>337,428</td>
<td>19,908</td>
<td>5.9</td>
</tr>
<tr>
<td>Dudley</td>
<td>315,799</td>
<td>21,474</td>
<td>6.8</td>
</tr>
<tr>
<td>Sandwell</td>
<td>316,719</td>
<td>24,387</td>
<td>7.7</td>
</tr>
<tr>
<td>Solihull</td>
<td>209,890</td>
<td>9,654</td>
<td>4.6</td>
</tr>
<tr>
<td>Walsall</td>
<td>274,173</td>
<td>20,563</td>
<td>7.5</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>252,987</td>
<td>25,298</td>
<td>10.0</td>
</tr>
<tr>
<td>West Midlands</td>
<td>2,808,356</td>
<td>227,017</td>
<td>8.1%</td>
</tr>
</tbody>
</table>

5.23 With an equivalent estimated national unemployment rate of 4.9%, it is clear to see that the West Midlands Metropolitan Area is significantly higher; 1.65 times the national rate. The main areas, Dudley and Sandwell (within which the Brierley Metro extension will be situated), also have unemployment rates significantly above the nation average at 6.8% and 7.7% respectively. Wolverhampton, which will also benefit from the Brierley Hill Metro extension has the highest unemployment rate in the area at 10%.

5.24 As shown in Table 5, the Office for National Statistics (2015) estimates that the average annual income for the West Midlands Metropolitan Area is around £23,750. This is almost £2,000 below the national average, which stands at £25,700. Table 5.4 shows a breakdown of the average annual income for each local authority within the area.

<table>
<thead>
<tr>
<th>Area</th>
<th>Average Weekly Income (£’s)</th>
<th>Average Annual Income (£’s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>434.50</td>
<td>26,098.80</td>
</tr>
<tr>
<td>Coventry</td>
<td>426.20</td>
<td>25,558.00</td>
</tr>
<tr>
<td>Dudley</td>
<td>350.90</td>
<td>22,053.20</td>
</tr>
<tr>
<td>Sandwell</td>
<td>367.60</td>
<td>21,824.40</td>
</tr>
<tr>
<td>Solihull</td>
<td>440.20</td>
<td>26,884.00</td>
</tr>
<tr>
<td>Walsall</td>
<td>353.40</td>
<td>21,699.60</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>355.60</td>
<td>22,172.80</td>
</tr>
<tr>
<td>West Mids Met Area</td>
<td>456.80</td>
<td>23,755.83</td>
</tr>
</tbody>
</table>
Dudley and Sandwell, which are likely to benefit most from the Brierley Hill Metro Extension, both have an average annual income far less than both the National and West Midlands Metropolitan Area, and are amongst the worst affected areas within this region. The increased connectivity will also benefit Wolverhampton; whose average income also falls significantly below the National average and that of the area.

As indicated previously, the provision of a high quality, reliable public transport connection to Birmingham from these areas will allow residents to access a broader range of employment opportunities throughout the West Midlands, resulting in unemployment reductions whilst also providing opportunities for advancement into more skilled professions that exist outside the immediate area. This, along with the increased levels of education that will also result from the improved connectivity provided by the scheme, will also result in increased average salaries and economic prosperity for the area.

**Work Locations**

In order to understand the importance of increasing connectivity within the West Midlands Metropolitan Area, the 2011 Census data, below, summarises the commuting distribution of the working population living in each local authority.

**Table 5.5: Commuting Destinations for local authority residents (%)**

<table>
<thead>
<tr>
<th>Place of Work</th>
<th>Birmingham</th>
<th>Coventry</th>
<th>Dudley</th>
<th>Sandwell</th>
<th>Solihull</th>
<th>Walsall</th>
<th>Wolverhampton</th>
<th>Outside West Mids Met Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>71.85</td>
<td>1.29</td>
<td>1.27</td>
<td>3.82</td>
<td>7.41</td>
<td>1.64</td>
<td>0.77</td>
<td>11.95</td>
</tr>
<tr>
<td>Coventry</td>
<td>3.78</td>
<td>66.54</td>
<td>0.13</td>
<td>0.24</td>
<td>2.60</td>
<td>0.17</td>
<td>0.13</td>
<td>26.41</td>
</tr>
<tr>
<td>Dudley</td>
<td>11.60</td>
<td>0.36</td>
<td>52.62</td>
<td>13.93</td>
<td>0.89</td>
<td>2.18</td>
<td>6.40</td>
<td>12.03</td>
</tr>
<tr>
<td>Sandwell</td>
<td>25.09</td>
<td>0.50</td>
<td>10.49</td>
<td>44.93</td>
<td>1.35</td>
<td>6.11</td>
<td>3.38</td>
<td>8.15</td>
</tr>
<tr>
<td>Solihull</td>
<td>36.23</td>
<td>4.49</td>
<td>0.51</td>
<td>1.12</td>
<td>39.49</td>
<td>0.57</td>
<td>0.36</td>
<td>17.23</td>
</tr>
<tr>
<td>Walsall</td>
<td>16.68</td>
<td>0.43</td>
<td>1.93</td>
<td>9.03</td>
<td>1.01</td>
<td>49.11</td>
<td>8.01</td>
<td>13.81</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>6.50</td>
<td>0.31</td>
<td>5.84</td>
<td>6.82</td>
<td>0.55</td>
<td>8.95</td>
<td>54.93</td>
<td>16.11</td>
</tr>
<tr>
<td>Outside West Mids Met Area</td>
<td>0.27</td>
<td>0.16</td>
<td>0.06</td>
<td>0.05</td>
<td>0.07</td>
<td>0.07</td>
<td>0.09</td>
<td>0.09</td>
</tr>
</tbody>
</table>

For Dudley and Sandwell, almost 88% and 92% respectively, of the working population commute within the West Midlands Metropolitan Area. Specifically, 53% and 45% of employed residents within Dudley and Sandwell have jobs within their local areas. Over a quarter of the working population living in Sandwell commute into Birmingham, as well as over 10% of residents commuting between Sandwell and Dudley.

Therefore, the increased connectivity across the area created by the metro scheme would benefit a large proportion of the working population by expanding their workplace catchment to areas served by the Metro, such as Birmingham and Wolverhampton, and other areas through interchange with the national and local rail network within these cities.

Table 5.6 looks at the split of the working population that are arriving at the various local authorities within the West Midlands Metropolitan areas, as well as the rest of the UK.

**Table 5.6: Residential Locations of employees with employment within the local authority areas (%)**

<table>
<thead>
<tr>
<th>Place of Work</th>
<th>Birmingham</th>
<th>Coventry</th>
<th>Dudley</th>
<th>Sandwell</th>
<th>Solihull</th>
<th>Walsall</th>
<th>Wolverhampton</th>
<th>Outside West Mids Met Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>60.70</td>
<td>3.55</td>
<td>4.43</td>
<td>12.52</td>
<td>31.70</td>
<td>6.60</td>
<td>2.94</td>
<td>0.17</td>
</tr>
<tr>
<td>Coventry</td>
<td>1.06</td>
<td>60.87</td>
<td>0.15</td>
<td>0.26</td>
<td>3.68</td>
<td>0.23</td>
<td>0.16</td>
<td>0.12</td>
</tr>
</tbody>
</table>
### Place of Work | Birmingham | Coventry | Dudley | Sandwell | Solihull | Walsall | Wolverhampton | Outside West Mids Met Area
---|---|---|---|---|---|---|---|---
Dudley | 3.32 | 0.34 | 62.16 | 15.47 | 1.29 | 2.96 | 8.27 | 0.06
Sandwell | 6.64 | 0.43 | 11.44 | 46.12 | 1.81 | 7.69 | 4.03 | 0.04
Solihull | 6.96 | 2.82 | 0.40 | 8.3 | 38.45 | 0.52 | 0.31 | 0.06
Walsall | 3.79 | 0.32 | 1.81 | 3.96 | 1.16 | 53.03 | 8.21 | 0.05
Wolverhampton | 1.38 | 0.21 | 5.12 | 5.62 | 0.59 | 9.04 | 52.65 | 0.06
Outside West Mids Met Area | 16.15 | 31.45 | 14.49 | 11.21 | 21.32 | 19.93 | 23.43 | 0.06

5.32 The regions around the Brierley Hill Metro extension receive 38% and 54%, respectively, of their employees from outside of their local authority. The majority of the working population within the West Midlands Metropolitan area both live and work within the same area. Both Dudley and Sandwell receive over a tenth of their workforce from each other. These high proportions of employees commuting within close proximity of the Brierley Hill Metro extension would benefit from such a service, increasing the use of sustainable transport methods.
S6. Economic Prosperity and Growth

Overview

6.1 There are a wide range of key issues the Black Country currently faces or will face in the future in regards to socio-economic difficulties, they include:

- Growth in population;
- Decline in traditional industrial manufacturing jobs;
- Poor skill base and academic qualifications of resident population;
- Areas of deprivation; and,
- Poor access to employment areas.

6.2 This section identifies the connection between the Wednesbury to Brierley Hill metro extension and planning policy and documentation. The metro scheme is named as a key infrastructure in several local planning documents, and is viewed as central to economic prosperity and growth within the Black Country and West Midlands.

Relevant Planning Documentation

6.3 Consultation, planning and policy documents produced by West Midlands Combined Authority, Dudley Metropolitan Borough Council and Sandwell Metropolitan Borough Council highlight the importance of major employment and residential developments being highly accessible by rapid transit in order to maximise the accessibility of the sites.

6.4 Effective integration with transport is invaluable to ensure that development and regeneration sites deliver economic and social benefits for the West Midlands region, and support the wider proposals set out by the local authorities and the Black Country LEP.

6.5 The proposed Midland Metro extension between Wednesbury and Brierley Hill via Dudley Town Centre will be the linchpin to enable economic growth for the area to be realised. The metro extension supports a broad range of policies including national objectives, regional and sub-regional strategic visions and local district centre aspirations.
The **Midlands Engine for Growth Prospectus** aims to respond to the Government ambitions that the Midlands economy could grow by £34 billion by 2030 and create a further 300,000 jobs by the end of this parliament.

Midlands Engine sets out the importance of connectivity “[connectivity] across the Midlands is essential for supporting and attracting businesses as well as highly skilled workers. Midlands Connect will develop the vision for our regional connectivity and set out the long-term transport strategy for the Midlands Engine”.

In addition, **Movement for Growth: The West Midlands Strategic Transport Plan** sets out the long term aims to provide guidance for future improvements to the wider transport network in the region over a twenty-year period. Within this plan Midland Metro is recognised as a key aspect of an integrated Rapid Transit Network, and future expansion along the Wednesbury to Brierley Hill corridor is identified as part of a long-term metropolitan rail and rapid transit network.

‘Movement for Growth’ outlines five key challenges that the West Midlands faces, each of which an excellent transport system is part of the solution. Improved transport is expected to:

- Support economic and population growth by linking ‘jobs and people’ and ‘products and markets’;
- Meet the challenges of capacity and congestion that greater demand for movement brings;
- Reduce the environmental impacts from transport;
- Improve people’s health through the encouragement of more active lifestyles; and,
- Improve social well-being and raising the standard of living by way of improving access to leisure and essential services.

Specific to the Black Country, the **Black Country Local Enterprise Partnership - Strategic Economic Plan (SEP)** highlights the strategic employment land across the region (including the land in the Brierley Hill EZ). It notes that Business Services and manufacturing are key to the five transformational sectors in the strategy to deliver growth. The strategy aims to create 113,000 jobs and £16.5bn of GVA by 2033.

Furthermore, the combined **Black Country Core Strategy (BCCS)**, which incorporates the four local planning authorities of Dudley, Sandwell, Walsall and Wolverhampton, aims to develop and respond to specific Black Country challenges and opportunities and sets out their aspirations within the Core Strategy. The overall vision has three themes:

- **Creating Sustainable Communities** through regeneration orientated to high quality community provision, taking into account specific requirements for transport, healthy living and affordable housing;
- **Delivering Environmental Transformation** by providing “…high quality, liveable and distinctive places...” within both the natural and built environment, enhancing the Black Country’s diverse and historic heritage; and
- **Providing Economic Prosperity** by becoming attractive to new investment, businesses and promoting urban regeneration to support the local economy.

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9 Dudley MBC, Sandwell MBC, Wolverhampton City Council, Wallsall Council, Black Country Core Strategy, 2011
6.12 The BCCS designated Brierley Hill as Dudley Borough’s Strategic Centre that will “bring together a powerful combination, with the adjacent Merry Hill shopping centre, to give work and retail opportunities connected via the new Metro to local district centres, housing and leisure opportunities”.

6.13 The extension will improve access to the employment opportunities in the wider West Midlands area, ensuring the deprived areas that surround the line can access the job opportunities in these important and growing employment districts such as Birmingham city centre.

Local Regeneration

6.14 The introduction of the Wednesbury to Brierley Hill extension is crucial for local regeneration of existing and new sites and in the “unlocking” of potential development sites. This extra development and regeneration will enable further growth and job creation.

6.15 Figure 6.1 illustrates the indicative location of the major regeneration and development areas within 2km of the proposed scheme.

6.16 As illustrated within Figure 6.1, a majority of largest developments within the immediate vicinity of the extension line consist of industrial and retail proposals such as the Brierley Hill Business and Innovation Enterprise Zone, as well as the various future retail schemes in the region of Merry Hill. There are, however, some large residential developments on brownfield sites to the north and southeast of Dudley on the New Birmingham Road corridor.

6.17 The main initiatives and sites that the Wednesbury to Brierley Hill extension will support by improving connectivity within the Black Country and to/from the wider West Midlands are discussed in detail below.
Figure 6.1: Regeneration Areas

[Map showing regeneration areas with various markers and labels for different locations and sites.]
Supporting the Brierley Hill Business and Innovation Enterprise Zone (EZ)

6.18 The Brierley Hill Business and Innovation EZ application was submitted to the Department for Communities and Local Government in July 2016. It reflects the strategic aims of the Black Country Local Enterprise Partnership (LEP) to “grow the regional global supply chain with the world class skills it demands, to maximise the benefits of the central location in the UK, to exploit the industrial and geological heritage and to provide high quality housing to meet the needs of a balanced growing population”.

6.19 The application states that whilst the local economy has real strength in manufacturing and has historically had a thriving business sector at Brierley Hill the economy has subsequently gone into decline. The local objective of the Enterprise Zone is therefore to “rebalance the economy of Dudley Metropolitan Borough by regenerating the lost business sector supported by the surrounding manufacturing base”.

6.20 The 70 Ha Enterprise Zone will deliver:
- Reoccupation of 18,000 m² of vacant office;
- 110,000 m² of new office space;
- 36,000 m² of new technology space; and
- 65,000 m² of new industrial space.

6.21 It is expected that this will create:
- Up to 7,000 net new jobs;
- An estimated 373 new businesses;
- GVA Uplift of £589.7m per annum; and
- £165m in business rates uplift over 25 years.

6.22 The Enterprise Zone strategy recognises that the Dudley MBC area has a high proportion of the workforce engaged in manufacturing; 14.8% compared to a national average of only 8.5%. It also builds on this long held historic manufacturing advantage and will focus the existing vacant office space to house the technical knowhow and central office function for the region. Links would be forged with engineering and construction technology centres of excellence at Dudley College, the Very Light Rail Innovation Centre (in Dudley) and wider regional links to Birmingham and Wolverhampton University.

6.23 The Enterprise Zone evidence base states that the agglomeration benefits relate “…to the proposal of significantly increasing the density of businesses and employment in the designated area…” and “… by releasing a significant area of land with unrealised development potential for high density and high value employment uses, particularly (but not exclusively) focused on business, technology and advanced manufacturing uses, allied with some ancillary leisure development…Moreover, the potential for agglomeration benefits will be enhanced by the proposed Metro connection to Birmingham City Centre”.

6.24 The Metro Extension is seen as a critical element to the success of the Enterprise Zone in order to provide access to the Enterprise Zone. The application argues that “The uplift in the business rates gap funds the borrowing needed to make this strategic transport link happen. Without this link, the future potential of a large amount of new office floor space would be less accessible and reduce demand”.

6.25 The Wednesbury to Brierley Hill Metro Extension is therefore considered to be the essential infrastructure requirement to connect the EZ with other major conurbations and key sites including; IS4, HS2, Birmingham International Airport and Birmingham City Centre; and locally to connect the new Black County Garden to the EZ.
6.26 The metro extension is seen as the key regional infrastructure which is required to connect employment growth to housing growth in the Black Country. It will also ensure a new form of environmentally friendly transport connecting north to south, including the leisure opportunities in Merry Hill and Dudley, and result in CO2 savings.

6.27 The Metro extension not being achieved is identified as the number one risk for the Enterprise Zone. This would create a funding gap that would need to be closed with the business rates.

Supporting the Merry Hill Masterplan

6.28 The Merry Hill Masterplan is still being developed by the site’s owners, Intu, and is expected to be available in 2017. The scale of investment and change expected at Merry Hill and the Waterfront is significant.

6.29 In June 2016, the WMCA published an “Investment Prospectus” that sets out details for major development changes across the region, including Brierley Hill/Merry Hill/Waterfront. It states:

“By 2026, Brierley Hill will be a vibrant, inclusive and accessible strategic town centre embracing sustainable urban living, providing superb shops and office, leisure and cultural facilities. As the location of the Merry Hill Shopping Centre, Waterfront offices, as well as a traditional High Street, investment, infrastructure and development will create a new urban townscape.”

6.30 As a sub-regional shopping and employment centre, the growth of Brierley Hill will contribute to the wider regeneration of the area and has the potential to deliver 3,000 homes and over 300,000 sqm of commercial opportunities through:

- Creating a fully integrated and accessible Centre by connecting Merry Hill, Brierley Hill High Street and the Waterfront triangle;
- Enhancing sustainable transport options to improve access for everyone. Provision of bus services can be enhanced and Rapid Transit delivered into the Centre to reduce car dependency;
- Delivering retail and office growth in suitable locations to support regeneration and create job opportunities;
- Providing new homes that are high in quality, in a range of types and tenures, and integrated with employment, leisure and open spaces to create a pleasant and safe environment;
- Supporting growth with a range of leisure and community facilities, including new uses at the Waterfront Offices Park, designed to respect the past and reach into the future, with high quality, distinctive and truly diverse design solutions that focus upon ‘people’ and ‘place’; and
- Enhancements to the overall environment in Brierley Hill to provide open spaces and enhance pedestrian and cycling movement.

6.31 The Wednesbury to Brierley Hill Metro scheme will directly influence the opportunities identified as part of the formation of the masterplan for Merry Hill, with the scheme providing a quick and effective mode of sustainable transport, limiting the requirement for car use from around the region to Merry Hill and the Waterfront.
Supporting the Black Country Garden City Prospectus (2016)

6.32 The **Black Country Garden City Prospectus**\(^{10}\) has been produced in partnership between the Black Country LEP, local authorities and the Homes and Communities Agency. The document states that they “are working together to create new aspirational locations for quality housing development”.

6.33 The Prospectus states there is potential for 45,000 new homes over a 10-year period and has the potential to lever £6 billion investment.

6.34 They intend for the Black Country Garden City developments to be attractive places to live which will connect into existing communities and infrastructure. The key principles of the Black Country Garden City are:

- Great connectivity by car, public transport, cycling and walking;
- Mixed density, mixed use, mixed tenure neighbourhoods;
- Green streets and easy access to green space;
- Space for enterprise and the creative industries;
- Chances for local people to get involved in managing their communities; and
- Making the best use of heritage assets like the fantastic canal network.

6.35 One of the key development locations is at Dudley Port, close to the interchange between the local rail network and the Metro Extension. This area “is a highly connected and central transport hub within the region with immense development potential”.

6.36 The development of new homes requires new transport infrastructure. The metro extension is expected to improve public transport connectivity, enabling people to travel from Sandwell and Dudley to Wolverhampton and Birmingham. Furthermore, as Dudley Port has been identified as being a key area of development the future metro and national rail interchange is important to assist in limiting the requirement of car use and providing a truly sustainable mode of transport for the region.

Supporting the Brierley Hill Area Action Plans (AAP)

6.37 The **Brierley Hill Area Action Plan**\(^{11}\) was adopted August 2011 and is the framework for developing regeneration within Brierley Hill. It seeks to make Brierley Hill a vibrant, inclusive and accessible town centre by growing its reputation of importance to local employment and retail. It also seeks to improve the connectivity of the town to Merry Hill and the Waterfront. The core objectives include:

- To promote sustainability;
- To enhance the built and natural environment; and
- To support the integration of a high quality public transport system and alternative modes of transportation.

6.38 The Brierley Hill Economic Impact Study (produced by Hunt Dobson for the Brierley Hill Regeneration Partnership) estimated that regeneration at Brierley Hill could provide 10,000 new jobs of which some 60% would be taken by Dudley residents. This study was followed later by 'The Economic Impact of the Expansion of Brierley Hill/Merry Hill' for the Black Country Consortium. This study concluded that, based on the proposals of the Brierley Hill

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\(^{10}\) Black Country LEP, Black Country Garden City Prospectus, 2015, [http://www.blackcountrylep.co.uk/regional-growth/black-country-garden-city/](http://www.blackcountrylep.co.uk/regional-growth/black-country-garden-city/)

Masterplan, there would be an estimated growth of 16,000 gross jobs by 2031, of which 80% would be in office employment.

6.39 This latter study estimated that, based on current employment and travel to work patterns, some 60-80% of the workers filling the jobs are likely to come from the Dudley area and, overall, some 90% from the whole of the Black Country.

6.40 The extension of the metro is therefore a crucial infrastructure scheme which would facilitate growth in Brierley Hill. It will provide a sustainable link between Brierley Hill and the rest of the Black Country, including a new direct transport link to Wolverhampton and Birmingham City Centre.

6.41 The Brierley Hill AAP also states that the proposed metro route will be safeguarded from any development, ensuring the current proposed alignment will remain, as identified within Policy 50 – Rapid Transit.

