

Wednesbury to Brierley Hill Extension

Evidence Given on Behalf of the Applicant: WMCA
Transport and Economic Case
Main Proof of Evidence
David Carter



Transport and Works Act 1992

The Transport and Works

(Inquiries Procedure) Rules 2004

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1. INTRODUCTION

1.1 Qualifications and Experience

- 1.1.1 My name is David Carter. I am a transport planner and economist with 30 years' experience in the planning and forecasting for transport schemes. This includes specialisms in forecasting and appraising the impacts of transport schemes and strategies, the application of economic analysis and the development of Business Cases. I hold an Honours degree from The University of Aston in Birmingham in Transport Operation and Planning. I hold the Transport Planning Professional qualification and am a Fellow of the Chartered Institute of Logistics and Transport, having been a Member since 1990.
- 1.1.2 My work has included the demand and revenue forecasting for a range of transport interventions, taking many through economic and financial appraisals and through to scheme delivery, including working on ex-post evaluation studies. I have a specialism in rapid transit schemes, including work supporting light rail and busway schemes in the West Midlands, London, Luton, Nottingham, Sheffield and Manchester.
- 1.1.3 My involvement in transport schemes in the West Midlands includes work on Midland Metro scheme development, including modelling and appraisal work associated with network extensions to the initial Line One route from Birmingham to Wolverhampton, and specifically the Wednesbury to Brierley Hill Extension (WBHE). My roles on the Nottingham Express Transit Scheme included support throughout the development of the initial Line One network and the more recent Phase Two network extension where I acted as the Expert Witness to the Transport and Works Act Public Inquiry addressing Forecasting and Appraisal issues.
- 1.1.4 In addition to work on specific schemes, I have also been involved in assisting the UK government in transport strategy development and appraisal, including drafting parts of the Guidance on the Methodology for Multi-Modal Studies undertaken by the UK Government, producing the first version of the Guidance on Public Transport Scheme Appraisal, in developing guidance on the Evaluation of Major Public Transport schemes and drafting the Social and Distributional Impact guidance for the WebTAG transport appraisal guidance. I was also a key part of a team in 2002 researching the Transport and Works Act Order planning processes.

1.2 Background

- 1.2.1 I am a Market Director with SYSTRA Ltd, a consultancy firm specialising in the transport sector. SYSTRA has been retained by the West Midlands Combined Authority via Transport for the West Midlands, to continue supporting the development of the WBHE through towards final funding and planning approvals, of which this Inquiry is one part. The granting of the Midland Metro (Wednesbury to Brierley Hill and Miscellaneous Amendments) Order 2005 (“the 2005 Order”) [WBHE/B2] followed an examination of the transport case for the scheme submitted to Government and the 2004 Public Inquiry.
- 1.2.2 Since the approval of the 2005 Order [WBHE/B2], further work has been undertaken on updating the business case for funding the Metro extension. The business case was set out for Government consideration during the summer of 2017 in the five supporting cases to the Wednesbury to Brierley Hill Business Case [WBHE/D3-D7]. Following this submission, funding of £250m from the Transforming Cities Fund was allocated to the West Midlands Combined Authority (WMCA) by Government on 20th November 2017, as set out in the Funding Statement [WBHE/A6].

1.3 Structure of Evidence

- 1.3.1 My evidence, given on behalf of the West Midlands Combined Authority, covers the Transport and Economic Case aspects of the case for WBHE. My evidence is primarily intended to support the evidence provided by Peter Adams in his Proof of Evidence [APP/P1.1] and complement those of Ian Collins, Himanshu Budhiraja and Paul Ellingham in their Proofs [APP/P3.1, APP/P4.1 and APP/P5.1 respectively].
- 1.3.2 My evidence will specifically link to the discussion of scheme merits presented by Peter Adams and confirm the continued need for the scheme from a transport and business case perspective, as initially identified in the granting of the 2005 Order [WBHE/B2].
- 1.3.3 My evidence will be structured to cover:
- Section 2 (**Appraisal Methodology for WBHE**) outlines the approaches used in assessing the expected performance of the Metro extension in meeting the transport, economic and social policy aims of the WMCA and Black Country Local Enterprise partnership relating to transport in the Black

Country. This focuses on the established appraisal approaches set out by Government in the Green Book Appraisal and Evaluation in Central Government, HM Treasury (2003 – as updated in 2011) [WBHE/D9] and WebTAG Transport Appraisal Process, DfT (January 2014) [WBHE/D11];

- Section 3 (**Appraisal of the performance of WBHE**) mainly focusing on the Economic Case elements of the Business Case, and providing supporting evidence, where required, to that presented by Peter Adams on the wider case for investment in the Metro extensions;
- Section 4 (**The Secretary of State's Statement of Matters**) where I specifically address a number of the matters raised;
- Section 5 (**Issues Arising from Objectors' Statements of Case**) which either responds directly to issues arising or provides cross-references to other sections of my Proof; and
- Section 6 (**Conclusions**) where I draw out my conclusions from the transport and business case work and how I believe this supports the case for the proposed Midland Metro (Wednesbury to Brierley Hill Land Acquisition) Order (the Proposed Order) to be made.

1.3.4 In so far as specific objections raised in relation to my evidence are concerned, these will be considered either through the general text below or through specific responses where appropriate. In all cases objectors' submissions will be referenced using the agreed inquiry document coding structure.

1.3.5 As this Proof of Evidence exceeds 1500 words, it is accompanied by a summary document which will be presented orally to the inquiry.

Declaration

1.3.6 This statement is true to the best of my knowledge and belief. I can confirm that the views expressed are my true and professional opinion.

2. APPRAISAL METHODOLOGY FOR WEDNESBURY TO BRIERLEY HILL EXTENSION

2.1 Appraisal Approach

- 2.1.1 HM Treasury requires an assessment of the value that public spending would secure before a spending decision is made. This is known as the 'appraisal'. This requirement applies to all types of government spending, not just that which is transport related. The Treasury's requirements for the appraisal process are set out in the Green Book Appraisal and Evaluation in Central Government, which was published in 2003 and updated in 2011 [WBHE/D9]. Supplementary guidance, Public Sector Business Cases Using the Five Case Model, Green Book Supplementary Guidance on Delivering Public Value from Spending Proposals was published by the Treasury in 2013 [WBHE/D10].
- 2.1.2 The approach to business cases and project appraisal adopted by the Department for Transport (DfT) is consistent with the Treasury's Green Book approach. At the time of the development of the 2017 appraisal and business case for the WBHE, the DfT's approach to business cases was set out in the Transport Business Cases guidance of 2013 [WBHE/D23].
- 2.1.3 The DfT also produces detailed guidance on the application of its appraisal approach. This guidance is called WebTAG (Web-based Transport Appraisal Guidance), and provides a suite of documents that sets out guidance on the approach to demand, revenue and benefit forecasting and how, along with other inputs, the outputs from such forecasting work are used to appraise the anticipated impacts of a transport intervention. Relevant units of the WebTAG guidance used in the 2017 appraisal and business case for the WBHE are provided in Core Documents WBHE/D11 to WBHE/D22 inclusive and WBHE/D42. Many of the WebTAG guidance documents have been subsequently updated and I provide an assessment of the likely impact these changes on the case for the scheme in Section 3.6 of my evidence.
- 2.1.4 The appraisal of the WBHE has been undertaken in line with WebTAG and accordingly meets Treasury economic appraisal requirements. Doing so is a prerequisite to secure DfT funding.
- 2.1.5 While WebTAG prescribes how the economic case should be presented and sets out a number of minimum requirements for the modelling and appraisal, it is important to note that underpinning the DfT's guidance (and the Green Book) is

the 'proportionality' principle. This states that the requirement for detailed modelling, collection of bespoke evidence and monetisation of benefits should vary with the scale and complexity of the scheme under consideration, as well as the nature and scale of its impacts. In my opinion, the appraisal of this scheme has been undertaken in a way that is proportional to the cost of the scheme and the scale of its impacts.

2.1.6 The approach to assessing the WBHE's Value for Money is comparable to and consistent with the approaches that were adopted to assess the Value for Money of the Midland Metro extension from New Street Station to Edgbaston that was awarded £60m DfT funding on 1st September 2017 and also for the Birmingham Eastside Extension, for which a Transport and Works Act Order Eastside Extension is currently being considered by the Secretary of State following a funding award of £137m.

2.1.7 With funding of £250m from the DfT's Transforming Cities Fund allocated the scheme in November 2017, as set out in the Funding Statement [WBHE/A6], I consider this to be evidence that the approach adopted for the appraisal of the WBHE is one that is both proportionate and meets DfT's expectations and requirements.