Supporting the Dudley Area Action Plans (AAP)

6.42 The Dudley Area Action Plan\(^{12}\) was adopted in October 2015 and seeks to enhance the environmental and historic quality, green infrastructure, transport connectivity and accessibility of all the town centre activities and assess. It outlines measurable objectives to assist in the preparation and implementation of the strategy and to monitor subsequent achievements, including:

- Achieving economic prosperity;
- Maintaining a high quality built, historic and natural environment; and
- Developing and ensuring social inclusion.

6.43 The Dudley AAP’s core vision focuses on transport connectivity and accessibility of the town centre. As part of the metro scheme, proposals are in place to remodel Dudley Bus Station in order to incorporate an integrated transport interchange linking Dudley Town Centre to Brierley Hill, Wolverhampton and Birmingham City Centres, thereby aligning itself with Policy 25 – Access and Movement.

6.44 Furthermore, directly referencing the metro scheme, Policy 27 – Public Transport states that the route of the Brierley Hill Extension will be safeguarded, thereby protecting the route from any development which might occur before it is completed.

6.45 One of the main scheme objectives is to improve and enhance the physical environment, leading itself to support the objective to maintain a historic environment within Dudley. The construction of a new, modern transport interchange in the centre of Dudley would further support this objective.

Supporting the WMCA Strategic Economic Plan

6.46 The Strategic Economic Plan (SEP) sets out the vision, objectives, strategy and actions to improve the quality of life of everyone who lives and works in the West Midlands. It recognises that a stronger West Midlands is not just good for its residents and businesses but also for the wider UK economy.

6.47 Devolution and the creation of the West Midlands Combined Authority (WMCA) will provide the area with a once in a lifetime opportunity for transformation, and to focus on the issues

that matter most to residents. The SEP sets out the context for the devolution agreement and explains how new powers and resources will deliver an ambitious vision for the region in 2030.

6.48 That vision will see the area become home to the biggest concentrations of advanced manufacturing in Europe.

6.49 The region’s economy, already home to hundreds of globally competitive businesses, provides a strong foundation for growth, along with a wealth of universities, science parks and research institutes, and supported by high quality rail, road and air links which will be strengthened by development of Birmingham Airport and the arrival of HS2.

6.50 As a key element of the transport investment that is proposed to deliver the Strategic Economic Plan, the Wednesbury to Brierley Hill Extension is core to ensuring that this vision is realised by the residents of Sandwell and Dudley by providing enhanced accessibility to the area, as well as linkages to HS2.
S7. Transport

Summary

7.1 Public Transport within the Black Country is a key constraint. With no existing direct rail link from Brierley Hill or Dudley, bus and car usage is higher than the national average. With this high proportion of car usage, congestion is a major issue. Previous sections have highlighted that a large proportion of residents living in Sandwell and Dudley work locally, either in the Black Country or Birmingham. The scheme is expected to provide a more reliable, higher quality mode of transport within the Black Country and between the Black Country and Birmingham. This will improve accessibility and journey time reliability to major centres such as Wolverhampton and Birmingham City Centre. This in turn will reduce car usage and improve congestion.

7.2 While the local rail network has seen an increase in passenger journeys of 134% over the last 10 years, this important part of the Black Country has not realised those benefits. The recent extension of Metro into Birmingham City Centre has increased passenger demand, with July 2016 seeing the highest passenger usage in Metro Line 1’s history; a 31% increase in patronage being observed when compared to the previous year. This results in the current system carrying over 7 million passenger per annum.

National Policy and Regional Policy

7.3 There are two key national policy documents which guide regional, sub regional and local policy;

- The National Planning Policy Framework 2012; and

7.4 An overview of each of these key documents is provided below.

National Planning Policy Framework

7.5 Resulting in the abolition of Planning Policy Guidance and Planning Policy Statements by the then Coalition Government the National Planning Policy Framework (NPPF) was published by the DfT in March 2012, the core objectives of which were to set out the Government’s planning policies for England and how these are expected to be applied. The guidance “…provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans...”. 
7.6 The overall theme of the guidance is sustainability and development, and balancing growth by ensuring the environment is protected for future generations. It incorporates 13 specific themes to achieve sustainable development in England, including economic growth, sustainable development both in terms of transport and residential, and enhancing the environment including the built and natural landscapes.

7.7 Although the NPPF does not state specific policies that relate directly to the development of transport infrastructure, rather a framework for local authorities to work from when creating local plans, the Brierley Hill Metro extension aligns itself closely towards supporting reductions in greenhouse gases and considering the needs of people with disabilities. The newly introduced electric CAF Urbos 3 trams are designed with disability in mind and have low floor access throughout, working in connection with the step free access at the platforms.

**National Infrastructure Plan 2016**

7.8 The National Infrastructure Delivery Plan 2016-2021 is produced by Infrastructure UK, a government organisation and part of HM Treasury with specific focus on infrastructure planning, financing and delivery.

7.9 It sets out an ambitious infrastructure vision for the future and focuses on specific UK infrastructure including; Roads, Rail, Aviation, Ports, Energy, Communications, Water, Waste and Science and Research. It also sets out how infrastructure will be financed and delivered, with the overall aim to assist in long-term economic growth of the UK.

7.10 The plan “outlines details of $483 billion of investment in over 600 infrastructure projects and programmes in all sections...” across the UK.

7.11 This plan is mainly focused on national infrastructure developments such as HS2, Crossrail and major road schemes. Its influence to regional, sub-regional and local policy is minimal unless HS2 directly effects future development or the delivery of other localised transport schemes.

7.12 Although the NIP does not specifically relate to the proposed scheme, it does state its support and investment for HS2. The Wednesbury to Brierley Hill extension is an important element to connect residents in Sandwell and Dudley to Birmingham’s HS2 station in Birmingham City Centre, and, in the future, Birmingham International Airport.

**West Midlands Strategic Transport Plan**

7.13 The West Midlands Combined Authority (WMCA), the regional scale of governance, is comprised of seven constituent authorities: Birmingham, Wolverhampton and Coventry City Councils, Dudley and Sandwell Metropolitan Borough Councils, and Walsall Council. In addition, it includes Cannock Chase District Council, Nuneaton and Bedworth, Redditch, Tamworth Borough Councils and Telford & Wrekin Council.

7.14 The Combined Authority also covers the geographical areas of the Black Country LEP, Coventry and Warwickshire LEP and Greater Birmingham & Solihull LEP.

7.15 The overarching regional policy document in the West Midlands is Movement for Growth: The West Midlands Strategic Transport Plan. This document forms the basis of the future aspirations and requirements set out by the WMCA.

7.16 The strategic transport plan sets out the long term aims to provide guidance for future improvements to the wider transport network in the region over a twenty-year period. The

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13 Infrastructure UK, National Infrastructure Delivery Plan, 2016,
plan identifies five key challenges whereby it states “...an excellent transport system is an essential part of the solution.”\(^4\) and include:

- Economic Growth and Economic Inclusion;
- Population Growth and Housing Development;
- Environment;
- Public Health; and
- Social Well-Being.

7.17 The leaders of the WMCA have set out the following vision for Transport:

“We will make great progress for a Midlands economic ‘Engine for Growth’, clean air, improved health and quality of life for the people of the West Midlands. We will do this by creating a transport system befitting a sustainable, attractive and economically vibrant conurbation in the world’s sixth largest economy”

7.18 To support the vision the key aims of Movement for Growth include:

- Improve access to the core centres of the region and to HS2;
- Reduce transport emissions and the general impact on the local environment;
- Improve town centres and the public realm;
- Promote walking, cycling and efficient movement of people on the transport networks; and
- Enhance strategic gateways and further develop transport infrastructure to provide an efficient, resilient and safe transport network.

7.19 In order to secure achievement, the vision is implemented by nine objectives, which include:

- **ECON1** – Support economic growth and employment
- **ECON2** – Support economic wellbeing for people in low incomes
- **POP1** – Meet future housing needs
- **ENV1** – Improve the quality of the local environment
- **ENV2** – Reduce carbon emissions
- **PUBH1** – Increase active travel in the region
- **PUBH2** – Reduce road traffic casualties
- **PUBH3** – Reduce health inequalities in the region
- **SOC1** – Improve social well-being of socially excluded people.

7.20 The development of the Midland Metro extension to Brierley Hill is supported within the West Midlands Strategic Transport Plan, where it states “Introduce a fully integrated rail and rapid transit network that connects our main centres with quick, frequent services...”

7.21 Furthermore, the development of the extension directly supports the objectives of:

- **ECON1** – Support economic growth and employment by enabling a direct, sustainable link between the main economic centres of Birmingham and Wolverhampton;
- **ECON2** – Support economic wellbeing for people in low incomes by allowing a cheap and fast transport alternative mode of transport to Dudley, Wolverhampton and Birmingham;
- **ENV1** – Improve the quality of the local environment; and
- **ENV2** – Reduce carbon emission by providing a sustainable, green mode of transport.

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\(^4\) West Midlands Combined Authority, Movement for Growth: The West Midlands Strategic Transport Plan, 2016

HS2 - Unlocking the benefits: West Midlands Connectivity Package

7.22 In November 2013, the Government laid a Hybrid Bill before Parliament to secure the powers to construct and maintain Phase 1 of High Speed 2, the planned high-speed railway between London, Birmingham, Manchester and Leeds. This bill received Royal Assent in March 2016, demonstrating the firm commitment of the Government to delivering a high-speed railway between London and the West Midlands, with stations at Birmingham Curzon Street and Birmingham Interchange. In November 2015, the Government released a Command Paper reaffirming its commitment to the full ‘Y’ network, and set out specific plans to accelerate construction of Phase 2A to Crewe on the existing West Coast Main Line, demonstrating its obligation to the entire High Speed 2 network.

7.23 Construction of High Speed 2 therefore represents current active government policy, and will include two stations in the West Midlands at Curzon Street in Birmingham City Centre and at Birmingham Interchange, near Birmingham Airport and the NEC. The ‘High Speed 2: Get Ready’ report, published by the HS2 Growth Taskforce in March 2014, stressed the need to integrate High Speed 2 into local transport networks in order to maximise the benefit to the wider economy, with HS2 stations becoming strategic nodes that connect with inter-city, regional and intra-city transport links. Local authorities and Local Economic Partnerships were challenged to consider how HS2 will be a catalyst for development and growth, and develop detailed connectivity packages in their Local Plans and Strategic Economic Plans respectively.

7.24 In response to the proposals for HS2, TfWM developed a connectivity package to improve regional and local transport links to HS2 in order to maximise economic benefits across the region. The package contains three strategic outcomes:

- Capitalising on the network approach;
- Unlocking growth assets; and
- Linking the West Midlands to the HS2 network.

7.25 Improved regional connectivity to High Speed 2 supports all three outcomes, and the package identifies the importance of new rapid transit connections linking Curzon Street to the rest of Birmingham and the West Midlands.

7.26 The **HS2 Growth Strategy: Connectivity Programme**\(^\text{15}\), published by the Greater Birmingham and Solihull LEP identifies the importance of ensuring the benefits from HS2 are spread as far as possible across the region. It includes four key aspects:

- **Connectivity to HS2 Stations**: Providing excellent local and sub-regional connectivity to HS2 stations from across the West Midlands, thereby improving access to businesses and job opportunities;
- **An Integrated HS2**: Ensuring the delivery of a fully integrated network between HS2 and the local transport network to maximise accessibility to the HS2 network;
- **Midlands Connect**: a regional transport group made up of all the East and West Midlands Authorities that is preparing a transport strategy for the combined region that aims to maximise connectivity within and to the area through the utilisation of the capacity released by HS2 on the conventional rail network, major enhancements to the classic rail and highway networks and the optimisation of the Midlands’ local rail and road networks for the arrival of HS2; and
- **International Connectivity**: Providing direct international services from the West Midlands to Europe via a direct rail link between HS2, HS1 and the Channel Tunnel.

The Wednesbury to Brierley Hill Metro scheme is a critical element of the HS2 Connectivity programme as it results in enhanced public transport connectivity between the Black Country and Birmingham. It will ensure that the residents of Sandwell and Dudley will have a high quality link to the HS2 station at Curzon Street and will therefore be able to realise the significant economic benefits HS2 is predicted to produce for the West Midlands area. It is proposed the route will be completed by 2032 and will therefore be available to ensure that residents of the Black Country can access the significant number of construction jobs associated with HS2 using public transport.

**Current Resident Transport Characteristics**

**Travel to Work Mode**

Table 7.1 shows the method of travel to work from the 2011 census for locations in the Black Country. The proportion of travel to work by bus is reasonably high compared to the regional and national averages, and this is reasonable due to the extensive geographical coverage of the bus network and the limited rail connections. The use of cars is similar to the regional average but higher than England and Wales average. Walking and cycling is lower than the regional and national averages.
Table 7.1: Percentage of Travel to Work by Mode (2011 Census)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Dudley</th>
<th>Sandwell</th>
<th>Walsall</th>
<th>Wolverhampton</th>
<th>The Black Country</th>
<th>West Midlands</th>
<th>England and Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver</td>
<td>67.1%</td>
<td>58.9%</td>
<td>64.0%</td>
<td>59.6%</td>
<td>62.6%</td>
<td>62.5%</td>
<td>57.3%</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>5.7%</td>
<td>7.1%</td>
<td>6.6%</td>
<td>6.7%</td>
<td>6.5%</td>
<td>6.0%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Bus</td>
<td>7.3%</td>
<td>14.3%</td>
<td>10.2%</td>
<td>11.5%</td>
<td>10.7%</td>
<td>7.6%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Rail</td>
<td>2.9%</td>
<td>2.8%</td>
<td>1.4%</td>
<td>2.8%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Walking</td>
<td>7.6%</td>
<td>8.7%</td>
<td>8.6%</td>
<td>9.7%</td>
<td>8.6%</td>
<td>9.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>1.2%</td>
<td>1.6%</td>
<td>1.6%</td>
<td>2.1%</td>
<td>1.6%</td>
<td>2.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Working from home</td>
<td>7.8%</td>
<td>6.2%</td>
<td>7.4%</td>
<td>7.1%</td>
<td>7.2%</td>
<td>9.8%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Other</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.4%</td>
<td>0.4%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

7.29 Within the Black Country, Dudley has the lowest proportion of people using public transport and sustainable modes of transport. This is due to there being no easy rail connection, and while there are a wide range of bus services from Dudley to the surrounding Black Country region, the lengthy routes and journey times of these services makes them unappealing to many commuters.

7.30 In Wolverhampton the proportion of people using sustainable modes is higher than other parts of the Black Country. This is due to multiple factors including a high prevalence of public transport including frequent and widespread bus services, National Rail services comprised of both frequent and extensive intercity and local services, together with the existing Midland Metro Line 1 towards Birmingham. This indicates that locations where high quality public transport is provided result in greater use of these modes and a reduced reliance on the use of the private car.

Work Locations

7.31 Table 7.2 summarises the key origin and destination areas for travel to work for the Sandwell and Dudley area. Just under half of the people living in Sandwell work within the district with the remainder commuting mainly to the surrounding areas of Birmingham, Wolverhampton and Walsall.

7.32 Sandwell is an important employment centre for the surrounding area and there is a higher number of people travelling from Birmingham than any other area in the immediate vicinity.

7.33 Approximately 62% of people living in Dudley also work within Dudley, with external commuters mainly originating from Sandwell, Wolverhampton and Birmingham.
Table 7.2: Travel to Work Locations To/From Sandwell and Dudley (2011 Census)

<table>
<thead>
<tr>
<th>Area</th>
<th>Travel to Sandwell</th>
<th>Travel from Sandwell</th>
<th>Travel to Dudley</th>
<th>Travel from Dudley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employees</td>
<td>109,071</td>
<td>111,946</td>
<td>102,582</td>
<td>121,187</td>
</tr>
<tr>
<td>Birmingham</td>
<td>12.5%</td>
<td>25.1%</td>
<td>4.4%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Coventry</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.1%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Dudley</td>
<td>15.5%</td>
<td>10.5%</td>
<td>62.2%</td>
<td>52.6%</td>
</tr>
<tr>
<td>Sandwell</td>
<td>46.1%</td>
<td>44.9%</td>
<td>11.4%</td>
<td>13.9%</td>
</tr>
<tr>
<td>Walsall</td>
<td>8.0%</td>
<td>6.1%</td>
<td>1.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>5.6%</td>
<td>3.4%</td>
<td>5.1%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Rest of West Midlands</td>
<td>8.1%</td>
<td>4.8%</td>
<td>11.9%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Northern England</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.5%</td>
<td>0.6%</td>
</tr>
<tr>
<td>East Midlands</td>
<td>0.7%</td>
<td>0.6%</td>
<td>0.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Southern England (Inc. London)</td>
<td>1.0%</td>
<td>1.4%</td>
<td>1.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Wales</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Rest of the UK</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.0%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

7.34 The distribution of work locations and resultant commuting patterns indicates that there is a need to ensure a good level of access to and between these towns/cities, as well as between areas of deprivation and local employment opportunities, through the use of a sustainable and reliable mode of transport. The Wednesbury to Brierley Hill extension provides this reliable mode of transport and links Sandwell, Dudley, Wolverhampton and Birmingham. The extension will facilitate movement around the Black Country and Birmingham and encourage commuters to switch from car and bus onto metro.

Car Ownership

7.35 Table 7.3 shows the percentage of car ownership within four categories. The Black Country is characterised by high car ownership, however, not as high as the West Midlands Region or England and Wales statistics.

7.36 The proportion of households in Sandwell without access to a car are identified as being the highest within the Black Country. Whilst it tends to be more of an issue in rural and isolated communities, social exclusion can arise in households with only one car when the main wage earner needs the car to commute to work. The number of households with multiple cars within the area is lower than the regional and national average at 22%.

Table 7.3: Percentage of Car Ownership (2011 Census)

<table>
<thead>
<tr>
<th>Car Ownership</th>
<th>Dudley</th>
<th>Sandwell</th>
<th>Walsall</th>
<th>Wolverhampton</th>
<th>The Black Country</th>
<th>West Midlands (Met)</th>
<th>West Midlands</th>
<th>England and Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Cars</td>
<td>23.0%</td>
<td>33.9%</td>
<td>28.8%</td>
<td>33.6%</td>
<td>29.6%</td>
<td>31.5%</td>
<td>24.7%</td>
<td>25.6%</td>
</tr>
<tr>
<td>One Car</td>
<td>42.1%</td>
<td>42.7%</td>
<td>41.9%</td>
<td>41.1%</td>
<td>42.0%</td>
<td>41.6%</td>
<td>41.5%</td>
<td>42.2%</td>
</tr>
<tr>
<td>Two Cars</td>
<td>26.8%</td>
<td>18.5%</td>
<td>22.6%</td>
<td>19.5%</td>
<td>22.0%</td>
<td>21.1%</td>
<td>25.8%</td>
<td>24.7%</td>
</tr>
<tr>
<td>Three or More</td>
<td>8.1%</td>
<td>4.8%</td>
<td>6.7%</td>
<td>5.7%</td>
<td>6.4%</td>
<td>5.9%</td>
<td>8.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Total Car Ownership</td>
<td>77.0%</td>
<td>66.1%</td>
<td>71.2%</td>
<td>66.4%</td>
<td>70.4%</td>
<td>68.5%</td>
<td>75.3%</td>
<td>74.4%</td>
</tr>
</tbody>
</table>
The provision of the Wednesbury to Brierley Hill Metro will provide an alternative mode of transport that will reduce the reliance on the car. It will improve accessibility for those households which do not own or have access to a car and may even reduce car ownership within the areas surrounding the new Metro line. This would also remove the associated costs that owning a car entails.

The new line will enhance the connectivity to major city centre employment areas where the costs of travel by car can be prohibitive for lower income families as a result of high parking charges within these areas.

Highway Connections

The Black Country is well connected to the strategic road network. The M6 and the M5 meet just south of Walsall and provide direct connections to the north, south and south west. The local, regional and national road network is characterised by significant congestion and slow average speeds during peak periods, with some major traffic generators, such as town centres and Merry Hill, suffering congestion throughout the entire day. This congestion has a significant impact on movement and the economy of the area.

Public Transport

The predominant mode of public transport in Sandwell and Dudley is bus. The area is served by a variety of local bus companies, some more widespread in their services than others. The more notable of these operators include:

- National Express West Midlands;
- Arriva; and
- Rotala.

Overall the connectivity of bus services within the vicinity of the proposed Metro Line is good. However, there is a lack of suitable services on routes which operate between Wednesbury, Dudley, Merry Hill and Brierley Hill. This, therefore, demonstrates that there is a clear need to improve public transport services between these areas of importance and further afield to Birmingham City Centre.

The closest railway stations to the proposed metro extension are that of Dudley Port and Tipton, which provide services to the key centres of Wolverhampton, Walsall and Birmingham. There are no rail services which serve Brierley Hill or Dudley town centre directly.

Services to Wolverhampton are provided by Virgin Trains, Arriva Cross Country, Arriva Trains Wales and London Midland. Walsall and Dudley Port are served by local services between Wolverhampton and Walsall via Birmingham New Street by London Midland. There is one service which goes to and from these stations. Figure 7.1 illustrates rail lines in close proximity to the proposed metro extension.

Currently Midland Metro Line 1 is operational between Wolverhampton and Birmingham New Street. Table 7.4 provides details of the frequencies of these services.

<table>
<thead>
<tr>
<th>Table 7.4: Existing Midland Metro Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mon to Fri (Peak)</strong></td>
</tr>
<tr>
<td>6 mins</td>
</tr>
</tbody>
</table>

There are a further three committed metro extensions that will provide connectivity to a range of other locations, mainly in Birmingham and include:
- **New Street to Edgbaston** - running from Stephenson Street via Victoria Square and Paradise Circus to Centenary Square including complementary highway measures then continuing along Broad Street from Centenary Square to Five Ways and along Hagley Road to a new terminus on the south side of the road adjacent to the 54 Hagley Road office building
- **Eastsides** – This route will run between the City centre and the Eastside area of Birmingham serving the redevelopment of this area and also the HS2 Curzon Street Station
- **Wolverhampton Interchange** – extension of the line along Pipers Row to connect with the bus and railway stations.