2.2 The Five Case Model

2.2.1 Consistent with the Treasury's approach, the DfT's WebTAG Transport Appraisal Process, DfT (January 2014) [WBHE/D11] requires the development of a 'Five Case' business case. The five cases are: Strategic Case, Economic Case, Financial Case, Commercial Case and Management Case. The purpose of the business case is to demonstrate that:

- There is a robust rationale for the proposed scheme (Strategic Case)
- The proposed scheme will deliver Value for Money (Economic Case)
- The proposed scheme is affordable in terms of sources of funding (for construction and operation) (Financial Case)
- Robust procurement arrangements for the necessary elements of the proposed scheme exist (Commercial Case)
- Robust governance arrangements exist and effective project management is in place (Management Case)

2.2.2 The Business Case for WBHE has followed the Five Case model.

2.2.3 My evidence presented here relates to the Economic Case. The other four cases in the Five Case model are addressed in the evidence of Peter Adams [APP/P1.1].

2.3 Stages of Business Case Development

2.3.1 The development of a transport business case is a staged process with progressive development of the details of each of the individual five cases. These stages are set out in the DFT's Transport Business Cases document [WBHE/D23] and are:

- Strategic Outline Business Case (SOBC). The purposes of the SOBC include defining the scope of the project, its outputs and its benefits; making the case for change; and confirming the scheme's strategic fit
- Outline Business Case (OBC). The purposes of the OBC are to confirm the strategic fit and the case for change; set out how the preferred solution was arrived at; and, provide details of the project's overall balance of benefits and costs against objectives (i.e. its Value for Money)
- Full Business Case (FBC). The purposes of the Full Business Case are to refine the Strategic and Economic Cases put forward at OBC stage in the light of final specification of the project and set in detail how the project will be procured and implemented.

2.4 Status of the Business Case

2.4.1 Although not formally referred to as either an Outline Business Case (OBC) or a Full Business Case (FBC), the Wednesbury to Brierley Hill Business Case [WBHE/D1-D5] set out for Government consideration during the summer of 2017 effectively provided the OBC stage for the scheme in requesting funding from Government. The resulting allocation of £250m of funding from the Department for Transport's Transforming Cities Fund to WMCA announced on 20 November 2017 is reported in the Funding Statement [WBHE/A6].

2.4.2 The WBHE scheme has now moved somewhat beyond the normal OBC stage (ordinarily prepared to support any application for powers and to give funding authorities sight of the Value for Money case) in that, in the main, powers have already been obtained for the scheme through the 2005 Order [WBHE/B2], the Value for Money case has been assessed by DfT and funding has been allocated. However, the FBC stage has not yet been reached (ordinarily after the necessary powers have been awarded, with a firm price and contracts in place ready to be signed), in that a funding decision from Government has been made, although final

specification and costs for the extension are yet to be finalised, with this determining the final funding requirements to be made from local sources managed by WMCA.

- 2.4.3 In common with most transport schemes in moving forward to delivery, and following submission of the Proposed Order, on-going design work is being undertaken by the Midland Metro Alliance (MMA). Similarly, further work on the forecast benefits of the scheme is underway, with both streams expected to inform a Final Business Case for approval through the WMCA's normal assurance and governance approval processes, to be completed once the Proposed Order has been granted.

3. APPRAISAL OF THE PERFORMANCE OF THE WEDNESBURY TO BRIERLEY HILL METRO EXTENSION

3.1 Introduction

- 3.1.1 The need for the WBHE was established by the making of the Midland Metro 2005 Order [WBHE/B2]. Both the Inspector and Secretary of State agreed that the scheme would bring clear transportation, regeneration and socio-economic benefits to Dudley and Sandwell, that it was capable of achieving its stated objectives and that the benefits outweighed, by some margin, any adverse impacts on the local community or on the environment.
- 3.1.2 This is still the case, with the need for the scheme apparent across transport, economic and social policy drivers. In transport terms, connectivity and congestion challenges remain and have indeed been reinforced by the current and future requirements for improved accessibility to and from Dudley and Sandwell, as well as across the Black Country and the West Midlands. The need, clearly accepted in 2005, was heightened further in 2018 by the start of HS2 construction works, with connectivity to HS2, via the Eastside Extension, essential to ensure that residents of the West Midlands can gain access to the opportunities afforded by the railway, and the associated, significant, growth areas in Birmingham.
- 3.1.3 The economic need for the scheme remains with the proposed route and stops contributing to the regeneration of existing areas in the Black Country and serving areas of new development that can contribute to economic vitality. The need for regeneration is demonstrated by the successful application in 2016 for the Brierley Hill Business and Innovation Enterprise Zone (now known as 'DY5') and confirmed by letters of support for the application such as that from The Association of Black Country Local Authorities ("ABCA") [WBHE/F2]. ABCA noted that the WBHE "is vital to the future economic wellbeing of Dudley and Sandwell, the Black Country and indeed the wider West Midlands and that it will help to unlock and support regeneration projects across the boroughs of Sandwell and Dudley encompassing commercial, residential, employment, educational and visitor economy developments. Crucially it will also play a key role in enhancing the development potential of the recently launched DY5 Enterprise Zone at Brierley Hill."
- 3.1.4 In social terms, there remain a wide range of socio-economic difficulties that are exacerbated by the poor transport connectivity, including an on-going 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. The Government's 2015 published Index of Multiple Deprivation ('IMD') [WBHE/D33] is evidence of the degree of deprivation in the area and is referenced in paragraphs 5.13 onwards of the Wednesbury to Brierley Hill Business Case - Strategic Case [WBHE/D5], which notes specifically that Sandwell and Dudley have significantly higher rates of unemployment than the national average.

3.1.5 The policy aims of the scheme are set out in the Concise Statement of Aims [WBHE/A4]. This explains how the WBHE is intended to meet the aims of the WMCA and the Black Country Local Enterprise Partnership (BCLEP) relating to transport in the Black Country, to achieve first-class international, national, regional and local connectivity. The aims of the WBHE support both national and local policies for growth and investment and the scheme forms part of a package of works that are supported and funded by the Government in order to maximise the benefits of investment in the High Speed 2 railway.

3.1.6 Supporting these aims are a number of core objectives of the WBHE, as set out in section 2.9 of the Wednesbury to Brierley Hill Business Case – Strategic Case [WBHE/D5], which establish the framework against which the success of the scheme can be judged and support the vision:

- 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.

3.2 Outline of Alternatives

3.2.1 Detailed work was undertaken in 2010 by Steer Davis Gleave (SDG) to provide a corridor assessment of alternative modes to tram in the WBHE corridor, to determine whether there was any merit in the consideration of an alternative mode along the former railway corridor. This work reported, in the Black Country Access WBHS Corridor Options Economic Assessment, is included at Appendix S-1 to the Wednesbury to Brierley Hill Business Case - Strategic Case [WBHE/D5], and concluded that the tram options provide the quickest journey times between key centres and would therefore achieve the greatest patronage. Since little strategic development or public transport investment has taken place in the study corridor since 2010, the overall picture within the corridor has not changed significantly, highlighting the continued need for transformational investment to support jobs and growth. The delivery of HS2 to the West Midlands and related growth hub proposals enhances the urgent need for the investment.

3.2.2 In 2015, the Black County Rapid Transit Network Review Officer Group commissioned SDG to undertake the Black Country Rapid Transit Study [WBHE/E4] to review the various rapid transit studies undertaken earlier across the Black Country and to identify those schemes that best meet current objectives for the region and have the best chance of being funded and delivered. The study considered four rapid transit networks developed from the earlier schemes identified, and configured to provide connectivity in the corridors between economic and population centres in the Black Country and to Birmingham City Centre. An outline assessment of demand and benefits of each package was carried in order to establish the rapid transit transport priorities for the region.

3.2.3 The study considered four alternatives modes:

- light rail (referred to as Metro);
- Bus Rapid Transit (BRT) on highway or segregated alignment (referred to as Sprint);
- Tram-train, involving vehicles which could operate both on a light rail network and the national rail network; and
- Very light rapid transit (VLRT) involving a vehicle which, at the time, was being prototyped by a consortium led by Warwick Manufacturing Group and which was planned to be further developed in a purpose-built Innovation Centre in Dudley.

3.2.4 The study worked through a staged approach of reviewing delivery corridors, considering all schemes before developing a series of network scenarios for assessment. An options assessment followed that was used to identify a set of priority schemes and future aspirations throughout the Black Country. The study reconfirmed that light rail should remain the transport mode of choice for connecting Brierley Hill to Birmingham City Centre and other strategic centres.