7.46 Figure 7.1 illustrates the public transport provision in the region of Dudley, Brierley Hill and Wednesbury. Appendix S2 provides a list of service destinations and frequencies. Key public transport interchange locations are circled in black.
Figure 7.1: Public Transport Provision
Public Transport Journey Time Comparison

7.47 A comparison of journey times have been undertaken between the existing modes of transport between the proposed tram stops of the Brierley Hill route to Bull Street in the centre of Birmingham, enabling the comparison between car and bus journey times with that of the proposed journey times of the metro extension during an average peak period. Table 7.5 provides a summary of the results.

7.48 This analysis has been based on current timetable information and internet based average peak hour car journey times. The data does not include journeys that utilise multiple public transport modes.

<table>
<thead>
<tr>
<th>Stop</th>
<th>Car</th>
<th>Bus</th>
<th>Metro Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Bridge Tram Stop</td>
<td>25 mins</td>
<td>66 mins</td>
<td>29 mins</td>
</tr>
<tr>
<td>Horsley Road Tram Stop</td>
<td>27 mins</td>
<td>71 mins</td>
<td>31 mins</td>
</tr>
<tr>
<td>Dudley Port Tram Stop</td>
<td>28 mins</td>
<td>72 mins</td>
<td>33 mins</td>
</tr>
<tr>
<td>Sedgeley Road East Tram Stop</td>
<td>30 mins</td>
<td>79 mins</td>
<td>35 mins</td>
</tr>
<tr>
<td>Birmingham New Road Tram Stop</td>
<td>31 mins</td>
<td>77 mins</td>
<td>37 mins</td>
</tr>
<tr>
<td>Tipton Road Tram Stop</td>
<td>30 mins</td>
<td>77 mins</td>
<td>38 mins</td>
</tr>
<tr>
<td>Dudley Bus Station Tram Stop</td>
<td>33 mins</td>
<td>65 mins</td>
<td>40 mins</td>
</tr>
<tr>
<td>Cinder Bank Tram Stop</td>
<td>30 mins</td>
<td>78 mins</td>
<td>45 mins</td>
</tr>
<tr>
<td>Pedmore Road Tram Stop</td>
<td>35 mins</td>
<td>80 mins</td>
<td>46 mins</td>
</tr>
<tr>
<td>Waterfront Tram Stop</td>
<td>35 mins</td>
<td>86 mins</td>
<td>48 mins</td>
</tr>
<tr>
<td>Merry Hill Tram Stop</td>
<td>40 mins</td>
<td>81 mins</td>
<td>51 mins</td>
</tr>
<tr>
<td>Brierley Hill Terminus</td>
<td>40 mins</td>
<td>84 mins</td>
<td>53 mins</td>
</tr>
</tbody>
</table>

7.49 The information above shows that existing car journey times are quicker than current public transport (bus) journey times. With the introduction of the scheme it is expected that journey times on public transport will decrease by an average of around 50%, which will significantly improve potential employment prospects for residents of Sandwell and Dudley.

7.50 Compared to average car journey times from the stops to Birmingham City Centre, the proposed Wednesbury to Brierley Hill scheme is expected to result in slightly higher journey times by an average of around 25% when compared with the car. However, the high prices and availability of car parking in Birmingham City Centre and the unreliability of car journey times to the city impacts on the use of the private motoring as a travel mode to work, which acts as a barrier to employment in the city for residents of Sandwell and Dudley. Users of the metro scheme will not be subjected to the journey time reliability issues and car parking charges that deter the use of the car and will therefore provide greater opportunity for residents to access employment in the city centre.

Non-Motorised Users (NMU)

7.51 Cycling and walking facilities in the local area are reasonable and the developed sections of the National Cycle Route 54 run in close proximity. The route itself, once completed, will run from Stourport to Parsley Hay via Kidderminster, Dudley, Lichfield, Burton and Derby. Currently, to the south of Dudley, the route runs along Dudley Canal to Stourbridge.
7.52 The National Cycle Network is not just for cyclists, as “half of all trips made on the National Cycle Network are by walkers.”\(^{16}\) This encourages walking as an alternative mode of sustainable travel for short distances.

7.53 Interchange between key cycle routes and metro is possible around Merry Hill, Dudley Port, Great Bridge. There are also a range of smaller cycle routes in the region of which can also be accessed from the metro. Figure 7.2 provides an indication of cycle routes across the metro corridor.

**Rail Freight**

7.54 Freight movement is an issue within the wider West Midlands Metropolitan Area, with the rail network surrounding Birmingham becoming increasingly congested as a result of a lack of route availability between the north and the south of the Metropolitan area.

7.55 The Wednesbury to Brierley Hill extension will be constructed to allow the route to be used by heavy rail freight services in the future.

7.56 The implementation of this freight connection to serve a number of the core industrial areas of the Black Country will allow the removal of HGV’s from the congested local roads, which will have a significant impact in improving the environment and connectivity of the local routes. In addition, this route will provide supplementary Freight capacity in the West Midlands, allowing trains to move from more congested routes freeing these up for alternative uses.

7.57 The provision of this line will also encourage investment into the area by organisations that require rail accessed facilities such as major industrial and distribution companies. This will result in extra employment for local residents and an economic boost to the area.

\(^{16}\) Sustrans: [www.sustrans.org.uk/ncn/map/national-cycle-network/about-network](http://www.sustrans.org.uk/ncn/map/national-cycle-network/about-network)
Figure 7.2: The Black Country Cycle Network
Wednesbury to Brierley Hill

Business Case
Midland Metro Wednesbury to Brierley Hill Extension
Economic Case
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Appendix B – Distributional Impacts: Screening Proforma
Appendix C – TUBA Masking
Appendix D – Strategic Accessibility Assessments
Appendix E – Smarter Choices Technical Note
Appendix F – Bus Impacts Note
**Economic Case Compliance**

The table below, taken from the Department for Transport’s guidance on its approach to making major investment decisions, *The Transport Business Cases* (January 2013), demonstrates the Economic Case’s fit with requirements.

<table>
<thead>
<tr>
<th>Element</th>
<th>Addressed in Economic Case</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Setting out the approach for appraising the scheme</td>
<td>Chapter E1</td>
</tr>
<tr>
<td>Options appraised</td>
<td>See Strategic Case</td>
<td>Chapter E3,</td>
</tr>
<tr>
<td>Assumptions</td>
<td>Key sources of inputs and assumptions used in the appraisal</td>
<td>Chapter E4 and Appendix A Appraisal Specification Report</td>
</tr>
<tr>
<td>Appraisal Summary Table</td>
<td>Summarises the economic, social and environmental impacts of the scheme</td>
<td>Chapter E5</td>
</tr>
<tr>
<td>Value for Money Statement</td>
<td>Summarises each chapter and overall value for money</td>
<td>Chapter E6</td>
</tr>
</tbody>
</table>
E1. INTRODUCTION

OVERVIEW

1.1 SYSTRA was commissioned by Transport for West Midlands to prepare the economic case for the proposed Wednesbury to Brierley Hill Metro Extension.

1.2 The Black Country Local Enterprise Partnership has allocated funding to Centro to enable the development of an Initial Outline Business Case for the Wednesbury to Brierley Hill project, with a target to complete this work by June 2016 for submission to Government.

1.3 The Wednesbury to Brierley Hill project would provide a step-change in public transport accessibility to Dudley and Brierley Hill by providing links to the existing national rail network and HS2 with dramatically reduced journey times, link the Black Country strategic centres of Brierley Hill, Wolverhampton and Sandwell via rail and tram.

1.4 It will pave the way for the introduction of rail freight on the Walsall to Stourbridge corridor by reinstating the currently derelict corridor and enhancing the likelihood of the reintroduction of freight along the Stourbridge to Walsall route, removing lorries from the congested M5/M6 corridor and freeing up train paths on the congested West Midlands rail network. It will also allow for future extension to Stourbridge and to Walsall.

1.5 The project is for 11km of new tramway with up to 17 stops (some provisional dependent upon surrounding brownfield development). Transport and Works Act Orders are in place and implemented following works in 2009. The route is shown on the plan below.

1.6 The Wednesbury to Brierley Hill extension will be constructed to allow the route to be used by heavy rail freight services in the future. The implementation of this freight connection to serve a number of the core industrial areas of the Black Country will allow the removal of HGV’s from the congested local roads, which will have a significant impact in improving the environment and connectivity of the local routes. In addition, this route will provide supplementary Freight capacity in the West Midlands, allowing trains to move from more congested routes freeing these up for alternative uses.

1.7 This report presents the Economic Case for the metro extension.
E2. PROPOSED SCHEME

OBJECTIVES OF THE METRO EXTENSION

2.1 The objectives of the Wednesbury to Brierley Hill Extension establish the framework against which the success of the scheme can be judged and support the vision. The core objectives are:

- Support regeneration in areas of high deprivation through improved connectivity with areas of opportunity;
- Support economic development by improving the accessibility of (major) employment and residential sites;
- Enhance the prosperity of Black Country residents and businesses through providing better access to employment and a wider workforce;
- Improve the education and skill base of the residents of Sandwell and Dudley by providing wider access to universities and colleges throughout the West Midlands;
- Encourage modal shift from private car by delivering a high quality and reliable public transport service;
- Support an integrated transport network through providing seamless interchange; and
- Deliver a high quality public transport service in a manner that supports local environmental and safety benefits.

2.2 The extension of the Metro is consistent with Transport for West Midlands long term vision for the delivery of Metro. The need for the scheme has been highlighted through regional and local planning documentation and forms a critical element of the West Midlands Local Transport Plan 3 (LTP).

2.3 The need to improve public transport accessibility in order to facilitate economic growth and employment opportunities in the area is another important driver for the scheme. The scheme will provide links to and between several redevelopment areas:

- a proposed new development site at Gold’s Hill;
- proposed residential developments at Tipton;
- mixed-use development at Castle Gate and proposed development at the former Freightliner site, adjacent to Dudley Zoo;
proposed mixed-use development at the Guest Hospital;
Dudley Town Centre;
Harts Hill Regeneration Area;
the Merry Hill Centre and Waterfront development; and
Brierley Hill Town Centre.

ALIGNMENT OF THE SCHEME

2.4 The Transport and Works Act Order for the Wednesbury to Brierley Hill Extension has been in place since 2005, and was implemented in 2009 through works in Dudley Town Centre. The proposed route is 11km operating between Wednesbury and Brierley Hill through the Metropolitan Boroughs of Sandwell and Dudley. There are 17 proposed stops (depending on surrounding developments) serving the interchange with the existing Wolverhampton to Birmingham route, the Black Country Garden City, Great Bridge town centre, Dudley Town Centre, the Waterfront, Merry Hill, Brierley Hill Enterprise Zone (EZ) and High Street.

2.5 The route between Wednesbury and Dudley follows the disused heavy rail corridor, alongside many of the key development sites in the Black Country Garden City. It then passes through Dudley Town Centre on street, before running adjacent to Duncan Edward’s Way and re-joining the disused railway corridor at Cinder Bank. At Harts Hill the route deviates away from the railway line to pass through the Waterfront, Merry Hill and Brierley Hill EZ and terminates a Brierley Hill (see Figure 1).

2.6 In addition to the significant potential for integration with the bus and rail networks, the Wednesbury to Brierley Hill extension also links into local cycling and walking facilities e.g. when the National Cycle Network Route 54 is complete (running from Stourport to Derby) it provides an alternative for pedestrians and cyclists in the Dudley area to access the Metro.
Figure 2.1: Wednesbury to Brierley Hill Extension
E3. MODELLING ASSUMPTIONS

MODELS

PRISM

3.1 The Wednesbury to Brierley Hill Metro Extension has been assessed in two forecast years, 2021 and 2031 using PRISM – the strategic transport model of the West Midlands. The PRISM has a base year of 2011 and is capable of forecasting the total demand for private and public transport across the study area.

3.2 There are three modelled time periods within PRISM – AM peak (7am – 9am), Off-Peak (10am - 12pm) and PM peak (4pm - 6pm).

3.3 The version of PRISM used in the Wednesbury to Brierley Hill Metro Extension appraisal is version 4.5, which is based on TEMPRO 6.2. The resultant Variable Demand Model outputs contain all growth associated with committed and planned developments within the West Midlands between 2011 and 2021/2031.

WMCA PT MODEL

3.4 The WMCA’s public transport (PT) VISUM model has been used to assign the PT element of the PRISM model demand (base and future year). The PT VISUM model better reflects public transport mode and route choice and therefore provide a better estimate of the public transport benefits associated with the Midland Metro extension compared to the PRISM generated public transport assignments. The demand forecasts used in the VISUM model are consistent with the PRISM model.

3.5 The impact of HS2 on local demand patterns has been taken into account in the PRISM and PT VISUM models for the 2031 modelled year.

3.6 The PT VISUM model has three modelled time periods - AM peak (7am – 9am), Off-Peak (10am - 12pm) and PM peak (4pm - 6pm).
DO MINIMUM METRO LINE ASSUMPTIONS

3.7 Currently Midland Metro Line 1 is operational between Wolverhampton and Birmingham New Street. Table 3.1 provides details of the frequencies of these services.

Table 3.1: Existing Midland Metro Frequencies

<table>
<thead>
<tr>
<th>Mon to Fri (Peak)</th>
<th>Mon to Fri (day)</th>
<th>Mon to Fri (Evening)</th>
<th>Sat and Sun (Day)</th>
<th>Sat and Sun (Evening)</th>
<th>Route Length</th>
<th>Journey Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mins</td>
<td>8 mins</td>
<td>15 mins</td>
<td>8 mins</td>
<td>15 mins</td>
<td>21 km</td>
<td>34 mins</td>
</tr>
</tbody>
</table>

3.8 There are a further three committed metro extensions that will provide connectivity to a range of other locations, mainly in Birmingham and have been included in the Do Minimum modelling assumptions. These include:

- **New Street to Edgbaston** - running from Stephenson Street via Victoria Square and Paradise Circus to Centenary Square including complementary highway measures then continuing along Broad Street from Centenary Square to Five Ways and along Hagley Road to a new terminus on the south side of the road adjacent to the 54 Hagley Road office building.
- **Eastside** – This route will run between the City centre and the Eastside area of Birmingham serving the redevelopment of this area and also the HS2 Curzon Street Station.
- **Wolverhampton Interchange** – extension of the line along Pipers Row to connect with the bus and railway stations.

BUS BASED PUBLIC TRANSPORT ASSUMPTIONS

3.9 In addition to the metro scheme, the Do Something scenario incorporates a series of changes to the bus service frequencies and routes in order to represent the likely natural bus operator responses on the bus network arising as a result of the Wednesbury to Brierley Hill Metro Extension. Following a review of the bus network in the vicinity of the scheme (Appendix F), a series of route and frequency changes have been made to several bus routes in the vicinity of the scheme. Table 3.2 sets out the changes made to the public transport model.

Table 3.2: Changes to bus services

<table>
<thead>
<tr>
<th>Route</th>
<th>From</th>
<th>To</th>
<th>Change</th>
<th>Revised Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AM</td>
</tr>
<tr>
<td>74_NXB</td>
<td>Dudley</td>
<td>Colmore Circus</td>
<td>Frequency Change</td>
<td>10 mins</td>
</tr>
<tr>
<td>87_NXB</td>
<td>Dudley</td>
<td>The Priory Queensway</td>
<td>Frequency Change</td>
<td>10 mins</td>
</tr>
<tr>
<td>X96_NXB</td>
<td>Gerald_R</td>
<td>Hillside</td>
<td>Restructure and join Stourbridge leg to service 297</td>
<td>20 mins</td>
</tr>
<tr>
<td>81_NXB</td>
<td>Merryhill Bus Station</td>
<td>Wolverhampton</td>
<td>Terminate at Dudley</td>
<td>30 mins</td>
</tr>
<tr>
<td>42_NXB</td>
<td>Alexandra Bus Station</td>
<td>West Brom</td>
<td>Route Restructured - local Tipton service</td>
<td>20 mins</td>
</tr>
<tr>
<td>42_NXB</td>
<td>Dudley</td>
<td>West Brom</td>
<td>Route Restructured - local Tipton service</td>
<td>30 mins</td>
</tr>
<tr>
<td>43_DIA</td>
<td>Bilston</td>
<td>West Brom</td>
<td>Frequency Change</td>
<td>30 mins</td>
</tr>
</tbody>
</table>
### Brierley Hill Service Specification

#### 3.10
In order to maximise the direct economic benefits to the residents of Sandwell and Dudley in terms of access to employment, leisure and retail opportunities, the services using the Wednesbury to Brierley Hill route will have direct access all parts of the current/proposed Midland Metro system. The proposed service frequencies are shown in Table 3.3.

**Table 3.3: Wednesbury to Brierley Hill – Service frequencies**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Off-Peak</td>
<td>05:15</td>
<td>07:00</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>AM Peak</td>
<td>07:00</td>
<td>09:30</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Daytime Off-Peak</td>
<td>09:30</td>
<td>15:35</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>PM Peak</td>
<td>15:35</td>
<td>19:47</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>PM Off-Peak</td>
<td>19:47</td>
<td>23:59</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

#### 3.11
The services will operate seven days a week and will mirror the time periods of the current Midland Metro system with trams running from around 5am to midnight on weekdays. This ensures the accessibility benefits of the scheme to local residents, employment areas and retail facilities are accessible throughout the majority of the week.

#### 3.12
Journey times along the line have been optimised as much as possible to maximise the time benefits to passengers whilst ensuring that high levels of journey time reliability can be achieved. The end-to-end journey times for each of the proposed four current terminuses are as follows:

- Brierley Hill to Wolverhampton – 43 minutes
- Brierley Hill to East Side – 58 minutes
- Brierley Hill to Edgbaston – 66 minutes
PREDICTED ANNUAL PATRONAGE LEVELS

3.13 The proposed Wednesbury to Brierley Hill Metro Extension together with the predicted bus operator responses to the bus network results in a significant increase in metro patronage across the appraisal period. Table 3.3 illustrates the annual change in patronage in 2021 and 2031 between the Do Minimum and the Do Something scenarios.

Table 3.3: METRO Patronage between DM and DS

<table>
<thead>
<tr>
<th>Scenario</th>
<th>DM</th>
<th>DS</th>
<th>% Change from DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>11,333,225</td>
<td>16,239,444</td>
<td>43%</td>
</tr>
<tr>
<td>2031</td>
<td>12,150,333</td>
<td>17,526,540</td>
<td>44%</td>
</tr>
</tbody>
</table>
E4. SCHEME COSTS

INVESTMENT COSTS

4.1 Base investment scheme costs have been provided by Midlands Alliance for each year between 2017 to 2024. Investment costs are incurred in each year from 2017 and include construction, preparation, supervision and land costs. The cost associated with trams are not incurred until the year of opening of the scheme.

4.2 All costs were provided in nominal prices. Table 4.1 provides a summary of the costs by component and year of spend.

Table 4.1: Investment Costs (nominal prices £'000)

<table>
<thead>
<tr>
<th>Year</th>
<th>Non Tram Costs</th>
<th>Tram Costs</th>
<th>Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>£2,415</td>
<td>0</td>
<td>2,415</td>
</tr>
<tr>
<td>2018</td>
<td>£11,896</td>
<td>0</td>
<td>11,896</td>
</tr>
<tr>
<td>2019</td>
<td>£13,988</td>
<td>0</td>
<td>13,988</td>
</tr>
<tr>
<td>2020</td>
<td>£1,198</td>
<td>6,900</td>
<td>5,702</td>
</tr>
<tr>
<td>2021</td>
<td>£103,182</td>
<td>27,600</td>
<td>130,782</td>
</tr>
<tr>
<td>2022</td>
<td>£90,321</td>
<td>27,600</td>
<td>117,921</td>
</tr>
<tr>
<td>2023</td>
<td>£51,890</td>
<td>6,900</td>
<td>58,790</td>
</tr>
<tr>
<td>2024</td>
<td>£300</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>Totals</td>
<td>272,793</td>
<td>69,000</td>
<td>341,793</td>
</tr>
</tbody>
</table>

Risk and Uncertainty

4.3 An uplift of 4.4% has been applied to all scheme cost components to reflect risk.

4.4 In line with the stage of scheme development optimism bias at 20% has been applied to all non-tram scheme cost components. A lower Optimism Bias of 6% has been applied to the tram costs. This reflects the certainty around future tram costs.

4.5 Table 4.2 provides a summary of the risk and optimism bias adjusted costs by year of spend.
Conversion to 2010 Discounted Market Prices

The scheme costs presented previously have been converted to 2010 discounted market prices using the standard GDP deflator based on September 2016 RPI figures, the standard indirect tax correction factor (1.19) and the Green Book schedule of discount rates. Table 4.3 presents the final investment costs which have been used in the economic case.

### Table 4.3: Investment Costs (2010 prices £’000)

<table>
<thead>
<tr>
<th>Year</th>
<th>NonTram Costs</th>
<th>Tram Costs</th>
<th>Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>2,551</td>
<td>0</td>
<td>2,551</td>
</tr>
<tr>
<td>2018</td>
<td>11,906</td>
<td>0</td>
<td>11,906</td>
</tr>
<tr>
<td>2019</td>
<td>13,275</td>
<td>0</td>
<td>13,275</td>
</tr>
<tr>
<td>2020</td>
<td>-1,077</td>
<td>5,479</td>
<td>4,402</td>
</tr>
<tr>
<td>2021</td>
<td>87,793</td>
<td>20,744</td>
<td>108,537</td>
</tr>
<tr>
<td>2022</td>
<td>72,689</td>
<td>19,621</td>
<td>92,310</td>
</tr>
<tr>
<td>2023</td>
<td>39,470</td>
<td>4,636</td>
<td>44,106</td>
</tr>
<tr>
<td>2024</td>
<td>216</td>
<td>0</td>
<td>216</td>
</tr>
<tr>
<td>2058</td>
<td>0</td>
<td>11,292</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>226,822</td>
<td>61,772</td>
<td>288,594</td>
</tr>
</tbody>
</table>

OPERATING COSTS

A bespoke operational cost model was developed by SYSTRA to calculate the expected operational cost of the extension scheme over a 60 year appraisal period. The spreadsheet model utilised existing operating costs from the existing metro line. The model assumed that costs per unit of output would be identical for the existing and proposed line. Costs were allocated according to the following four parameters:

- Daily operating duration (in units of vehicle hours)
- Daily operating kilometres (in units of vehicles kilometres)
- Number of stops in the system
- Length of the system (in units of kilometres)

Based on the projected line’s assumed routes frequencies and measured lengths (from which the route’s return trip duration was computed), the daily operating duration and distance could be estimated and the annual operating costs calculated.
The operating costs of the proposed extension (WBHE only) were isolated by subtracting the costs of the existing line and agreed extensions from the cost of the existing line, with agreed extensions and WBHE.

An uplift of 4.4% has been applied to all scheme cost components to reflect risk.

No optimism bias was applied to operating costs. This is in line with TAG guidance (Unit A1.2)

The scheme costs have been converted to 2010 discounted market prices using the standard GDP deflator based on September 2016 RPI figures, the standard indirect tax correction factor (1.19) and the Green Book schedule of discount rates. The final 60 year operating cost of the proposed extension is £152.7 million.

**Treatment of Metro Revenue and Operating Costs**

It is assumed in the appraisal that all of the revenue generated by the scheme (227m) will be returned to the public sector and offset a proportion of the investment and operating costs of this scheme. This ‘metro total revenue reimbursement’ is reflected in the PA table and the TEE table. This shows that the predicted additional revenue to the Metro system is significantly greater than the operating costs leading to an annual revenue surplus.

**PUBLIC ACCOUNTS**

Table 4.4 provides the Public Accounts Table for the WBHE scheme. These costs have been used in the calculation of the overall scheme benefit to cost ratio (BCR). Scheme costs are in 2010 discounted market prices.

The calculation of indirect tax revenues is carried out by TUBA using the same inputs and annualisation factors as for user benefits. The outcome of the scheme is that indirect tax revenues increase by £25m over the 60 year appraisal period.

**Table 4.4: Scheme Costs, 2010 Discounted Market Prices £000s**

<table>
<thead>
<tr>
<th>Central Government Funding: Transport</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Costs</td>
<td>152,704</td>
</tr>
<tr>
<td>Investment Costs</td>
<td>288,594</td>
</tr>
<tr>
<td>METRO total revenue reimbursement</td>
<td>-227,757</td>
</tr>
<tr>
<td>NET IMPACT</td>
<td>213,541</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Central Government Funding: Non-Transport</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Tax</td>
<td>25,266</td>
</tr>
</tbody>
</table>

**TOTALS**

| Broad Transport Budget                  | 213,541 |
| Wider Public Finances                   | 25,266 |
### E5. CORE APPRAISAL

#### INTRODUCTION

5.1 Transport interventions can have a wide range of impacts including economic, environmental, social and on public accounts. WebTAG requires that an Appraisal Summary Table (AST) is completed for each scheme to set out the impacts on each of a number of criteria. The latest WebTAG units provide detailed guidance on how to undertake the appraisals.

5.2 The impacts that have been assessed for the WBHE appraisal are discussed in the ASR which is provided in Appendix A. A summary is provided in Table 5.1. Distributional impact assessments have been undertaken where appropriate and in accordance with WebTAG guidance. Appendix B provides the completed Distributional Impact screening proforma.

#### Table 5.1: Summary of Key Appraisal Impacts

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Assessment Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Users and Transport providers</td>
<td>Quantitative</td>
<td>Assessed using TUBA with standard economic parameters</td>
</tr>
<tr>
<td>Reliability Impact on Business Users</td>
<td>Qualitative</td>
<td>The scheme will generate modal change from bus to metro which will have an impact on journey time reliability</td>
</tr>
<tr>
<td>Regeneration</td>
<td>Quantitative</td>
<td>Land Value Uplift</td>
</tr>
<tr>
<td>Wider Economic Impacts</td>
<td>Quantitative</td>
<td>Assessed using WebTAG approach based on WITA and the DfT’s Wider Impacts Dataset</td>
</tr>
<tr>
<td>Noise</td>
<td>-</td>
<td>Assessed by Environmental Resources Management (ERM) on behalf of TfWM</td>
</tr>
<tr>
<td>Air Quality</td>
<td>-</td>
<td>Assessed by Environmental Resources Management (ERM) on behalf of TfWM</td>
</tr>
<tr>
<td>Greenhouse Gases</td>
<td>Quantitative</td>
<td>Assessed using TUBA with standard economic parameters</td>
</tr>
<tr>
<td>Landscape/Townscape</td>
<td>Qualitative</td>
<td>The street running sections through Dudley and Brierley Hill will be accompanied by a significant upgrade to the quality of the Townscape in these areas which has not been quantified</td>
</tr>
<tr>
<td>Criteria</td>
<td>Assessment Type</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Not yet assessed</td>
<td>Surveys are being undertaken</td>
</tr>
<tr>
<td>Water Environment</td>
<td>Not assessed</td>
<td>No significant impact is anticipated</td>
</tr>
<tr>
<td>Commuting and Other Users</td>
<td>Quantitative</td>
<td>Assessed using TUBA with standard economic parameters</td>
</tr>
<tr>
<td>Reliability</td>
<td>Qualitative</td>
<td>The scheme will generate modal change from bus to metro which will have an impact on journey time reliability</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>Not assessed</td>
<td>No significant impact is anticipated</td>
</tr>
<tr>
<td>Journey Quality</td>
<td>Qualitative</td>
<td>The scheme will generate modal change from bus to metro which will have an impact on journey quality.</td>
</tr>
<tr>
<td>Accidents</td>
<td>Quantitative</td>
<td>Assessed using WebTAG approach and utilising COBALT software</td>
</tr>
<tr>
<td>Security</td>
<td>Not assessed</td>
<td>No significant impact is anticipated</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Qualitative</td>
<td>The scheme is a crucial element in enhancing connectivity and accessibility. A distributional impact appraisal of accessibility has been undertaken in line with WebTAG guidance.</td>
</tr>
<tr>
<td>Affordability</td>
<td>Not assessed</td>
<td>The scheme will have limited impacts on the money costs of travel. Any changes to vehicle operating costs will be captured in TUBA.</td>
</tr>
<tr>
<td>Severance</td>
<td>Qualitative</td>
<td>Assessment in accordance with WebTAG A4-1 (Ch 5)</td>
</tr>
<tr>
<td>Option Values</td>
<td>Not assessed</td>
<td>No significant impact is anticipated</td>
</tr>
</tbody>
</table>

**SOCIAL**

**ECONOMIC APPRAISAL**

**USER AND TRANSPORT BENEFITS**

**Approach**

5.3 The appraisal has been based on an opening year of 2023 and a forecast year of 2031. Outputs from the West Midlands PRISM model have been provided to us by TfWM and Mott Macdonald. WebTAG requires that most transport investments including metro schemes are appraised over a period of 60 years so that the benefits which accrue over the long term can be compared with the investment costs. Benefits arising after 2031 have been calculated based on the 2031 model outputs and assumed to remain constant, other than to adjustments to parameters such as value of time and vehicle operating costs in line with WebTAG guidance.

**TUBA Version**

5.4 Benefits have been calculated using TUBA V1.9.7 with standard parameters including discounting assumptions stated in WebTAG guidance. A new version of the WebTAG data book was released in March 2017. This main changes relate to values of time and default purpose splits (i.e., proportion of business, commute, and other per type of vehicle for each time period). The economics files used within the TUBA assessment have been updated to take account of these new values. The assessment was not run with distance banded values of time.

**Purpose Splits**

5.5 The default purpose splits for Public Transport within the TUBA economics file were replaced with PRISM journey purpose splits provided by Mott MacDonald. Mott MacDonald provided
daily purpose splits. This information was used in conjunction with the current economics file to generate the splits by time period. Table 5.2 provides a summary of the purpose splits.

Table 5.2: Journey Purpose Proportions: Changes to Journey Purpose Splits (%)

<table>
<thead>
<tr>
<th>Area</th>
<th>Average Daily Split (PRISM)</th>
<th>Purpose Splits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AM</td>
</tr>
<tr>
<td>PT Business</td>
<td>2%</td>
<td>1.7</td>
</tr>
<tr>
<td>PT Commute</td>
<td>41%</td>
<td>62.1</td>
</tr>
<tr>
<td>PT Other</td>
<td>57%</td>
<td>36.2</td>
</tr>
</tbody>
</table>

Annualisation factors

5.6 Annualisation factors for highway TUBA assessment have been calculated in a standard way described in TUBA assuming that there are 253 peak hours in the year, 52 weekends and 8 bank holidays. The skims generated by PRISM are one hour average skims for each peak. The resultant highway annualisation factors are as follows:

- AM: 759
- IP: 2070
- PM: 759

5.7 Annualisation factors for public transport have been calculated using metro average daily flows provided by Metro Alliance. Annualisation factors assume 253 peak hours in the year, 52 weekends and 8 bank holidays. The skims generated by the model are two hour average skims for each peak. The resultant public transport annualisation factors are as follows:

- AM: 380
- IP: 1539
- PM: 380

Running TUBA for Highway Benefits

5.8 The highway benefits were calculated using PRISM highway model outputs. Time, distance, demand and charge skims came directly from the PRISM model and were only adjusted to meet the format requirements of TUBA.

5.9 A sector system was developed to group together zones which are likely to have similar routing patterns. The benefits were looked at on a sector by sector basis. The sector system is shown in Figure 5.1.
5.10 The PRISM model covers a significant geographical area and analysis of the TUBA outputs on a sector-to-sector level showed a number of relatively large Highway user time benefits. A large proportion of these benefits were being picked up from sectors not necessarily within the close vicinity of the scheme. The result of including these further afield areas in the appraisal is that travel times are particularly vulnerable to model noise and have a significant impact on the final result of the appraisal.

5.11 To establish a robust set of TUBA outputs the benefits for some sector-to-sector movements have been removed from the appraisal process. This approach still allows the impact of the scheme to be captured and has an additional benefit of reducing the impact of model noise which occurred in peripheral areas. These pairs have been chosen in a careful manner and were removed from the appraisal if the routes did not interact with the metro corridor.

5.12 Where a sector-to-sector pairing was deemed to be insignificant in contributing to an informative evaluation of TUBA benefits, it was masked. Sector-to-sector pairs that remained in place were determined by two factors:

- If at any point the metro runs directly through a sector;
- If the metro was a valid mode of the end to end journey, even if the line did not directly run through the sector.

5.13 Appendix C shows the sector-to-sector pairs used for the TUBA benefits and disbenefits appraisal have been masked. The sector-to-sector movements marked with a ‘1’ and coloured in red have been left in for appraisal. Those that contain a ‘0’ and have been left blank, have been deemed insignificant and removed from the appraisal process.
Running TUBA for Public Transport Benefits

5.14 The public transport benefits were calculated using outputs from the TfWM’s public transport model. Time, fare and demand skims came directly from the model and were adjusted to meet the format requirements of TUBA.

5.15 Analysis of the TUBA outputs on a sector-to-sector level showed sensible user time benefits. A large proportion of these benefits were being picked up from sectors within the close vicinity of the scheme and little noise was evident in sectors further away from the site. For this reason, public transport benefits and disbenefits for all sectors have been included in the appraisal.

TUBA Outputs Transport Economic Efficiency (TEE)

5.16 The Transport Economic Efficiency (TEE) for the Wednesbury to Brierley Hill Extension scheme is presented in Table 5.3. This is presented in the required DfT format.

5.17 The Total Present Value of Transport Economic Efficiency Benefits of the scheme are £197.5m over the 60 year appraisal period. This includes the Business, and Non-Business User benefits for Highway and Public Transport.

5.18 The TEE table includes the revenue implications of the scheme on private sector providers. Whilst metro experiences an increase in revenue over the appraisal period (227m), bus revenue is forecast to reduce as passengers switch modes. The metro revenue has been removed from the overall revenue benefit to calculate the disbenefit to bus providers (74m).

Table 5.3: TEE Table

<table>
<thead>
<tr>
<th>User Benefits</th>
<th>All Modes</th>
<th>Road</th>
<th>Public Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Goods Vehicles</td>
<td>Car and LGV</td>
</tr>
<tr>
<td>NON-BUSINESS USERS AND PROVIDERS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel time</td>
<td>296,609</td>
<td>22,683</td>
<td>273,926</td>
</tr>
<tr>
<td>Vehicle operating costs</td>
<td>613</td>
<td>613</td>
<td></td>
</tr>
<tr>
<td>During Construction &amp; Maintenance</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NET NON-BUSINESS BENEFITS</td>
<td>252,931</td>
<td>23,237</td>
<td>230,694</td>
</tr>
<tr>
<td>BUSINESS USERS AND PROVIDERS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel time</td>
<td>18,355</td>
<td>1,077</td>
<td>2,590</td>
</tr>
<tr>
<td>Vehicle operating costs</td>
<td>670</td>
<td>340</td>
<td>330</td>
</tr>
<tr>
<td>User charges</td>
<td>-1,175</td>
<td>1</td>
<td>-9</td>
</tr>
<tr>
<td>During Construction &amp; Maintenance</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NET BUSINESS BENEFITS</td>
<td>17,8150</td>
<td>1,418</td>
<td>2,911</td>
</tr>
</tbody>
</table>

Private sector provider impacts

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>153,513</td>
<td>73</td>
<td>157,439</td>
</tr>
<tr>
<td>Operating costs</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Investment costs</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>METRO total revenue</td>
<td>-227,757</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>reimbursement</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
### User Benefits

<table>
<thead>
<tr>
<th></th>
<th>All Modes</th>
<th>Road</th>
<th>Public Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td>74,244</td>
<td>73</td>
<td>153,439</td>
</tr>
</tbody>
</table>

**Other business impacts**

<table>
<thead>
<tr>
<th>Developer contributions</th>
<th>-</th>
<th>-</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET BUSINESS IMPACT</td>
<td>-56,394</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL Present Value of Transport Economic Efficiency Benefits (TEE)</td>
<td>197,537</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Spatial Distribution of Benefits

5.19 Figure 5.2 shows the sector level spatial distribution of travel time benefits and disbenefits. This shows that there are large benefits in areas along extension line as a result of the scheme. These benefits are primarily public transport benefits arising from journey time savings for passengers switching from bus to metro, however, there are also highway benefits generated by people moving from car to metro. This modal shift has a secondary impact on the local area as it improves congestion across the corridor.

5.20 There are further benefits to areas currently served by metro, especially to the north of Wednesbury as a result of increases in metro frequency and service provision along the existing line.
WIDER ECONOMIC IMPACTS

Approach

5.21 The current information source for the process of calculating Wider Impacts is the latest WEBTAG Unit for Wider Impacts (TAG Unit A2.1, January 2014\(^1\)). This explains the theory of Wider Impacts, the data sources (including the DfT Wider Impacts Dataset workbook\(^2\)) and full details for the calculation methodology.

5.22 TAG Unit A2.1 para. 1.1.2 states that Wider Impacts “is the term given to some of the economic impacts of transport that are additional to transport user benefits. Economic theory indicates that under conditions of perfect competition for both the transport and transport-using sectors, a properly specified appraisal of a transport scheme would accurately estimate all welfare impacts. Transport schemes are expected to have impacts in markets other than transport (such as the labour market, product market, and land market). However, in perfectly competitive markets, the value of increased output, for example, would be captured through the change in consumer surplus of business and freight traffic, whilst the value of increased employment would be captured through the change in consumer surplus of commuter traffic.”

5.23 The DfT software ‘Wider Impacts in Transport Appraisal’ (WITA) has been developed for estimation of Wider Impacts and has been used in this assessment.

5.24 As of 2014, the types of Wider Impacts that need to be evaluated are:

- WI1 – Agglomeration
- WI2 – Output change in imperfectly competitive markets
- WI3 – Tax revenues arising from labour market impacts (from labour supply impacts and from moves to more or less productive jobs)

5.25 “Agglomeration” is the concentration of economic activity over an area. Agglomeration benefits arise because firms derive productivity benefits from being close to one another. If transport investment brings firms closer together and closer to their workforce this may generate an increase in labour productivity, product input, access to labour markets, knowledge and technology spill overs. These may be above and beyond that which would be expected from direct user benefits alone.

5.26 A transport intervention that reduces transport costs for a firm allows output and output profitability to increase. Profitability and welfare gain increase as the gap between consumers’ willingness to pay and the cost of production widens. This is measured in WI2 – Output Change in Imperfectly Competitive Markets.

5.27 WI3 is focused on tax revenues arising from labour market impacts (including labour supply impacts and moves to more or less productive jobs).

5.28 The welfare benefits from labour market impacts are partially captured in commuter user benefits but the tax implications are not. This is because commuters value benefits in terms of post-tax incomes. Tax revenues include changes to income tax, national insurance

\(^{1}\) https://www.gov.uk/government/publications/webtag-unit-a2-1-wider-impacts

contributions and corporation tax. As a Wider Impact tax revenues can be affected by the two following labour market factors:

- Labour Supply Impacts - Transport costs are likely to affect the overall costs and benefits to an individual from working. In deciding whether to work, an individual will weigh the costs of working, including travel costs, against the wage rate of the job travelled to.
- Move to More or Less Productive Jobs -- Changes in transport costs are likely to affect the overall costs and benefits to an individual from working in different locations and the benefits to business of operating and employing people in different locations. This can potentially result in jobs moving between locations with differential productivity levels.

Wider Impacts Benefits

5.29 WebTAG A1.2 provides a suitable format for the reporting of the results of Central Estimates of Wider Impacts. The results have been reported in this format in Table 5.4.

Table 5.4: WBHE Central Estimate of Wider Impacts (£000, 2010 Price Base)

<table>
<thead>
<tr>
<th>WI</th>
<th>2021</th>
<th>2031</th>
<th>60 Year Appraisal Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>WI1: Agglomeration</td>
<td>778</td>
<td>2,360</td>
<td>100,121</td>
</tr>
<tr>
<td>WI2: Output in Imperfectly Competitive Markets</td>
<td>17,626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WI3: Labour Supply Impact (No resident relocation)</td>
<td>115</td>
<td>83</td>
<td>3,121</td>
</tr>
<tr>
<td>Total Wider Impacts</td>
<td>893</td>
<td>2,443</td>
<td>120,868</td>
</tr>
</tbody>
</table>

5.30 This approach gives a total Wider Impact Benefit of £120.8 million across the 60 year appraisal period. The extension will improve accessibility between Sandwell and Dudley and the wider West Midlands area, including Birmingham. This in turn generates welfare benefits and agglomeration benefits. Residents who live along the metro corridor will be positively impacted since they will be able to access jobs in important and growing employment areas such as Birmingham City Centre. The scheme will also benefit firms located along the metro corridor as their employees will be able to access work easier and quicker. This may increase their attractiveness as a place of work. The scheme is also likely to expand employee catchment areas for firms in Birmingham and Wolverhampton, allowing companies to employ employees from further afield. These jobs may be more skilled and higher paid to jobs presently available in Sandwell and Dudley and consequently provides an enhancement to economic prosperity and personal wealth.

ENVIRONMENTAL APPRAISAL

NOISE

5.31 The impact of the scheme on noise was assessed by Environmental Resources Management (ERM) on behalf of TfWM. ERM is an independent environmental consultancy with extensive experience of undertaking EIAs for major transport infrastructure schemes. The assessment concluded that:

‘Noise impacts have been assessed against the most stringent noise impact threshold criteria, taking into account changes in ambient noise expected to result from the proposed scheme.'
As a result, potentially significant noise impacts have been predicted in four areas (Lindley Avenue, Cochrane Road, Tudor Court and Harrowby Drive) affecting up to approximately 130 properties. Mitigation measures will be considered for each of these properties, although there is no statutory requirement to do this.3

**AIR QUALITY**

5.32 The impact of the scheme on local air quality was assessed by Environmental Resources Management (ERM) on behalf of TfWM. ERM is an independent environmental consultancy with extensive experience of undertaking EIAs for major transport infrastructure schemes. The assessment concluded that:

‘The Wednesbury to Brierley Hill scheme is predicted to have a negligible impact on local air quality in the Brierley Hill area.

The majority of the changes in traffic flows as a result of traffic management and redistribution are minimal, with only Mill Hill and Pedmore Road experiencing increases greater than 10%. Sensitive receptors along these two routes (Primary School on Mill Street and 2 Nottingham Way) are predicted to experience negligible increases in pollutant concentrations. It is predicted that there will be a negligible decrease in pollutant concentrations at the former Brier School and St Mary’s Roman Catholic School, also identified as potentially sensitive receptors.

In terms of regional and global air quality there is a predicted to be a slight reduction in carbon dioxide emissions from the vehicle fleet travelling within the study area. The annual emissions of carbon dioxide at the source of the electricity generated to power the trams are predicted to be in the region of 6000 tonnes.4

**GREENHOUSE GAS**

5.33 The Greenhouse Gases impacts of the scheme have been obtained from the TUBA assessments. This appraisal has identified a £0.362m (2010 prices and values) benefit due to the predicted reduction in Greenhouse Gas emissions.

**LANDSCAPE/TOWNSCAPE/HISTORIC ENVIRONMENT**

5.34 The scheme is predominantly to be constructed on a dis-used railway line. As a result, the Landscape, Townscape and Historic Environment impacts of the scheme will be minimal along these sections.

5.35 However, the street running sections through Dudley and Brierley Hill will result in a significant improvement in the townscape through these sections as measures are to be implemented to improve the street environment.

5.36 Each of the new stations proposed as part of the Metro Extension, as well as the on-street running section of track through Dudley, will be accompanied by significant improvements to the surrounding urban realm. Although not a traditional methodology in transport appraisal, the consideration of wider benefits brought by urban realm improvements is becoming an increasingly popular approach.