3.2.5 The study report (at paragraph 5.3) specifically identifies the 'Metro scheme between Wednesbury to Brierley Hill via Dudley performs best:

- **Suitability:** it would extend the current successful Metro system providing an east-west connection in the Black Country and ensuring the vital fast link into Birmingham. It will also link to the strategic centres of Wolverhampton and West Bromwich (via existing Metro Line 1)
- **Feasibility:** The design has been undertaken to a more advanced level of detail than other schemes in the Black Country and it is based on known technology
- **Deliverability:** The scheme already has the works and planning powers from the 2005 Order [WBHE/B2]. It also generates sufficient demand to give the potential to develop a fundable business case through further optimisation.'

3.2.6 The report notes, in paragraph 5.5, that "Sprint will have a significant impact on the highway network in this corridor which is unlikely to be acceptable to highway users and stakeholders. These highway dis-benefits will also impact negatively upon the economic case."

3.2.7 In paragraph 5.14, the Black Country Rapid Transit Study [WBHE/E4] concludes that, "in the assessment of the Black Country rapid transit network options we [SDG] can conclude that there are a group of scheme which can be recommended for priority delivery:

- Wednesbury to Brierley Hill Extension from Midland Metro Line 1. This provides connectivity between Brierley Hill and Birmingham. It also links Brierley Hill to two Black Country Strategic Centres - Wolverhampton and West Bromwich."

3.2.8 It is clear from the conclusions of these reports that the configuration of rapid transit in the corridor as an extension to the current West Midlands Metro offers the best way of connecting Brierley Hill, Dudley town centre and Wednesbury to Birmingham and Wolverhampton via the existing Metro route and in my view, they remain valid.

3.3 Appraisal Approach

3.3.1 A quantitative and qualitative approach has been used to assess the impacts of the scheme, as reported in the series of Wednesbury to Brierley Hill Business Case documents [WBHE/D3-D7]. The appraisal considers the forecast performance of the scheme against the situation without the scheme against the range of criteria set out in WebTAG [WBHE/D11-D22, WBHE/D24 and WBHE/D42]. As part of the appraisal framework, an economic appraisal has been undertaken, where monetised costs and benefits of the scheme have been compared against the situation without the scheme. The social, environmental and distributional impacts of the scheme have been assessed qualitatively, as reported in the Appraisal Summary Table on Page E-35 in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7].

3.3.2 Underpinning the quantified patronage, revenue and benefit estimates that drive the economic case for the Wednesbury to Brierley Hill extension is the series of forecasting models. The well-established West Midlands models have been used extensively to support the development and delivery of major transport schemes throughout the West Midlands.

3.3.3 Forecasts for the Wednesbury to Brierley Hill extension have been developed through the strategic transport model called PRISM (Policy Responsive Integrated Strategy Model) developed as a strategic model for the West Midlands by the seven district authorities, Highways England and West Midlands Combined Authority. The PRISM model forecasts the total demand for private and public transport across the West Midlands, passing the 'main mode' public transport (PT) forecasts down to the WMCA's public transport model, referred to here as the PT VISUM model.

3.3.4 The impact of future year provision of HS2 on local demand patterns has been taken into account in the PRISM and PT VISUM models for the 2031 modelled year. The PRISM and PT VISUM model have three modelled time periods; AM peak period (0700-0859), interpeak period (1000-1159) and PM peak period (1600-1759).

PRISM main mode choice model

3.3.5 PRISM was used for forecasting the economic impacts of the WBHE reported in the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7]. The model has a base year of 2011 and is capable of forecasting the total demand for private and public transport across the study area. The scheme has been

assessed in two forecast years, 2021 and 2031, and with forecasts generated for the three modelled time periods referred to above.

- 3.3.6 PRISM version 4.5 used which is based on the DfT's Trip End Model Presentation Program (TEMPRO) version 6.2. The resultant Variable Demand Model outputs contain all travel demand growth associated with committed and planned developments within the West Midlands between 2011 and 2021/2031. The PRISM Local Model Validation Report and Forecasting Reports are provided in Appendix A to the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7].

WMCA PT VISUM public transport model

- 3.3.7 The WMCA's PT VISUM model has been used to assign the public transport element of the PRISM model forecast demand. Based on the same zone structure, networks and data, the PT VISUM model assigns the public transport demand, segmented into two travellers types; those paying fares at the time of travel and others travellers using concessionary or 'travelcard-type' tickets. Handling forecasts this way is an established practice used elsewhere to feed the forecasts from strategic multi-modal demand models (handling, say, highway and public transport demand) down to uni-modal assignment models (addressing, say, public transport only travel demand). This approach is used, for example, in London using the strategic multi-modal London Transportation Studies model and the more detailed Railplan public transport model.