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4 Midland Metro Environmental Statement, Section 6.5 Air Quality and Climate Change, https://www.tfwm.org.uk/development/midland-metro-extensions/wednesbury-brierley-hill/
integral part of the process. Urban realm assessment allows the monetisation of benefits associated with improved journey ambience experienced by pedestrians moving through the area.

5.37 This economic benefit can be quantified using the Valuing Urban Realm Toolkit (VURT) methodology developed by Transport for London (TfL). In order to capture the intrinsic value of how users assess enhanced urban realm TfL completed stated preference research to estimate respondents’ willingness to pay for improvements to spaces they use. The results of this study have been applied to the Pedestrian Environment Review System (PERS) to allocate a monetary value to individual PERS scores. By completing a PERS audit before and after a scheme is implemented, and using the values proposed by TfL, it is possible to estimate the benefits derived from urban realm improvements. The TfL methodology is applicable to the Brierley Hill Metro Extension with some modification to accommodate the socio-economic differences between the study area and London. This approach has been chosen because through being based no PERS scores VURT allows an assessment in change in quality of a range of different factors which contribute to the perception of urban realm. This is a more nuanced approach that the simple values per km of the introduction of seven specific aspects that are listed in the March 2017 WebTAG release.

5.38 A modified version of TfL’s Valuing Urban Realm Toolkit has been used to estimate the benefits for pedestrians in terms of journey quality from improvements to urban realm that will accompany the on-street running section of the Brierley Hill Metro Extension. The same approach has also been used for stations along the other sections of the extension. This provided total benefits as shown in Table 5.5.

5.39 These benefits have not been included in the core benefits assessment for this scheme and are outside of the core BCR.

Table 5.5: Urban Realm Station Pedestrian Journey Ambience Benefits

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Scheme Benefits (2010 Prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Street Running Sections</td>
<td>£543,953</td>
</tr>
<tr>
<td>Other Stations (not included)</td>
<td>£215,649</td>
</tr>
</tbody>
</table>

**BIODIVERSITY**

5.40 This has not yet been assessed.

**WATER ENVIRONMENT**

5.41 The impact of the scheme on the local water environment has not been undertaken as the impacts are deemed insignificant.

**SOCIAL APPRAISAL**

**COMMUTING AND OTHER USERS**

5.42 Benefits to commuting and other users are included in the TEE table presented earlier and form part of the TUBA benefits outlined in the Economy appraisal of the scheme.

5.43 In line with WebTAG requirements a distributional impact appraisal of non-business journeys has been carried out to demonstrate the distribution of user benefits. The Distributional Impact screening proforma is shown in Appendix B. Sectored user benefits for commuting
and other purposes have been mapped against the Indices of Deprivation Income Domain data to illustrate the potential distribution of user benefits amongst different income groups. The sector system used for the TUBA assessment has been applied in this analysis. The sector system was devised using LSOAs data and LSOAs within the most sectors have the same, or very similar, income deprivation domains.

Figure 5.3 shows this distribution of benefits. Table 5.6 shows tabulates the user benefits according to area deprivation. The Wednesbury to Brierley Hill METRO extension has a positive impact on all income distribution quintiles. The largest benefit is associated with areas which fall within the most deprived quintile (0%<20%). This includes Brierley Hill and Dudley town centres and also Great Bridge. The scheme also provides benefits to deprived areas on the existing metro line between Wolverhampton and Birmingham. These benefits come from the improved frequency of the metro and enhanced connectivity to areas of Dudley and Sandwell.

### Figure 5.3: Distributional Impacts: User Benefit Distribution

<table>
<thead>
<tr>
<th>IMD Income Domains (£m)</th>
<th>Most deprived areas</th>
<th>Least deprived areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%&lt;20%</td>
<td>186.5</td>
<td>19.6</td>
</tr>
<tr>
<td>20%&lt;40%</td>
<td>48.6</td>
<td>3.8</td>
</tr>
<tr>
<td>40%&lt;60%</td>
<td>52.9</td>
<td>1.9</td>
</tr>
<tr>
<td>60%&lt;80%</td>
<td>3.8</td>
<td>0.0</td>
</tr>
<tr>
<td>80%&lt;100%</td>
<td>1.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>293.6</td>
<td>0.0</td>
</tr>
</tbody>
</table>

| | Total benefits (ΣLSOAs) | Total disbenefits (ΣLSOAs) | Share of user benefits | Share of user disbenefits | Share of population in the impact area |
|-------------------------|---------------------------|------------------------|--------------------------|-----------------------------|
| Total benefits (ΣLSOAs) | 293.6                     | 0                      | 63%                      | 0%                          | 54%                         |
| Total disbenefits (ΣLSOAs) | 0                        | 0                      | 0%                       | 0%                          | 0%                          |
| Share of user benefits | 63%                       | 0                      | 17%                      | 1%                          | 27%                         |
| Share of user disbenefits | 0                        | 0                      | 0%                       | 0%                          | 0%                          |
| Share of population in the impact area | 54%                       | 0                      | 16%                      | 1%                          | 27%                         |
The scheme will have a beneficial impact on reliability for passengers switching mode from bus and car to METRO.

Congestion which is a major issue in the Black Country affecting both car and bus journey times. The unreliability of highway journey times and currently act as a barrier to employment for many residents of Sandwell and Dudley. The scheme is expected to provide a more reliable, higher quality mode of transport within the Black Country and between the Black Country and Birmingham. A journey time comparison between the Metro route and existing bus routes servicing Birmingham City Centre show that with the scheme in place, public transport times will reduce by around 50%.

The scheme will have limited impacts on the levels of physical activity, and therefore a detailed assessment of this element has not been undertaken.

The scheme will have a beneficial impact on journey quality for passengers switching mode from bus to METRO.

DfT’s Transport Analysis Guidance (WebTAG) guidance states that the impact on accidents needs to be analysed as part of an economic appraisal for a road scheme. WebTAG unit A4.1 recommends that COBALT software is used for this accident assessment.

COBALT predicts that over the 60 year appraisal period, the scheme will result in an overall accident benefit of £1.249m (2010 prices and values).

The scheme will have little impact on security, and therefore a detailed assessment of this element has not been undertaken.

The Wednesbury to Brierley Hill Metro Extension is a crucial element in enhancing connectivity and accessibility both within the Black Country and between the Black Country and the wider West Midlands. In an area characterised by unemployment, low wages and low car ownership, a reliable and affordable public transport system which increases movement and connects people to areas of workplaces is crucial element in promoting economic growth and increasing living standards.
5.54 In line with WebTAG requirements a distributional impact appraisal of accessibility has been undertaken. The Distributional Impact screening proforma is shown in Appendix B.

5.55 Accessibility assessments have been carried out using guidance contained in WebTAG Unit A4.2. A strategic accessibility assessment has been carried out at for two strategic locations along the Brierley Hill metro extension; Dudley Town Centre and Merry Hill shopping centre. Both of these have been chosen due to their regional importance as they are key areas of employment, education, recreation and retail.

5.56 An average weighted journey time for each origin and destination pair was calculated using travel time data from the TfWM Public Transport model. The DM and DS journey times from each zone to Dudley and Merry Hill have been plotted graphically in categories of 0 – 20 minutes, 20 – 40 minutes and 40 – 60 minutes to show the areas where accessibility is significantly enhanced as a result of the metro extension. These are shown for the AM peak in Figures 5.4 and 5.5.

5.57 The areas within a 0 – 20 minute public transport journey time of Dudley or Merry Hill are shown in grey. The areas within a 20 - 40 minute public transport journey time of Dudley or Merry Hill are shown in red and the areas within a 40 – 60 minute public transport journey time of Dudley or Merry Hill are shown in green. The darker shades depict the additional areas which experience a significant positive shift in journey times from one category to another (ie 40 – 60 minute journey in the DM becomes a 20 – 40 minute journey in the DS), although it is likely that all zones within a particular journey time category will see improvements in public transport journey times.
The model zones have been linked with their respective LSOAs, to enable an accurate comparison of Car and No Car households between the scenarios. The data is summarised for selected time bands as illustrated within Table 16 of WebTAG Unit A4.2.
The outputs from the summary provide an indication of the overall score for accessibility for Car and No Car Households from Large Beneficial to Large Adverse as summarised within Table 15 of WebTAG Unit A4.2. Appendix D provides the analysis for accessibility assessment.

An overall score for each time period and destination is shown in Table 5.7.

Table 5.7: Distributional Impacts: User Benefits

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>IP</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUDLEY</td>
<td>Large Beneficial</td>
<td>Slight Beneficial</td>
<td>Large Beneficial</td>
</tr>
<tr>
<td>MERRY HILL</td>
<td>Large Beneficial</td>
<td>Slight Beneficial</td>
<td>Large Beneficial</td>
</tr>
</tbody>
</table>

The scheme increases the accessibility to and from Dudley. The WBHE scheme has a large beneficial impact on both households with and without a car, and the benefits are larger for households without a car. With the scheme in place, the number of people living between a 31-40 minute journey time away from Dudley significantly increases.

The scheme has a large beneficial impact on Merry Hill which is an important employment, retail and leisure area. The scheme significantly increases the number of households within a 41 - 60 minute public transport journey time of Merry Hill.

**AFFORDABILITY**

The scheme is expected to have limited impacts on the money costs of travel. Any changes to vehicle operating costs will be captured in TUBA.

**SEVERANCE**

The scheme is expected to have no additional negative impact on severance as the line will generally utilise an existing railway alignment.

The proposed alignment of the metro follows an existing, disused, heavy rail line. There are existing footbridges in place over the current heavy rail line and in some instances the quality of these footbridges are likely to improve as part of the design for new stations. The scheme creates some new footbridges at stops along the route providing a small benefit.

**OPTION VALUES**

The scheme is expected to enhance the local public transport network and in doing so improve the options for those requiring access to current and future residential, commercial, and leisure sites in the area.

**OTHER APPRAISAL**

**LAND VALUE UPLIFT**

Where a development is dependent on the delivery of a scheme it is not possible to include the development within the land use assumptions used in the appraisal as there must be consistency between the with and without scheme scenarios.

However, the Midland Metro extension to Brierley Hill is likely to unlock significant areas of brownfield land and facilitate growth and development along the corridor. Whether the metro unlocks the land for residential, employment or industrial uses, the value of the land is expected to increase due to development. This increase in land value is seen as a benefit and can be included in the appraisal.
As part of the appraisal of Brierley Hill metro extension project a series of workshops and meetings with local authorities and stakeholders were organised to understand the likely locations of dependent development. Table 5.8 provides a summary of the dependant developments which were identified in these discussions along with the expected land value in 2010 prices and values.

Table 5.8: Developments dependent on the Midland Metro extension

<table>
<thead>
<tr>
<th>Development</th>
<th>Current Land Use</th>
<th>Expected Land Use</th>
<th>Size</th>
<th>Expected Land Value (£’000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portesfield/Cavendish House, Dudley</td>
<td>Vacant Land</td>
<td>Retail</td>
<td>11 acres</td>
<td>5,384</td>
</tr>
<tr>
<td>Flood Street, Dudley</td>
<td>Vacant Land</td>
<td>Residential Leisure Centre</td>
<td>7 acres</td>
<td>1,468</td>
</tr>
<tr>
<td>Castlegate, Dudley</td>
<td>Castlegate</td>
<td>Retail</td>
<td>8 acres</td>
<td>3,181</td>
</tr>
<tr>
<td>Enterprise Zone</td>
<td>Vacant Land</td>
<td>Commercial</td>
<td>172 acres</td>
<td>32,164</td>
</tr>
<tr>
<td>Merry Hill</td>
<td>Vacant Land</td>
<td>Residential Retail</td>
<td>222 acres</td>
<td>74,315</td>
</tr>
</tbody>
</table>

In addition to developments in Table 5.6, the impact of the metro on the Black Country Living Museum and Dudley Zoo was also considered. The metro is seen as critical in meeting future growth objectives for both attractions. Highway congestion and parking restrictions constrain current visitor numbers however the presence of the metro will provide a fast, reliable and sustainable alternative for visitors. It is anticipated that by 2022 (after the implementation of the metro) they will experience an additional 280,000 visitors over and above their general year on year growth⁵.

Local land values were provided by New Heritage Regeneration Ltd. These were rebased to 2010 prices giving the final land values presented in Table 5.9.

Table 5.9: Land Values (2010 prices)

<table>
<thead>
<tr>
<th>Type</th>
<th>£ / acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>348,817</td>
</tr>
<tr>
<td>Leisure Centre</td>
<td>183,773</td>
</tr>
<tr>
<td>Retail</td>
<td>581,362</td>
</tr>
<tr>
<td>Distribution</td>
<td>137,830</td>
</tr>
<tr>
<td>Commercial</td>
<td>278,889</td>
</tr>
<tr>
<td>Castlegate</td>
<td>183,773</td>
</tr>
<tr>
<td>Vacant Land</td>
<td>91,886</td>
</tr>
</tbody>
</table>

⁵ New Heritage Regeneration Ltd
Lye Urban Village

5.72 Lye is situated south of Brierley Hill/Merry Hill and centres around the junction of the A4036 and A458 but is also served by a railway station situated on the Jewellery Line between Birmingham and Worcester via Stourbridge. Although served by this line which runs to the east and south-west, there is no direct rail/metro link to towns to the north such as Dudley and Wolverhampton. The site is within 2-3km of Brierley Hill and the Metro Extension would bring greater rail/light rail accessibility to those towns and beyond without the need to travel to or near to Birmingham first.

5.73 The settlement of Lye itself is in transition, moving away from a heavily industrialised past towards an urban village of new sustainable residential areas as a result of its position and existing road and rail infrastructure and its proximity to the Brierley Hill Strategic Centre. It is proposed to redevelop many of its old industrial land and premises into a range of homes as well as create an attractive environment for those residences due to the potential offered by the River Stour and its valley which runs through the settlement as well.

5.74 There are in excess of 10 sites or areas in and around Lye which could accommodate future housing growth accommodating a range of housing types from one or two bed houses and apartments which would be attractive to commuters up to 3 or 4+ family housing along the Stour Valley.

5.75 It is anticipated that the transformation of the area to create a sustainable Urban Village would take 10-15 years to develop but would provide up to 1500 new homes and associated infrastructure across approximately 40 hectares of land.

5.76 The regeneration of areas around Lye has not been claimed as a benefit in this appraisal as it is not possible to quantify how much the development is dependent on the metro extension. However, the land value is expected to increase by £19.3 million, in 2010 prices and values, assuming that type of land moves from industrial/vacant land to residential land use.

**SMARTER CHOICES AND TRAVEL PLANNING INITIATIVES**

5.77 The impacts of the provision of smarter choices and travel planning in the vicinity of the proposed metro line are discussed in Appendix E.

5.78 This assessment utilised the outcomes of research in the West Midlands, and elsewhere in the UK to form a better understanding of the potential uplift in patronage and reductions in car usage as a result of both workplace and personal travel planning, in the vicinity of the planned Brierley Hill Metro extension in the Black Country. The majority of this research incorporates results from the Smart Network, Smarter Choices (SNSC) project, which is the West Midlands Local Sustainable Transport Fund project, run in partnership with Centro and the West Midlands Local authorities.

5.79 This suggests that for the proposed Brierley Hill extension the use of the new services would be increased significantly through the implementation of a PJP type approach in the area which provides more detailed knowledge about ticket types, discounts, timetables and station facilities.
5.80 Travelling to the Metro stop is an important part of the journey individuals make and it is essential this is integrated and discussed as part of the PJP conversation. Encouraging individuals to use active travel to the stop is key and this has added benefits for health and wellbeing and reducing congestion around the stops. Consistent communication, in the right places, such as directly to employers and schools, within these locations, can have a positive impact in creating sustainable travel habits and increasing the use of active and sustainable travel modes.

5.81 The statistics and evidence suggest that smarter choices and travel planning could result in a potential uplift in the use of the Metro in the range of around 10%. This uplift has been incorporated into the core benefit appraisal.

**BUS OPERATOR IMPACTS**

5.82 The majority of bus routes in the vicinity of the new Metro route operate on a fully commercial basis. There are predominantly three likely impacts of Metro on current bus services:

- Direct passenger abstraction due Metro offering more attractive alternative journey, (this is analysed within the TUBA assessment).
- Direct passenger gains in journeys to Metro stops (this is analysed within the TUBA assessment).
- Passenger gains due to Metro offering new journey opportunities that may include use of the bus for some of new journey

5.83 The changes in passenger numbers will affect commercial bus routes in several ways:

- Cancellation – i.e. route ceases to operate
- Route is recast to reflect new travel opportunities offered by Metro
- Frequency changes + or – due to changes in demand
- Competition – the bus operators seek to compete with the new tram service

5.84 For the purposes of this assessment we have assumed that the bus operators response to the competition provided by the metro scheme will be to reduce the frequency of a number of competing routes to reflect the changes in patronage and ensure that the routes continue to operate on a commercial basis. We see no change in the frequencies of longer trunk bus routes which serve the main locations on the tram extension.

5.85 The main demand on this route is not end to end journeys given the options to change to rail or the existing metro line on route but rather a series of overlapping local demands which are unlikely to divert directly to tram due the distance at which the route is from the Metro line. Therefore the main competing routes include:

- Route 74 currently a 5 minute frequency. This is a major competing route to the Metro Scheme and as such passenger numbers will be significantly affected. For the purposes of this business case it has been assumed that this route will drop to a 10 minute frequency resulting in a saving of 6 vehicles.
- Route 87 current peak hour frequency of 8 minutes For the purposes of this business case it has been assumed that this route will drop to a 15 minute frequency resulting in a saving of 3 vehicles.
X96 has a range of functions in the Merry Hill and Dudley area. The effect of a direct tram route from Merry Hill and Dudley would allow this route to be split into two sections Wren’s Nest (Upper Gornal) to Dudley and Stourbridge to Brierley Hill. For the purposes of this business case it has been assumed that changes to this route will result in saving of 2 vehicles.

Between Dudley and Brierley Hill there it has been assumed that route 81 will be curtail at Dudley. This will result in the saving of 1 vehicle.

In order to address the need for a service to link to the tram from the Tipton area it has been assumed that a the new collector service will be developed replacing routes 22 and 42. For the purposes of this business case it has been assumed that these changes will result in a Net saving of 3 vehicles.

Given the current competition on route 43 It has been assumed that the implementation of the metro scheme will result in a decrease in frequency resulting in a further reduction of 3 vehicles from the network.

5.86 These network changes have been included in the transport modelling and therefore the net passenger benefits are included in the TUBA outputs.

5.87 Overall, as a direct response to the competition associated with the metro scheme and the resultant reductions in patronage on competing services it has been assumed that the bus operators will reduce their vehicle fleet in the vicinity of the scheme by 18 vehicles in order to remain commercially viable.

5.88 The typical cost of deploying a single vehicle on local bus services based on industry standard indices\(^6\) is circa £130,000 per annum. With an operator profit margin this suggests that £140,000 per annum per bus in revenue is required for a sustainable operation. This indicates that operational savings up to £2,340,000 (18 x £130,000) could be taken into the financial and economic appraisals at current (2016) prices. This equates to £44.7 million over the 60 year appraisal period in 2010 prices and values.

5.89 The Bus Operator Impacts are discussed further in Appendix F.

**Generated Trips**

5.90 The PRISM model does not take account of new trips that may be undertaken as a result of the metro extension. These ‘generated’ trips do not come from other modes but are considered to be new journeys on the network.

5.91 Previous experience indicates that this extra demand can uplift the metro patronage between 5% - 10%, depending on the peak. This is likely to have a significant impact on the benefits generated by the scheme.

5.92 The TUBA user and revenue benefits for specific sectors in close proximity to the metro route have been uplifted by 5% in the AM and PM peaks and 10% in the Inter Peak. The benefits have only been uplifted for sectors along the new metro extension where a new trip may be generated by the scheme. The sectors which have experienced an uplift in benefits are shown in light and dark green in Figure 5.6.

\(^6\) CPT Cost Indices
Figure 5.6: Generated Trips: Catchment Area
E6. Value for Money

COST BENEFIT APPRAISAL TABLES

6.1 This section presents key economic outputs contained in the Analysis of Monetised Costs and Benefits table. In accordance with latest TAG guidance, three variations of the AMCB table have been provided in this section:

- Level 1 assessment: initial BCR focusing on user benefits and assuming a fixed land use scenario.
- Level 2 assessment: adjusted BCR reflecting wider economic impact benefits assuming a fixed land use scenario
- Level 3 assessment: adjusted BCR assuming a different land use scenario which reflects dependent development and associated land value uplift benefits (regeneration benefits)

Level 1 Assessment

6.2 Table 6.1 presents the full AMCB table and presents the initial BCR. This is based user benefits and greenhouse gas benefits derived from TUBA and accident benefits derived from COBALT. The costs include both operational costs and infrastructure costs.

6.3 In this scenario the scheme has a benefit to cost ratio of 1.37.

Table 6.1: Level 1 Net Present Value and Benefit to Cost Ratio

<table>
<thead>
<tr>
<th></th>
<th>£’000 (2010 PRICES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhouse Gases</td>
<td>362</td>
</tr>
<tr>
<td>Accidents</td>
<td>1,249</td>
</tr>
<tr>
<td>Smarter Choices and Travel Planning Initiatives</td>
<td>23,751</td>
</tr>
<tr>
<td>Bus Initiatives</td>
<td>44,794</td>
</tr>
<tr>
<td>Network Rail Maintenance Saving</td>
<td>3,087</td>
</tr>
<tr>
<td>Economic Efficiency: Consumer Users (Non-Business)</td>
<td>253,931</td>
</tr>
<tr>
<td>Economic Efficiency: Business Users and Providers</td>
<td>-56,394</td>
</tr>
<tr>
<td>Wider Public Finances (Indirect Taxation Revenues and HCA Contribution)</td>
<td>-25,266</td>
</tr>
</tbody>
</table>
Level 2 Assessment

6.4 Table 6.2 presents the full AMCB table and presents the initial BCR. This is based on the core PVB presented in Table 6.3 and includes the wider economic impacts generated using the DfT’s WITA software. The costs include both operational costs and infrastructure costs.

6.5 In this scenario the scheme has a benefit to cost ratio of 1.92.

<table>
<thead>
<tr>
<th>£’000 (2010 PRICES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present Value of Benefits (see notes) (PVB)</td>
</tr>
<tr>
<td>Broad Transport Budget</td>
</tr>
<tr>
<td>Smarter Choices and Travel Planning Initiatives</td>
</tr>
<tr>
<td>Present Value of Costs (see notes) (PVC)</td>
</tr>
</tbody>
</table>

OVERALL IMPACTS

<table>
<thead>
<tr>
<th>£’000 (2010 PRICES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Present Value (NPV)</td>
</tr>
<tr>
<td>Benefit to Cost Ratio (BCR)</td>
</tr>
</tbody>
</table>

Level 3 Assessment

6.6 Table 6.3 presents a full AMCB table which takes account of Land Value Uplift. This is based on the core PVB presented in Table 6.3 and includes the wider economic impacts generated using the DfT’s WITA software and the benefits arising from the metro scheme ‘unlocking’ development along the corridor. The costs include both operational costs and infrastructure costs.

6.7 In this scenario the scheme has a benefit to cost ratio of 2.48.
### Table 6.3: Level 3 Net Present Value and Benefit to Cost Ratio

<table>
<thead>
<tr>
<th></th>
<th>£’000 (2010 PRICES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVB</td>
<td>296,046</td>
</tr>
<tr>
<td>Wider Economic Impacts</td>
<td>120,868</td>
</tr>
<tr>
<td>Land Value Uplift</td>
<td>121,141</td>
</tr>
<tr>
<td>Adjusted Present Value of Benefits (see notes) (PVB)</td>
<td>538,055</td>
</tr>
<tr>
<td>Broad Transport Budget</td>
<td>213,541</td>
</tr>
<tr>
<td>Present Value of Costs (see notes) (PVC)</td>
<td>216,858</td>
</tr>
<tr>
<td><strong>OVERALL IMPACTS</strong></td>
<td></td>
</tr>
<tr>
<td>Net Present Value (NPV)</td>
<td>321,196</td>
</tr>
<tr>
<td>Benefit to Cost Ratio (BCR)</td>
<td>2.48</td>
</tr>
</tbody>
</table>

### Appraisal Summary Table

The full AST for the scheme is presented below.
| Name of scheme: | Wednesbury to Brierley Hill Metro Extension |
| Description of scheme: | Extension of the Midland Metro line from Wednesbury to Brierley via Dudley Town Centre. |

### Apraisal Summary Table

#### Impacts

**Economy**
- **Business users & transport providers**
  - The scheme results in a net benefit to public transport and highway users from improved journey times and greater choice of public transport services and reduction in vehicle operating costs. The scheme results in an increase in user charges, reflecting the higher cost of METRO compared to alternative modes. There is a private sector revenue benefit of £144m.
  - Value of journey time changes (£): 35,935
  - Net journey time changes (£): -56,394

- **Regeneration**
  - Land Value uplift of £21m expected as a result of development
  - Benefit of £15m expected across the West Midlands.
  - Strong beneficial
  - 121,141

- **Noise**
  - Undertaken by ERM.
  - Neutral

#### Environmental
- **Greenhouse gases**
  - Includes both highway and public transport emissions.
  - Change in increased carbon over 50y (CO2e):

#### Social
- **Commuting and other users**
  - The scheme results in a net benefit to public transport and highway users from improved journey times and greater choice of public transport services and reduction in vehicle operating costs. The scheme results in an increase in user charges, reflecting the higher cost of METRO compared to alternative modes.
  - Value of journey time changes (£): 290,800
  - Net journey time changes (£): -253,031
  - Strong beneficial for all social groups

- **Health**
  - The scheme will have little impact and therefore a detailed assessment of this element has not been undertaken.
  - Neutral

- **Physical activity**
  - The scheme will have little impact and therefore a detailed assessment of this element has not been undertaken.
  - Neutral

- **Journey quality**
  - The scheme will have a beneficial impact on journey quality for passengers switching mode from bus to METRO.
  - Strong beneficial

- **Accidents**
  - The scheme will have little impact and therefore a detailed assessment of this element has not been undertaken.
  - Neutral

- **Security**
  - The scheme will have limited impacts on the security of travel. Any changes to vehicle operating costs will be captured in TUGA.
  - Strong beneficial

- **Access to services**
  - The scheme is a crucial element in enhancing connectivity and accessibility both within the Black Country and between the Black Country and the wider West Midlands. In an area characterized by unemployment, low wages and low car ownership, a reliable and affordable public transport system increases movement and connects people to areas of workplace is a crucial element in promoting economic growth and increasing living standards.
  - Neutral

- **Affordability**
  - The scheme will have limited impacts on the money costs of travel. Any changes to vehicle operating costs will be captured in TUGA.
  - Strong beneficial

- **Governance**
  - The proposed alignment of the metro follows an existing, disused, heavy rail line. There are existing footbridges in place over the heavy rail line and in some instances the quality of these footbridges is likely to serve as part of the design for new stations. However, in general the corridor is poorly accessible by pedestrians and the dense vegetation does not make it easy to cross. The scheme creates some new footbridges at stops along the route however the impact of the footbridges are likely to be only very slightly beneficial as crossing is already possible at street level at these locations.
  - Neutral

- **Option and non-use values**
  - The scheme is expected to enhance the local public transport network and in doing so improve the options for those requiring access to current and future resident, commercial, and leisure sites in the area.
  - Strong beneficial

#### Public
- **Cost to Broad Transport Budget**
  - Cost to broad transport budget is £443.4 million, including infrastructure and operational costs
  - 213,541

- **Indirect Tax Revenues**
  - The scheme generates an increase in spending on unsased public transport which consequently reduces tax receipts
  - 25,286
ECONOMIC JUSTIFICATION FOR SCHEME

6.8 Midland Metro is recognised as a key aspect of an integrated Rapid Transit Network, and future expansion along the Wednesbury to Brierley Hill corridor is identified as part of a long-term metropolitan rail and rapid transit network. The proposed extension from Wednesbury to Brierley Hill via Dudley Town Centre is also the linchpin to enable economic growth for the area to be realised.

6.9 In addition to supporting a broad range of national and West Midlands objectives, the scheme is crucial to the economic prosperity of the Black Country and district centres of Dudley and Brierley Hill. It will enable the Black Country to achieve economic prosperity, attract businesses and increase opportunities for those on smaller incomes. The extension will improve accessibility to the employment opportunities in the wider West Midlands area ensuring the deprived areas that surround the line can access the job opportunities in these important and growing employment districts such as Birmingham City Centre. It is also likely to benefit employers in Birmingham and Wolverhampton as the metro expands their employee catchment area.

6.10 The scheme will have a positive impact on congestion which is a major issue in the Black Country affecting both car and bus journey times. The unreliability of highway journey times and high car parking prices currently act as barriers to employment for many residents of Sandwell and Dudley. The scheme is expected to provide a more reliable, higher quality mode of transport within the Black Country and between the Black Country and Birmingham. A journey time comparison between the Metro route and existing bus routes servicing Birmingham City Centre show that with the scheme in place, public transport times will reduce by around 50%. The scheme therefore provides an opportunity for residents to access employment using reliable mode of public transport. This will, in turn, reduce car usage and have a positive impact on air quality.

6.11 The indices of multiple deprivation analysis, presented in the strategic case, highlights that a large number of LSOAs along the metro corridor fall within the most deprived quintile (0%<20%). The Wednesbury to Brierley Hill METRO extension have a positive impact on these most deprived areas. This includes Brierley Hill and Dudley town centres, the Dudley Port area and Great Bridge. The scheme also provides benefits to deprived areas on the existing metro line between Wolverhampton and Birmingham. The scheme enhances connectivity and provides an alternative, reliable and safe form of transport which is important for accessing workplaces and leisure facilities. The result is improvements to employment, social integration and wellbeing.

6.12 There are several brownfield sites along the Wednesbury to Brierley Hill metro corridor where future development is dependent on the metro scheme coming forward. The presence of the metro will “unlock” these sites and significantly improve accessibility and connectivity to surrounding areas. This is expected to result in increases in growth and job creation.

6.13 The scheme is integral to the Brierley Hill Business and Innovation Enterprise Zone. This 70 Ha of new and regenerated business space will reflect the strategic aims of the Black Country Local Enterprise Partnership (LEP) and will deliver up to 7,000 net new jobs, an estimated 373 new businesses GVA Uplift of £589.7m per annum and £165m in business rates uplift over 25 years.
6.14 It is also significant element of the Black Country Garden City. A prospectus has been produced in partnership between the Black Country LEP, local authorities and the Homes and Communities Agency which states that they “are working together to create new aspirational locations for quality housing development”. It also states there is potential for “45,000 new homes over a 10-year period” and “to lever £6 billion investment”. The metro is a significant element in delivering these houses and is needed to ensure that residents can access the job opportunities in important and growing employment districts in the local area and wider West Midlands area.

6.15 Furthermore, the scheme is intrinsically linked to the Merry Hill Masterplan which is currently being developed by the site’s owners, Intu. The masterplan will significantly increase the scale of investment at Merry Hill and the Waterfront. As a sub-regional shopping and employment centre, the growth of Merry Hill will contribute to the wider regeneration of the area and has the potential to deliver 3,000 homes and over 300,000 sqm of commercial opportunities.

6.16 In terms of HS2, The Wednesbury to Brierley Hill Metro scheme is a critical element of the HS2 Connectivity programme as it results in enhanced public transport connectivity between the Black Country and Birmingham. This will ensure that the residents of Sandwell and Dudley have high quality access to the HS2 station at Curzon Street, and can therefore realise the significant economic benefits that HS2 is predicted to produce for the West Midlands area. It is proposed that the route will be completed as far as Birmingham by 2022 and allow residents of the Black Country to access the significant number of construction jobs associated with HS2.
Wednesbury to Brierley Hill

Business Case
Midland Metro Wednesbury to Brierley Hill Extension
Financial Case
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Appendices

F1 – Cost Summary
Financial Case Compliance

The table below, taken from the Department for Transport’s guidance on its approach to making major investment decisions, *The Transport Business Case* (April 2011), demonstrates the Financial Case’s fit with requirements.

<table>
<thead>
<tr>
<th>Element</th>
<th>Addressed in MCF Case</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Setting out approach to assess the affordability of the scheme</td>
<td>Chapter F1</td>
</tr>
<tr>
<td>Costs</td>
<td>Cost breakdown by year, component and funding source</td>
<td>Chapter F2 – Cost Estimation &amp; QRA: Table 3.2; Appendix F1</td>
</tr>
<tr>
<td>Budgets/Funding Cover</td>
<td>Funding cover for the project</td>
<td>Chapter F3 – Local Funding</td>
</tr>
</tbody>
</table>
F1. Introduction

**Background**

1.1 This Financial Case has been developed in accordance with the DfT’s Transport Business Case guidance. It presents the affordability of the Midland Metro Wednesbury to Brierley Hill Extension scheme.

**Outline of the Financial Case**

1.2 The elements that describe the case are set out in two chapters. The chapters cover the following areas:

- Chapter F2 – Cost Estimation and QRA sets out the capital costs of the project
- Chapter F3 – Funding describes the project funding arrangements
F2. Cost Estimation & QRA

Introduction

2.1 In preparing this business case, WMCA has carried out, through the Midland Metro Alliance, an initial estimate of the costs for implementing the project in order to ensure it provides a comprehensive, robust and reliable basis for the consideration of the Financial and Value for Money (Economic) Cases. This has considered all the major elements of the project, including trackwork and associated infrastructure, utilities diversions, land acquisition and tram purchase. The estimated cost is based upon a strong cost library using cost data from other similar schemes in the UK, informed by WMCA’s recent experience in procurement in the light rail market.

2.2 The estimated capital cost including optimum bias for the extension of Midland Metro Wednesbury to Brierley Hill Extension scheme is shown in Table 2.1 below.

Table 2.1: Project Outturn Cost Estimate including Optimum Bias (£M)

<table>
<thead>
<tr>
<th>Scheme element</th>
<th>Capital Cost</th>
<th>OB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>274.6</td>
<td>54.9</td>
<td>329.5</td>
</tr>
<tr>
<td>Trams</td>
<td>69.0</td>
<td>4.1</td>
<td>73.1</td>
</tr>
<tr>
<td>Total</td>
<td>343.6</td>
<td>59.1</td>
<td>402.7</td>
</tr>
</tbody>
</table>

Optimism Bias

2.3 Transport projects are inherently risky and subject to uncertainties due to the long planning horizon and complex interfaces. Often the project scope or ambition level will change during project development and implementation due to uncertainty at the earlier project stages. Hence, a certain degree of budget uncertainty exists which will typically be reduced through the project cycle.
To address the tendency for appraisers to be overly optimistic about key parameters, the Green Book (HM Treasury, 2003) suggests that appraisers should make explicit, empirically based adjustments to the estimates of a project's costs, benefits, and duration. These adjustments are based upon the appraisal of a number of contributory factors in the following categories:

- **Procurement** – complexity of contract structure, involvement of contractor in design, contractor capabilities, government guidance, disputes and claims and information management
- **Project Specific** – design complexity, degree of innovation and environmental impact
- **Client Specific** – adequacy of business case, number of stakeholders, funding availability, project management team and project intelligence
- **Environment** – public relations, site characteristics and permits/consents/approvals
- **External Influences** – political, economic, legislation/regulations and technology

In accordance with DfT guidance in relation to the value for money appraisal only, adjustments for optimism bias, applied on top of the identified QRA, have been based upon the empirical data available and reflect the characteristics of the costs under consideration.

For Metro there is a strong body of understanding and knowledge in relation to the cost estimates due to the ongoing experience of delivery of the BCCE and Fleet Replacement. In addition, for this scheme, Transport and Works Act Orders are secured and implemented, greatly reducing uncertainty around designs and the likelihood of externally imposed changes to the project that are inherent in the statutory processes.

As recognised in WebTAG, the level of optimism bias reduces as the development of a scheme progresses. As the Midland Metro Wednesbury to Brierley Hill Extension scheme is still at a preliminary development stage significant optimism bias has been applied to the costs. Despite Orders being in place. Therefore, for the value for money appraisal an optimism bias value of 20% has been applied to the Midland Metro extension capital costs. WMCA will be procuring the works efficiently through its innovative Midland Metro Alliance, the focus of which will be drive efficiencies in development and construction through innovation and smarter working.

For the tram costs an optimism bias value of 6% has been applied as these are largely an “off the shelf” product in today’s market.

Any cost over the £343.6m will be borne locally with the government funding fixed at £207m.
F3. Funding

Introduction

3.1 This chapter presents the proposed approach for funding the Midland Metro Wednesbury to Brierley Hill Extension. It is based upon the scheme costs described in Chapter F2 and set out below. The scheme is proposed to be funded from devolved Local Transport Growth Deal Funding, together with significant funding from Central government and WMCA Contribution.

Table 3.1: Outturn Scheme Cost Estimate (£m)

<table>
<thead>
<tr>
<th>Scheme element</th>
<th>Preparatory/Advanced Works Costs</th>
<th>Base Scheme Costs</th>
<th>QRA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>1.8</td>
<td>251.3</td>
<td>21.5</td>
<td>274.6</td>
</tr>
<tr>
<td>Trams</td>
<td></td>
<td>69.0</td>
<td></td>
<td>69.0</td>
</tr>
<tr>
<td>Total</td>
<td>1.8</td>
<td>320.3</td>
<td>21.5</td>
<td>343.6</td>
</tr>
</tbody>
</table>

Proposed Funding

3.2 In the GBSLEP Growth Deal announcement on 7 July 2014 the Government placed great importance on maximising the benefits of HS2.

3.3 The Growth Deal noted that HS2 is a game-changing opportunity for the West Midlands area, with two stations in Phase One: Birmingham Curzon in Birmingham city centre, and the Interchange in Solihull, adjacent to the NEC and Airport within the Hub of UK Central.

3.4 The Devolution Deal and HS2 Growth Strategy Implementation Plan identified the Wednesbury to Brierley Hill scheme as a high priority and subsequently included it as a named scheme costing £310m within the £8bn package of investment to provisionally be funded from two sources; £103m from WMCA contribution as part of the HS2 Connectivity Package and £207m from a separate ask to Government.
3.5 The Devolution Deal agreement made specific reference to this scheme in suggesting that as part of establishing a prioritised investment programme, the Combined Authority should bring forward business cases for individual transport projects for the government to consider, where required in line with existing agreements and processes, including the HS2 Interchange.

3.6 For WMCA to fully meet the maximum £343.6m current estimated cost, other funding contributions will be required to cover any expenditure above the £310m and therefore cover any risk expenditure incurred above that allowed for in the current cost estimate. Whilst the maximum cost outlined above exceeds this figure, further work to refine the scheme and the efficiencies to be developed within the Midland Metro Alliance give a good level of confidence that the project can be delivered within the originally identified funding envelope.

3.7 The original funding package proposed and the cost phasing has been adjusted for the current delivery schedule.

Table 3.2: Annual Funding Requirements (£m)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Capital Cost (QCE)</td>
<td>2.0</td>
<td>4.0</td>
<td>13.6</td>
<td>12.2</td>
<td>39.0</td>
<td>126.1</td>
<td>117.1</td>
<td>29.6</td>
<td>343.6</td>
</tr>
<tr>
<td>Funded By:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCLGF</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Government Funding</td>
<td>4.0</td>
<td>13.6</td>
<td>12.2</td>
<td>39.0</td>
<td>126.1</td>
<td>12.1</td>
<td></td>
<td></td>
<td>207.0</td>
</tr>
<tr>
<td>WMCA Contribution</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>104.4</td>
<td></td>
<td></td>
<td>103.0</td>
</tr>
<tr>
<td>Other Contribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.6</td>
<td>29.6</td>
<td>33.2</td>
</tr>
<tr>
<td>Total</td>
<td>2.0</td>
<td>4.0</td>
<td>13.6</td>
<td>12.2</td>
<td>39.0</td>
<td>126.1</td>
<td>117.1</td>
<td>29.6</td>
<td>343.6</td>
</tr>
</tbody>
</table>

3.8 Depending on the phasing of the DfT funding, WMCA funding could be drawn down first or in continuing to develop the scheme, WMCA will be required to cash-flow the early stage works until the Government funding is formally awarded allowing the scheme promoters to recover these sunk costs following the award of grant.

3.9 As set out in the Devolution deal a fixed contribution of £207m is anticipated from the Government with any upside cost risk borne locally.

3.10 As an alternative to a grant payment regime, WMCA has assessed the value of potential capital grants under the traditional project delivery method and also the implications of a 30 year devolution style grant which WMCA would use to borrow against to fund the programme. The funding method is subject to ongoing discussion with Government.

3.11 Importantly, any alternative devolution style funding mechanism will need to substantiate a “realistic prospect of funding” prior to WMCA submitting a Transport and Works Act Order (TWAO), as this is a requirement of the legislation. This is required to be in place to cover the full funding of the scheme by 30 November 2017 to meet the delivery schedule set out in this business case.

3.12 A devolution style grant would need to provide a minimum annual payment as set out in Table 3.3 below.
Table 3.3: Annual Funding Requirements (£m)

<table>
<thead>
<tr>
<th>METRO FUNDING OPTIONS (BRIERLEY HILL ONLY)</th>
<th>CAPITAL GRANT BASED ON DELIVERY PROFILE</th>
<th>EQUIVALENT 30YR DEVO STYLE REVENUE GRANT</th>
<th>NPV VALUE OF 30 YEAR GRANT (at 3.5%)</th>
<th>VARIANCE BETWEEN GRANT AND NPV OF 30YR REVENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Period to 2021</td>
<td>£68.8m</td>
<td>£3.3m</td>
<td>£61.3m</td>
<td>£7.4m</td>
</tr>
<tr>
<td>CSR Period From 2021</td>
<td>£138.2m</td>
<td>£7.3m</td>
<td>£133.4m</td>
<td>£4.9m</td>
</tr>
<tr>
<td>TOTAL</td>
<td>£207.0m</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* DfT Stated time value of money

**Local Funding**

3.13 Funding for the Midland Metro Wednesbury to Brierley Hill Extension project is a mix of devolved local funding and national funding aimed at making the most of the opportunity of HS2, with the BCLEP devolved Local Transport and DfT funding comprising 51% of the total costs.

- BCLGF Funding of £0.4m
- DfT provisional allocation of £207m.

The local funding comprises the following elements:

- WMCA Contribution of £103m is funded as part of the HS2 Connectivity Package included in the WMCA devolution Investment Programme of £8bn.

3.14 If no other sources of external funding become available to WMCA to fully meet the £343.6m estimate, local funding will be required to cover any expenditure above the £310m and therefore cover any risk expenditure incurred above that allowed for in the current cost estimate and efforts will be focused on reducing costs via an assessment of programme float and value engineering.

3.15 Should the remaining funding gap need to be met from additional resources, options may include the re-prioritisation of existing project commitments or additional developer / Enterprise Zone contributions.

3.16 A final option may include WMCA prudential borrowing which would require an additional increase in the Transport Levy to fund the costs of the interest and principal on the loan. The impact of borrowing on the Authority of the full £33.2m, would result in an £1.7m annuity loan payment over 40 years at an interest rate of 4%.
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Visit
www.metroalliance.co.uk
Wednesbury to Brierley Hill

Business Case
Midland Metro Wednesbury to Brierley Hill Extension
Commercial Case
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## Commercial Case Compliance

The table below, taken from the Department for Transport’s guidance on its approach to making major investment decisions, *The Transport Business Case* (April 2011), demonstrates the Commercial Case’s fit with requirements.

<table>
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<th>Element</th>
<th>Addressed in Commercial Case</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Chapter C2, ‘Evaluation of Procurement Route’</td>
</tr>
<tr>
<td>Output based specification</td>
<td>Scheme outputs</td>
<td>Chapter C2, ‘Specification’</td>
</tr>
<tr>
<td>Procurement strategy</td>
<td>Approach to procurement options</td>
<td>Chapter C2, ‘The Procurement Strategy – Implementation’</td>
</tr>
<tr>
<td>Sourcing options</td>
<td>Options for sourcing the provision of services</td>
<td>Chapter C2, ‘Evaluation of Procurement Route’</td>
</tr>
<tr>
<td>Payment mechanisms</td>
<td>Proposed payment mechanism for providers</td>
<td>Chapter C2, ‘Evaluation of Procurement Route’</td>
</tr>
<tr>
<td>Pricing framework and charging mechanisms</td>
<td>Risk management approach</td>
<td>Chapter C2, ‘Risk Allocation and Transfer’</td>
</tr>
<tr>
<td>Risk allocations and transfer</td>
<td>Approach for contracts</td>
<td>Chapter C2, ‘Evaluation of Procurement Route’</td>
</tr>
<tr>
<td>Contract length</td>
<td>Implications for TUPE</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Human resource issues</td>
<td>Approach and timescales for contract management</td>
<td>Chapter C2, ‘Implementation Timescales’</td>
</tr>
<tr>
<td>Contract management</td>
<td></td>
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</tr>
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</table>
C1. Introduction

Background

1.1 This Commercial Case has been developed in accordance with the DfT’s Transport Business Case guidance. It presents the procurement strategy demonstrating that a robust process has been followed and arrangements are in place to deliver the Midland Metro extension from Wednesbury to Brierley Hill to time, cost and quality.

Outline of the Commercial Case

1.2 The elements that describe the case are set out in the following chapter.
C2. Procurement Strategy

Introduction

2.1 WMCA has recent experience in procurement of Midland Metro extensions with the Birmingham City Centre Extension and Fleet Replacement Programme, which included procurement of a 1.3km extension to Midland Metro, a Depot extension and a replacement tram fleet. Lessons learnt from those contracts have been fed through into the current phase.

2.2 The Midland Metro extension projects currently funded, or likely to be funded, together with major renewals, represent a significant investment of the order of £1 billion over the next 10 years. However, the civil engineering market has a number of clients also making significant investment in infrastructure, such as Highways England, Network Rail and HS2. Procurement of the Metro programme on a project by project basis in this environment will be very unlikely to attract the experienced major contractors who can deliver the value for money and timeliness through innovation that are required.

2.3 Therefore, in order to successfully deliver the design and implementation of these and any future schemes, and secure access to expertise required in an improving economy and very competitive construction market, it was recognised that there are very significant advantages in procuring the schemes as a single package, making them more attractive to the market and creating economies of scale.

2.4 In addition, WMCA is seeking to harness the power of new technologies and techniques in the light rail sector, following up the Department for Transport’s initiatives outlined in “Green Light for Light Rail”¹ and its investment in the Low Impact Light Rail projects².

2.5 WMCA therefore reviewed options for the contract form most appropriate to a programme of complex and technically challenging projects in a dense urban environment, seeking:-

- The most appropriate procurement and contract strategy

² http://www.uktram.co.uk/innovations-new-technologies/
2.6 Further detail is provided below, along with the approach adopted to successfully deliver the above objectives.

**Evaluation of Procurement Route and Procurement Strategy**

2.7 The procurement of the Birmingham City Centre Extension was undertaken via a market standard NEC design and build contract with a structured longer retention/defects liability period to ensure the supplier delivers high quality performance. The competition saw good levels of interest from the market, albeit without some of the larger contractors, and Centro was able to take four contractors to the invitation to negotiate stage, thus ensuring that good value for money was obtained in the procurement.

2.8 The construction contract for the Birmingham Wednesbury to Brierley Hill Extension will be procured within the context of a number of Midland Metro extension projects being brought forward in a growing expansion programme. Following the Government’s decision in 2013 to devolve major project funding for transport to Local Transport Bodies and the subsequent Growth Deal and West Midlands Devolution Deal allocations, work has been on-going to develop future routes for the Midland Metro system and funding is either in place or expected to be in place to deliver the following extensions:

- This Wednesbury to Brierley Hill Extension, and
- Edgbaston Extension (Grand Central to Edgbaston)
- Wolverhampton City Centre Extension (Pipers Row to Railway Station)
- Birmingham Eastside Extension (to link with HS2 station at Curzon Street, extending further to Digbeth)
- East Birmingham – Solihull Tramway

2.9 In respect of previous projects, contractors have been procured through OJEU compliant processes on a project by project basis. The more positive expected funding position led WMCA to reconsider its strategy relating to the preparation and tender of such projects.

2.10 This review considered a number of different contracting strategies:

- Client design - construct only
- Design & Build
- Management Contracting
- Design Build Fund and Operate
- Prime Contracting
- Alliancing

2.11 Learning from the successful experience of clients such as Highways England, Network Rail and water companies such as Anglian Water, Alliancing was found to be the most appropriate model supporting the delivery of Value for Money through a collaborative approach. Project Alliancing was first used by BP for the North Sea Andrew Field in the 1990’s, the project was delivered 6 months ahead of schedule for an actual cost £290m against an initial target of £450m.
2.12 WMCA has since undertaken a rigorous selection process and let an alliance contract with a single contractor and design consortium for a period of up to 10 years for the Midland Metro extensions work.

2.13 In this “Midland Metro Alliance” the designer, contractor and WMCA are working as an integrated team to develop and deliver the programme under a contractual framework where their commercial interests align with actual project outcomes.

What is Alliancing?

2.14 Alliancing is a form of relationship contracting often used for complex projects or programmes which require speed of delivery and cost certainty. Pure Alliances include the owner, designer and contractor as alliance members who collectively seek outstanding outcomes through an integrated team, characterized by aligned goals, innovative thinking and collaborative behaviours.

2.15 This is reinforced through a commercial framework set up to create win-win outcomes by aligning the commercial interests of constructors and designers with the owner’s project objectives, with risk collectively assumed by all participants and rewards determined by collective performance and results (KPIs/KRAs).

Essential Features of a Pure Alliance

2.16 In the Alliance, WMCA, the Designer and the Contractor are working as a single integrated team to develop and deliver the programme of works collaboratively under a single Programme Alliance Agreement (PAA) with the interests of all the parties aligned. The Alliance will:-

- promote collaborative behaviours commensurate with a best for project approach;
- assume collective ownership for performance in programme and project delivery;
- take collective responsibility of all programme and project risks & opportunities;
- and has agreed a commercial model that provides for a Pain share and Gain share mechanism.
2.17 The programme is governed by the Alliance Leadership team comprising senior representation from all the Alliance members, and where all members have an equal say. Day to day management of the programme is by a seamless integrated management team where all members are assigned to the team on a best-for-project basis whilst the parties agree to resolve issues within the alliance with no recourse to litigation.

2.18 The remit of the Alliance is to design and deliver all Metro extensions over the next 5 year period (subject to WMCA approval of each scheme budget at key stages), with a guarantee to extend for a further 5 years subject to satisfactory performance.

Programme Alliance Agreement

2.19 Unlike traditional forms of construction contract which seek to defend positions, the PAA is very different insofar as it is principle based, placing obligations on the parties to act in good faith and committing to Best for Project decision making on the basis that this will deliver the best outcome for all parties.

2.20 Other key features of the PAA include shared risk, no claim, no blame and creating a collaborative, self-governing environment in which a high performing, innovative team will thrive. The consequences of failure are dealt with through the commercial model. Owner’s rights are reserved to exceptional circumstances i.e. changes in law, breaches in statutory duty and wilful neglect.

Commercial Model

2.21 The commercial model works in tandem with the PAA, linking the commercial interests of all the parties to best-for-project outcomes, encouraging all the participants to work as an integrated team to identify and mitigate / eliminate risk and innovate to achieve outstanding results. The commercial model addresses development of target costs for each project on an open book basis, compensation of the Non Owner participants, manages change, sharing of pain /gain, key results areas (KRA’s), and programme wide insurances:-

- Target costs are developed jointly on an open book basis and include reasonable estimates of the actual costs to deliver the works including owners direct costs, design costs, construction costs, contingencies and non-owner participants’ fee (overhead and profit);
- As the members collectively assume all risks, scope variations under the Alliance are limited to material change where the client has for instance requested an extra facility that could not have been contemplated at the outset;
- Sharing of pain gain is be limited to the non-owner participants’ fee ensuring all parties are equitably incentivized to perform beyond the expectation of the target cost;
- Key Results Areas are developed to incentivize participant performance in areas critical to the project; and
- Project insurance is an essential element of the Alliancing form of contracting. Under Pure Alliancing, as no liability arises between the parties, normal insurances cannot be triggered and therefore cannot be called upon to protect the partners against internal claims. This is overcome by WMCA taking out an all-encompassing project insurance policy.
Key Benefits

2.22 Outstanding project outcomes achieved by past Pure Alliances include – on-time or early completion even on the most challenging projects; optimum out-turn costs; more effective stakeholder management; and potential for improved returns for non-owner participants.

2.23 Under traditional forms of contract, responsibilities and risk are allocated to different parties with commercial and/or legal consequences for the individual parties where they fail to manage their risks or properly discharge their contractual/legal obligations. Under the alliance the participants:

- Assume collective responsibility for delivering the project
- Take collective ownership of all risks (and opportunities) associated with the delivery of the project
- Share in the "pain" or "gain" depending on how actual project outcomes compare with the pre-agreed targets that they have jointly committed to achieve.

2.24 This provides for:

- Active management of the project in all respects, as opposed to 'reactive' management when problems arise
- Reduced costs and project durations and improved quality of deliverables through early contractor involvement
- Continuous and maximised input from the participants
- Collaborative relationship with mutual trust and shared ownership of risks/problems through the life of a project
- Value for money developed over a series of projects with continuous improvement over time
- Single cohesive team without any of ‘us and them’ attitudes
- Clear understanding of the purpose/mission of the alliance

The Procurement Strategy - Implementation

Legal Issues

2.25 Prior to the changes introduced at the end of April 2016, which covered all the procurement processes set out below, the procurement of works, goods or services by WMCA in relation to the Midland Metro Network is regulated by the Utilities Contracts Regulations 2006 and not the Public Contracts Regulations 2006. This is by virtue of WMCA being listed as a utility in Schedule 1 of the Utilities Contracts Regulations 2006 in connection with the activity of providing or operating both railways and tramways and the provisions of Regulations 5(1) of the Utilities Contracts Regulations and 6(1)(a) of the Public Contracts Regulations. In accordance with Regulation 14 of the Utilities Contracts Regulations WMCA may choose either the open procedure, the restricted procedure or the negotiated procedure for the award of contracts in relation to the Midland Metro Network. There are no applicable restrictions on choosing the negotiated procedure under those Regulations and the competitive dialogue procedure is not one of the available options.

2.26 Accordingly, and in view of the prohibition on any post bid negotiation with bidders under the open or restricted procedures (which would be problematic given the relative complexity of the proposed contracts and the interface issues arising), WMCA used a structured negotiated process in letting the PAA. This involved the formal submission of bids and, potentially, best and final offers following a period of negotiation. Notwithstanding the use
of the negotiated process, competitive tension was maintained until all commercially significant aspects of the winning bidder’s bid were agreed and documented. In particular, WMCA recognises that, even though the negotiated process is to be used, it would not be lawful to agree substantive changes to contractual risk allocation or other commercially significant changes once a single preferred bidder had been selected.

**Operator and Input to design/construction**

2.27 Midland Metro Line 1 was procured as a concession on a turnkey Design, Build, Maintain and Operate basis. The contract reflected a Private Finance Initiative format though the majority of the finance was provided by Centro. Maintenance and Operational costs are borne by the concessionaire who also retains all fares and advertising revenues.

2.28 The 23 year Concession was awarded to Altram LRT Ltd in August 1995 and the system opened to the public in May 1999. Altram subcontracted the Design & Build and Operate & Maintain elements to a Laing/Ansaldo Joint Venture and West Midlands Travel Ltd (Trading as Travel Midland Metro) respectively. In 2005 West Midlands Travel Ltd acquired 100% control of Altram. West Midlands Travel Ltd is part of the National Express group, and the operating arm is branded as National Express Midland Metro (NXMM).

2.29 The Altram concession did not envisage the current circumstances in relation to its provisions for termination, although it did provide for liaison and co-operation on proposals for extensions, and therefore WMCA entered into a separate Deed with Altram and National Express to cover the design, testing, commissioning and initial operation of the expanded network, with additional profits arising from the extensions being shared by WMCA.

2.30 This provided continuity of operation through the early construction period of BCCE and ensured that the highly-experienced NXMM team was retained with a clear focus on delivering the BCCE project before the end of the current concession in October 2018.

2.31 On 17 March 2017 the WMCA Board approved that the operation of Midland Metro will be brought back in house following the expiry of the current concession. Under TUPE legislation, the NXMM team will be therefore be retained and will be closely involved in the designs for the Wednesbury to Brierley Hill Extension project. This process has been enhanced by NXMM’s recruitment of a Projects Interface Manager with a wealth of experience from implementation of Manchester and Nottingham tram extensions, Carl Williams, whose role is to provide operator support, input and co-ordination to all Alliance activities. This role:-

- Coordinates formal Change Management activities to support network enhancements, including liaison with stakeholders, authorities and regulators.
- Ensures that the Operator’s safety assurance and Safety Verification requirements relating to the Metro enhancement programme arising under the ROGS regulations are identified and discharged.
- Supports WMCA and the Alliance in developing a strategic operational model and a long-term development plan that optimises operational performance, operating and maintenance costs.
- Champions an ‘alliance culture’ throughout both NXMM and Alliance teams.
- Ensure that all interfaces between the WMCA expansion programme and the operational network are identified and arrangements are in place to allow works to be undertaken with minimal impact upon the customer.
• Negotiates and agrees with the Alliance, funding and resources necessary to enable NXMM to meet its commitments to delivery of the metro expansion programme.

2.32 NXMM is running Line 1 at high levels of reliability, measured on a kilometres run basis, and has an intimate knowledge of the infrastructure, the existing and new trams and the travel characteristics of the public in the Metro corridor. Their expertise has been and will continue to be utilised in the development of the project, for example, in determining the appropriate track layout to provide robust operational capability in the event of incidents on either the highway and former railway sections and the efficient operation of the services via the turnbacks to be provided along the line.

Trams

2.33 Under the tram supply contract with CAF procured under the Birmingham City Centre and Fleet Replacement Programme, WMCA has already procured the 21 trams required to operate the Edgbaston extension. This order already includes the 2 additional vehicles required to operate to Grand Central. All 21 trams have been delivered and accepted into service. WMCA has also placed orders for the retrofit of battery equipment to the vehicles to enable “catenary free operation” along sections of the route, within contract options.

2.34 A programme for the retrofit operation has been developed and agreed with CAF, with the majority of the battery retrofits taking place at Wednesbury. The first of the trams to be retrofit was sent back to Spain in January 2017 and is undergoing retrofit and prototype tests prior to being sent back to Wednesbury in September 2017. The retrofit works for the remaining 20 trams will commence in December 2017 with the final retrofit being completed in January 2019.

2.35 The first “wire-free ready” tram will be tested and commissioned and accepted by December 2017. The final tram will be accepted by March 2019, which enables trams to be available for testing and commissioning of the first phase of the Edgbaston extension to Centenary Square and operation of that phase with testing and commissioning of the whole extension in accordance with the delivery schedule. The retrofit can be undertaken without impacting on Line 1 / BCCE service levels. All of the trams need to be retrofitted to allow them to serve the Edgbaston extension as the route is free of overhead wires in key locations.

2.36 A “third-generation” tram fleet will be required to be procured to serve the Eastside, Wednesbury to Brierley Hill and East Birmingham projects. This procurement is planned as part of the schedule for the project, with tram supply options within an overall contract being timed to supply tested and commissioned trams in time to undertake testing and commissioning of this extension. WMCA will use the “second-generation” tram procurement documentation, incorporating lessons learned from that procurement, to develop the contract, tender documents and specification for the new contract.

Infrastructure

2.37 The Midland Metro Alliance has begun outline design work for the Wednesbury to Brierley Hill Extension. The work is currently focussing on site clearance (de-vegetation, initial treatment of Japanese Knotweed and Himalayan Balsam), surveys (topographical, structures, drainage and environmental) and the track alignment. An operation study will define the principles for different operating modes; normal (track layout, timetables, fleet size, safe separation of trams running on-street and off-street), degraded (fall-back services) and emergency (evacuation). This will be important if the former railway corridor is reopened in
future to rail freight traffic, through a track sharing arrangement. Outline design will also focus on clarifying the operating systems required, urban realm design, permanent traffic management and mitigating major risks. The outline design will take forward the initial design work done by Mott MacDonald and which was handed over to the Midland Metro Alliance in February 2017.

2.38 Towards the end of 2017, the Midland Metro Alliance will move forward from this stage to begin detailed design, determine what land is to be acquired (through agreement first, before proceeding to CPO), obtain all necessary planning consents relating to streetscape issues, discharge conditions precedent for the project, manage interfaces with 3rd parties and to ensure efficient traffic management through Dudley and Brierley Hill town centres.

Alliance Procurement

2.39 There were five stages to the OJEU compliant procurement process developed for the procurement of the Midland Metro Alliance. The process commenced in January 2015 and was completed in June 2016.

- Market Appraisal - Identify most appropriate contracting strategy - Jan’15 to Jun’15
- Prequalification - Shortlisting 3 or 4 designers & constructors - Jul’15 to Sep’15
- ITN Stage 1 - Down select to leading 2 designers & constructors - Oct’15 to Feb’16
- ITN Stage 2 - Appoint preferred designer and preferred contractor – Mar’16 to Apr’16
- Finalisation - Confirm appointments and finalise PAA - Apr’16 to Jun’16

2.40 There was significant interest from the supplier market, with a number of larger contractors who have recently completed very major light rail projects in Manchester and Nottingham having experienced teams available for this alliance, and significant European interest. In compliance with the OJEU requirements, a PIN notice was published on 4th April 2015. Twenty six expressions of interest were received. An industry briefing day was held in Birmingham 23rd July 2015 and attended by over 30 suppliers, with 65 people.

2.41 At prequalification stage six submissions were received from market leading design consultancies and nine from leading contractors, all interested in joining the Midland Metro Alliance.

2.42 WMCA let the Alliance contract in June 2016. The Designer is a consortium led by Egis Rail, supported by Pell Frischman and Tony Gee and Partners. The Contractor is a sub-Alliance led by Colas Rail and including Colas Ltd, Thomas Vale, Barhale and Auctus Training.

2.43 It is worthy of note that both Designer and Contractor were intimately involved in the design and construction of the Besancon “tramway autremont” that was pointed to by the Department for Transport in the “Green Light for Light Rail” document as an exemplar for quality coupled with value for money via innovation. The aim of the Midland Metro Alliance is to harness this experience to set new standards for delivery going forward.

Utility Diversions

2.44 The construction of the Wednesbury to Brierley Hill Extension relies upon some existing utilities services being altered, diverted or protected in order to facilitate the construction of the Metro in the public highway and to ensure that the utility companies can access their plant for maintenance, renewals or alterations without the need to substantially disrupt the operational tramway.

2.45 There are three strategies that can be employed to undertake the necessary diversions:
2.46 It is currently considered that best value will be obtained through the diversion of utilities by the utility companies’ own contractors. This has proven very successful on the BCCE construction contract and very good relationships have been developed with local utility companies through this process. To ensure best value, optimum programme and appropriate stakeholder communications, the MMA will actively co-ordinate and manage the utility companies’ programmes, in conjunction with Dudley and Sandwell Councils pursuant to their statutory role as Traffic Manager and NRSWA co-ordinator and has procured an overarching traffic management contract to support delivery in a co-ordinated manner, managed through the Midland Metro Alliance.

2.47 The strategy is to undertake the majority of the requisite diversion works before the commencement of the Metro infrastructure works. This has both a time and cost benefit to a project and significantly de-risk the scope since the act of undertaking the diversions gives greater certainty of ground conditions and provides the main works contractors with a ‘clear site’. In order to bring forward delivery WMCA may consider commencing the utility diversions using local funding and the 2005 Order powers prior to any Final Approval by Government.

Complementary Highway Works

2.48 For the Complementary Highway Works, traffic modelling is being undertaken at Dudley and Brierley Hill town centres. A VISSIM micro simulation model for Dudley town centre has been commissioned by MMA, TfWM and Dudley MBC. It will cover key routes and junctions in Dudley town centre, including those impacted by the bus station and the metro alignment. At Brierley Hill, options for mitigating the impact of the metro at the Level Street / Embankment junction, near to the Intu Merry Hill shopping centre, are being assessed.

Competition Issues

2.49 The procurement route for Midland Metro Alliance has clearly delivered an appropriate level of competition for the infrastructure procurements through the competitive tender processes. The “third-generation” tram procurement will also do so, via the appropriate legal procurement route.

Specification

2.50 WMCA has a very experienced in-house team and has used and will use very experienced consultants, who have been involved in other recent tram projects world-wide, to develop the specifications for the extension project, which will be a development of that used for the current Birmingham city centre works. Liaison with the supplier market will inform this process and help to identify the best format and content which will facilitate the tendering process for sub-contract packages.

2.51 The approach to be taken with drafting the specification will be closely linked with the aspirations of the stakeholder local authorities. It has been particularly noteworthy, that the lack of definition on other projects has created a high risk premium tendering attitude by infrastructure companies, or they have declined to bid at all. They believe that they have been exposed to scope creep and qualitative enhancement, primarily through the detailed planning process where efficient design has been sacrificed to environmental betterment.
As a result of the above, WMCA will prepare specifications for the Wednesbury to Brierley Hill Extension infrastructure works that clearly set out the desired outputs and enable engineering and architectural innovation within the confines of a clear ‘Street Design Guide’ agreed by the local authorities. This approach will also be strengthened through the adoption of lessons learned in the early construction phases of the Midland Metro Alliance, feeding through into the detailed specifications and method statements for faster construction.

WMCA will also feed in new processes, materials and technologies emerging from UKTram’s Low Impact Light Rail project to drive down cost and enhance value for money.

All traffic signals will be constructed to link to the traffic control centres of Dudley and Sandwell Councils. They will be designed to current national signalling specifications.

**Contract Management**

**General**

Arrangements for managing the infrastructure contracts will be developed and reflected in the contract documentation. The arrangements will:

- Build on the experience gained during the management of the existing Line 1 contract and the Birmingham City Centre Extension and Fleet Replacement Programme contracts
- Ensure continuity of resources with the experience gained during the current stage of design and contract development
- Reflect the Alliance approach and ethos

**Risk Allocation and Transfer**

The Risk Management Strategy sets out the process for the detailed risk management processes that the Midland Metro Alliance and Dudley and Sandwell Councils have to generate and value the risks. The aim is that WMCA and Dudley and Sandwell Councils transfer the risks to the party best placed to manage that specific risk and in turn receive the best value for money in managing risk within the Alliance model for the Metro infrastructure works.

**Implementation Timescales**

A detailed bottom up approach to programming has been adopted in order to avoid over optimistic programming.

Actual delivery durations for the several light rail projects that have been procured in the UK were reviewed to provide a benchmark for the programme. The high level milestones are detailed in Chapter 3 of the Management Case and these are consistent with the benchmarking exercise. Programme issues involving outside parties will be resolved by entering into contractual arrangements with these parties, for example, Dudley and Sandwell Councils, Network Rail, Canal and River Trusts, British Waterways Board, the Very Light Rail Innovation Centre, developers (e.g. Porters Field and Intu Merry Hill) and building owners.

**Project Programme**

This project extends the Metro through both urban and residential areas. It will cross roads at-grade (Dudley and Brierley Hill town centres) and grade separated (over and under-bridges), canals (Tame Valley, Walsall, Birmingham and Dudley), Network Rail (West Coat Main Line at Dudley Port). It will also cross areas attracting commercial and social activities.
In recognition of this, Midland Metro Alliance will work together with the local authorities to develop construction strategies that minimise the construction impact and facilitate an efficient workflow. In order for these strategies to be effective the Midland Metro Alliance will implement robust stakeholder consultation and liaison both during design development and throughout construction.

2.60 It is currently envisaged that construction of the Wednesbury to Brierley Hill extension will commence in May 2019 with utilities diversions. Main metro works will commence in January 2021. The extension will be operational in 2 phases:

- Wednesbury to Dudley town centre: March 2023,

2.61 The works programme will be rigorously tested against the various work categories’ output norms and aligned with the cost plan to ensure deliverability to time and budget.
Wednesbury to Brierley Hill

Business Case
Midland Metro Wednesbury to Brierley Hill Extension
Management Case
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Management Case Compliance

The table below, taken from the Department for Transport’s guidance on its approach to making major investment decisions, *The Transport Business Case* (April 2011), demonstrates the Management Case’s fit with requirements.

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M1. Introduction

Background

1.1 This Management Case has been developed in accordance with the DfT’s Transport Business Case guidance. It demonstrates the deliverability of the Midland Metro Wednesbury to Brierley Hill Extension scheme to time, budget and quality.

Outline of the Management Case

1.2 The elements that describe the case are set out in five chapters. The chapters cover the following areas:

- Chapter M2 - Governance identifies the roles and responsibilities for the delivery of the scheme.
- Chapter M3 – Project Planning describes the processes and plans that have been developed for the scheme and identify their timescales and key dependencies.
- Chapter M4 – Risk Management sets out the strategy that has been developed and that is being followed in order to identify and manage risks to the scheme.
- Chapter M5 – Engagement Management Plan and Project Engagement Plan outline how engagement will be managed for the wider programme and specifically on the project.
- Chapter M6 – Sustainability Management Plan and Project Sustainability Plan outline how sustainability will be managed for the wider programme and specifically on the project.
- Chapter M7 – Monitoring and Evaluation sets out the measures and proposed evaluation method for monitoring the performance of the scheme against its objectives post implementation.
M2. Governance

Overview

2.1 This chapter sets out the governance structure that is in place for WMCA’s Midland Metro expansion programme together with the Midland Metro Alliance (MMA) governance structure to ensure effective delivery.

Midland Metro

2.2 The purpose of establishing a governance framework for the Metro Programme is to:

- Provide assurance to WMCA and partners of the effectiveness and efficiency of the Metro Programme.
- Provide a basis for the implementation of high level working arrangements and practices.
- Formalise reporting structures which allow the performance of the Metro Programme to be monitored and measured.

2.3 The Governance Structure is in line with the requirements of the Department for Transport (DfT) for the delivery of major capital projects to which it contributes funding. It also aligns with guidance from the Office of Government Commerce (OGC). The Wednesbury to Brierley Hill extension is included in West Midlands Combined Authority “Devolution Deal”.

2.4 The programme team structure is a matrix-managed project-focussed structure based upon structures utilised in the delivery of other major programmes in the transport sector and other alliances, developed for the specific programme management circumstances of the MMA.

2.5 The WMCA governance arrangements set out for the Metro Programme have been established under the WMCA governance arrangements developed since the WMCA came into being in June 2016. These outline how WMCA operates, how decisions are made and the procedures to be followed in order to ensure that WMCA operates efficiently, effectively and in a transparent and accountable manner.
2.6 The MMA Governance and Programme Team Structures address the following:

- Leadership
- Organisation
- Resource management
- Monitoring and control
- Quality management
- Engagement
- Risk and issues management
- Specifications
- Benefits realisation

2.7 All of the above must be carried out in an environment which allows for predictable outcomes that provide certainty for executive management in a changing political and economic climate.

2.8 The former Centro’s Programme Team Structure for Metro has been in place in full since 2012 and has been continually reviewed to ensure it is fit for purpose in relation to the expanding Delivery Programme. As outlined in the Commercial Case, it has recently transitioned into the Midland Metro Alliance programme team structure.

**Governance Structure**

2.9 Set out below is the overall Governance structure for the Metro and how each of the groups report into existing structures. The Metro Board is the primary means to manage the performance of the Metro business and to coordinate the various activities and oversight mechanisms that control different elements of the business. The Metro Board has accountability to monitor the delivery of Metro Operations, progression of Metro’s strategic aims though delivery of business plan objectives and delivery of the Metro Development programme. The Terms of Reference for the Metro Board are set out in Appendix M1.
2.10 WMCA’s Senior Responsible Officer for the project is Metro and Sprint Programme Director Phil Hewitt.

2.11 The Midland Metro Alliance has a strong project team with a co-located team of owner, designer and contractor, non-owner participant staff bringing together world-wide expertise in a truly collaborative environment, with the skills and experience to deliver all aspects of the development and delivery of this project. The MMA has a robust, programme managed, delivery focused organisation in place, supported with the correct resources, skills and leadership.
2.12 The MMA governance structure is illustrated in figure 2.2 below.

**Figure 2.2: MMA Governance Structure**

2.13 The MMA Governance Plan and the full Programme Team Structure are set out in the Alliance Management Plan, contained in Appendix M2.
M3. Project Planning

Alliance Management Plan

3.1 The strategies and plans for managing the project are set out in the Alliance Management Plan. The manual, prepared and maintained by the Midland Metro Alliance sets out:

- Team to deliver the programme
- Governance arrangements to be adopted
- Processes to be followed

3.2 This document is owned by the Alliance Director and is managed by its custodian, the Project Controls Manager. It will be periodically updated to reflect any changes in the Programme or the processes and other information that will impact delivery. The Plans have been developed in keeping with OGC Guidance and general project management best practice within the construction industry. They address the key points raised in the DfT Guidance. Copies of current documents are contained in Appendix M2.

Schedule

3.3 Throughout the development stage of the scheme WMCA have maintained a fully detailed working schedule for the programme implementation as an integral component of their development planning processes. The alliance partners have also developed a detailed construction schedule. MMA utilises Primavera P6 integrated with the WMCA’s financial management package Agresso to link delivery schedule activities to expenditure and forecast costs. The schedule includes:

- Key dependencies
- Critical path
- Outputs and milestones
- Historic and forecast costs

3.4 It is currently envisaged that construction of the Wednesbury to Brierley Hill extension will commence in May 2019 with utilities diversions. Main metro works will commence in January 2021. The extension will be operational in 2 phases:
3.5 Options are currently being explored to bring forward the delivery of the first phase.

3.6 The Metro Extension schedule is presented below.

Figure 3.1: METRO Schedule

3.7 A detailed Metro delivery schedule is contained in Appendix M3.

Previous Project experience

3.8 WMCA has significant, recent and relevant experience of the delivery of major projects and programmes.

3.9 WMCA has relevant experience in applying the processes and disciplines summarised above to similar projects. This is illustrated by the successful development and implementation of Midland Metro Line 1, which opened to the public in May 1999 at a total cost of £145 million and by the successful delivery of the Midland Metro Birmingham City Centre Extension and Fleet Replacement Programme.

3.10 WMCA has assembled an experienced project team with world-wide expertise in light rail. To ensure a strong team this is made up of a mixture of project managers and technical and operational light rail experts together with a strong team of supporting consultants and advisors and contractor staff within the Midland Metro Alliance covering all aspects of the development and delivery of this project. The current team roles and responsibilities are set out in the Alliance Management Plan in Appendix M2. The key technical, legal and commercial support roles are being delivered by:-

- Technical: Midland Metro Alliance
- Legal/Procurement: Winckworth Sherwood
- Transport Planning: Systra
Dependencies

3.11 The project is dependent upon the successful completion of the ongoing Catenary Free Retrofit project.

Catenary Free Retrofit

3.12 The Outline Design will determine the feasibility of constructing the Wednesbury to Brierley Hill Extension without overhead line equipment along sections of the route, including the former railway corridor. It is dependent on:

- Successful completion of the retrofit of batteries to the existing Urbos 3 tram fleet, and;
- Running performance of battery operated trams (charging points, charging times, distances that can be run before recharging is required).

3.13 WMCA has placed orders for the retrofit of battery equipment to the vehicles to enable “catenary free operation” along these sections of the route, within contract options in the 2012 Tram Supply Contract with CAF.

3.14 A programme for the retrofit operation has been developed, with the majority of the battery retrofits taking place at Wednesbury. The first of the trams to be retrofitted was sent back to Spain in January 2017 and will undergo routine tests prior to being sent back to Wednesbury in September 2017. The retrofit works for the remaining 20 trams will commence in December 2017 with the final retrofit being completed in January 2019.

3.15 The first tram will be tested and commissioned and accepted by December 2017. The final tram will be accepted by March 2019, and all new trams will be procured with “off-wire” capability. The retrofit can be undertaken without impacting on Line 1 / BCCE service levels.

3.16 Statutory Powers

3.17 WMCA applied for an Order to be made under the Transport and Works Act 1992 Sections 1 and 5, known as the Midland Metro (Wednesbury to Brierley Hill and Miscellaneous Amendments) Order (“the 2005 Order”) on 7 April 2003. Following a local public inquiry and appropriate consideration by the Department, on 29 December 2004 the Head of the TWA Orders Unit at the Department for Transport wrote to confirm that the First Secretary of State had decided to make the Order, subject to modifications, and to direct that planning permission be deemed to be granted subject to conditions. The Order (SI 2005 No. 927) came into force on 22nd March 2005.

3.18 In 2009 WMCA undertook the construction of a section of the Order works, via construction of the foundations to the tram stop adjacent to Dudley Bus Station, thus implementing the planning consent associated with the 2005 Order. A further section of the Order works was constructed in 2010, being the park and ride sida at the Dudley Port tram stop.

3.19 All utility diversions and the bulk of the infrastructure for the Wednesbury to Brierley Hill Extension will be constructed through the powers granted in the 2005 Order.

Land Acquisition

3.20 The powers of compulsory acquisition conferred by the Order expired in 2010. A further Order will need to be promoted by the WMCA to refresh its powers of compulsory acquisition for the construction to take place. This is shown on the project schedule. WMCA will also be seeking to acquire the land required by agreement in parallel to the statutory process.
M4. Risk Management

**Risk Management Strategy**

4.1 The Midland Metro Alliance is committed to implementing a programme wide risk management culture and adopting best practice in the identification, evaluation and effective management of risks. The fundamental approach adopted by MMA in implementing this commitment is that risks should not be viewed as an add-on to the project management procedure but rather, risk management must be embedded into the project management procedure.

4.2 The MMA Risk Management Strategy, as set out in Appendix M2, requires a thorough assessment of risks with the objective of mitigating the risks and enhancing potential benefits by implementing action plans.

4.3 The Risk Management Process is depicted in the diagram below.

4.4 A proactive risk management procedure is in operation which ensures that risks; are continuously identified through use of structured workshops; risk owners are assigned and mitigation measures developed and implemented. To monitor the effectiveness of the control measures, monthly reviews are conducted to check the status of each risk and modify the mitigation actions.

4.5 As part of the risk management strategy, appropriate consideration has been given as to how risks are allocated and managed between WMCA and MMA. The guiding principle behind this risk allocation is to ensure that risks are allocated to the party who is best able to effectively manage that risk.
4.6 At key stages of the project, risks are quantified to determine risk contingencies using quantified risk analysis and through assessment of appropriate Optimism Bias. This allows realistic anticipated final cost to be determined and allows effective control of costs.

The top 5 risks (rated by cost) as identified by the Metro project risk register are shown below and a detailed version of the complete register is included in Appendix M4.
<table>
<thead>
<tr>
<th>Risk Title</th>
<th>Risk Description</th>
<th>Impacts / Consequences</th>
<th>Pre-Mitigation</th>
<th>Post-Mitigation</th>
<th>Mitigation Plan</th>
</tr>
</thead>
</table>
| **Parkhead Viaduct** | The risk is that more extensive works will be necessary than previously anticipated. | 1. Increased cost due to protection works or remedial works.  
2. Delays to the programme.          | Probability: 5  
Cost Impact: 5  
Time Impact: 4  
Severity: 25 | Probability: 4  
Cost Impact: 4  
Time Impact: 3  
2. Early liaison with English Heritage. |
| **Network Rail Agreements** | The risk is that we are unable to reach agreement with Network Rail with regards to the lease of the corridor. | 1. Delays to the TWAO process.  
2. Delays to the programme.  
3. Increased costs due to the delays.  
4. We need to carry out strengthening of the Parkhead viaduct. | Probability: 5  
Cost Impact: 5  
Time Impact: 5  
Severity: 25 | Probability: 3  
Cost Impact: 5  
Time Impact: 5  
Severity: 15 | 1. Remove (ie. buy) the corridor from Network Rail.  
2. Negotiate lease. |
| **Existing Structures and Earthworks** | The risk is that existing structures / earthworks may require strengthening. | 1. Increased design and construction costs.  
2. Delays to the programme.           | Probability: 5  
Cost Impact: 5  
Time Impact: 5  
Severity: 25 | Probability: 2  
Cost Impact: 4  
Time Impact: 4  
Severity: 8 | 1. Conduct structural surveys.  
2. Undertake value engineering. |
| **New Full TWAO**    | The risk is that a new full TWAO is required.                                   | 1. Delay to commencing construction due to programme changes.  
2. Increased cost of construction.  
3. Additional costs for the TWAO process.  
Cost Impact: 5  
Time Impact: 5  
Severity: 15 | Probability: 2  
Cost Impact: 5  
Time Impact: 5  
Severity: 10 | 1. Alignment is not moved outside the Limits of Deviation when consulting with the stakeholders. |
| **Depot Strategy**   | The risk is that additional depots may be required.                            | 1. Increased costs.  
2. Delays to the programme.          | Probability: 2  
Cost Impact: 5  
Time Impact: 2  
Severity: 10 | Probability: 1  
Cost Impact: 4  
Time Impact: 2  
Severity: 4 | 1. Provide stabling and links to the depots.  
2. Network 2030 study to determine requirements. |
M5. Engagement

5.1 This chapter outlines how Engagement will be managed for the Wednesbury to Brierley Hill extension of the Metro. In the context of the MMA, Engagement means: ‘to generate interest in our programme, encourage participation and involvement, share information and encourage positive association.’

5.2 Stakeholders include anyone with an interest in, and important to, the MMA. They can be individuals, groups or organisations that are or will be affected by the MMA’s activity. They include stakeholders outlined in the DfT Guidance, including local authority, utility companies, existing Midland Metro passengers, landowners, local residents and businesses.

5.3 The remit of the Engagement team can therefore be summarised as follows: ‘to help facilitate the construction of the tram network by identifying key stakeholder groups and/or individuals, identifying the key messages applicable to each and proactively engaging with them using timely, consistent and relevant methods of communication in order to establish and maintain goodwill and mutual understanding throughout the whole project life-cycle.’

**Engagement Management Plan and Project Engagement Plan**

5.4 Midland Metro Alliance has prepared an overarching Engagement Management Plan tabled in Appendix M2 and which governs the programme-wide engagement. A project specific Engagement Plan has been prepared to complement the Engagement Management Plan and defines the Project Engagement Plan for Wednesbury to Brierley Hill, this is tabled in Appendix M5. The Engagement Management Plan outlines how the Engagement Team will support the business objectives with ‘high level’ MMA communications objectives, highlights how key audiences (stakeholder groups and/or individuals) will be identified and managed and identifies the different methods of communications currently available or that are being planned and developed in order to aid engagement. It also highlights the potential communications opportunities and risks and sets out some recommendations for crisis communications planning, communications awareness raising and training requirements for the wider alliance staff members.

5.5 The Project Engagement Plan outlines what engagement work has already taken place and/or is ongoing and what is planned during the the next year. It also addresses the
communication with stakeholders and the public during the site clearance, utilities diversions and main construction works, which is being undertaken in advance of the main works.
M6. Sustainability

**Sustainability Management**

6.1 This chapter outlines how Sustainability performance will be managed for the Wednesbury to Brierley Hill extension of the Metro.

6.2 Our ethos is to adopt responsible and sustainable practices in the way in which we develop and deliver the Midland Metro infrastructure in partnership with our suppliers and stakeholders. Sustainability covers the social, economic and environmental spheres and should be embedded in every aspect of the Alliance working.

**Sustainability Management Plan and Project Sustainability Plan**

6.3 The Midland Metro Alliance has a Sustainability Management Plan that provides the overarching approach to be adopted throughout the programme wide activities as well as the general approach to projects. The key aspects of this are outlined in the Alliance Management Plan found in Appendix M2. Sustainability covers a wide range of aspects, some of which are managed separately within the Midland Metro Alliance; in particular Engagement as described above. To reflect this, topic specific strategies and plans provide more detail on the controls and measures in place (e.g. Engagement Management Plan).

6.4 A set of overarching sustainability objectives and targets have been set that aim to address our key impact areas within social, environmental and economic spheres. These are detailed in the Sustainability Management Plan, and summarised in the Alliance Management Plan.

6.5 To provide a framework to manage sustainability performance across the programme, programme wide controls will be implemented. These are described in the Sustainability Management Plan and include the approach to environmental management, how sustainable procurement principles are considered and our approach to social responsibility.

6.6 The project team shall produce a Project Sustainability Plan that shall detail how the project is to contribute to the sustainability objectives for the MMA and how the project will manage environmental impacts. This will include the management of specific project environmental impacts are identified through the Environmental Impact Assessment. The Sustainability Management Plan will include the project approach to environmental legal compliance.
6.7 Other project plans may be required to address specific elements relevant to sustainability and will be cross referenced in the Project Sustainability Plan as required. An example is where a Project Engagement Plan is required in line with the Engagement Management Plan requirements.

6.8 All projects are registered with CEEQUAL and are to complete a CEEQUAL Assessment. For the Wednesbury to Brierley Hill Extension the assessment will be a Whole Team Award with Interim Assessment carried out at the end of detailed design. The CEEQUAL assessment process is to be led by a project CEEQUAL Assessor, who shall be a qualified CEEQUAL assessor and coordinated overall by the Sustainability Manager. The breakdown of responsibilities for collation of evidence and key deliverables shall be detailed in the Project Sustainability Plan.

6.9 Knowledge sharing and sustainability forums / ideas workshops will be core to the delivery of the Project Sustainability Plans and to integrate sustainability into the project decision making processes. The aim of this approach is to develop solutions to address each objective and provide a forum for innovation and continual improvement. Depending on the stage of the project, this may include TWA managers, track designers, M&E designers, civils designers, delivery teams, suppliers, etc. alongside the CEEQUAL assessor and sustainability manager. Cross project learning will also form part of this approach.
M7. Monitoring and Evaluation

**Overview**

7.1 WMCA recognises that a key component in the successful implementation of the project, and a requirement of the LEP, will be the monitoring of the project to ensure that key objectives are being met and the projected benefits are being delivered (see section A4 for the benefits of the project). Following completion of Midland Metro Line 1, WMCA carried out a similar exercise, and the lessons learned have been applied to the subsequent development of the Metro network, including the BCCE and Fleet Replacement project. A Benefits Monitoring exercise is currently underway on that project.

**Benefits Monitoring**

7.2 In September 2012, the DfT issued the ‘Monitoring and Evaluation Framework for Local Authority Major Schemes’. The framework recognises that demonstrating the delivery of transport improvements that are good value for money and drive economic growth, whilst balancing the need for sustainability, will be vital to securing future funding.

7.3 Furthermore, the framework recognises that scheme assessments need to be both cost effective and proportionate. The approach to Benefits Monitoring for the Wednesbury to Brierley Hill Extension will be assessed following the guidance set out in the framework and agreed with the Government prior to submission of a Final Business Case.

**Monitoring and Evaluation**

7.4 The monitoring and evaluation of the impacts of the investment are critical in assessing the actual impact of the scheme and as such crucial to understanding the case for future investment both locally and nationally.

7.5 A Monitoring Plan will be developed (based on Government Guidance). This will be discussed and agreed with the relevant officials.