'Do Minimum' and 'Do Something' Scenarios

- 3.3.8 The forecasting models include a representation of transport schemes being developed or likely to be developed in the future. The economic appraisal compares the scheme costs and benefits, in a 'do something' scenario, with the situation without the scheme, known as the 'Do Minimum'. Where monetisation of benefits is possible, a benefit cost ratio has been generated.
- 3.3.9 The Do Minimum scenario includes a representation of Midland Metro Line 1, alongside three committed network extensions:
- **New Street to Edgbaston** (Centenary Square and Edgbaston Extensions)- 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 to a terminus adjacent to the landmark 54 Hagley Road office building.

- **Birmingham Eastside Extension (BEE)** – 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 City Centre Extension** – extension of the line along Pipers Row to connect with the bus and railway stations.

3.3.10 The Centenary Square, Edgbaston and Wolverhampton extensions are currently under construction. The BEE has a principal funding commitment set out in the Greater Birmingham and Solihull Growth Deal [WBHE/D35] and the Transport and Works Act Order is awaiting a determination by the Secretary of State following a public inquiry in November 2017. Although the BEE will provide some valuable connectivity benefits for travellers from the Black Country using the WBHE, especially in access HS2 services from 2026, even without this extension, I am confident that the case for the WBHE will remain largely unchanged.

3.3.11 The Do Something scenario includes a representation of the WBHE. Whilst the Proposed Order provides for the construction of the infrastructure associated with the WBHE, it does not specify the levels of services to be operated over the route.

3.3.12 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 service specification for the WBHE has been configured to provide direct access all parts of the current/proposed Midland Metro network.

3.3.13 Alternative service configurations and service frequencies could be possible during the lifetime of the new service, within the operating constraints of vehicle fleet size and network capacity. It may be possible that some nuances of the service specification could deliver slightly different quantified economic appraisals. However, in strategic terms, the specification identified in Table 1 below provides a representation of the expected service levels that will deliver both the quantified transport benefits set out in the business case and the wider social and economic benefits driven by the improved connectivity offered by the WBHE scheme.

Table 1. Wednesbury to Brierley Hill Extension – Weekday Service frequencies

Time Periods			Route Frequencies (VEH/H)		
	Start	Finish	Brierley Hill - Wednesbury - Wolverhampton Interchange	Brierley Hill - Wednesbury - Birmingham Eastside/HS2	Brierley Hill - Wednesbury - Birmingham Edgbaston
AM Off-Peak	05:15	07:00	1	1	2
AM Peak	07:00	09:30	4	2	4
Daytime Inter-Peak	09:30	15:35	2	1	4
PM Peak	15:35	19:47	4	2	4
PM Off-Peak	19:47	23:59	1	1	2

- 3.3.14 The services will operate seven days a week and will mirror the time periods of the current Midland Metro network 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.
- 3.3.15 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
- 3.3.16 As noted above, the appraisal of the WBHE has been based on modelled years of 2021 and 2031. Following Royal Assent of the Act that gives the Government powers to construct and operate HS2 Phase 1, in line with the Government's implementation timescale, it is assumed that HS2 Phase 1 is operational from 2026, this too is considered to be a committed scheme and so part of the Do Minimum for the 2031 model.
- 3.3.17 The WBHE will introduced into the existing public transport network in the Black Country. Under current legislation the local bus network is deregulated with services operated by a mix of commercial and locally tendered services. The presence of the WBHE is likely to lead to changes in the provision of some bus services in the corridor as bus operators respond to changes in demand patterns.
- 3.3.18 The Do Something scenario therefore 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 WBHE. A review of the bus network in the vicinity of the scheme was undertaken with a series of route and frequency changes being made to several bus routes in the vicinity of the WBHE as reported in Appendix B to the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7].

3.3.19 The majority of bus routes in the vicinity of the WBHE 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;
- direct passenger gains in journeys to Metro stops; and
- passenger gains due to Metro offering new journey opportunities that may include use of the bus for some of new journeys.

3.3.20 For the purposes of this assessment it has been assumed that the bus operators response to the competition provided by the WBHE will be to slightly 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. No change in the frequencies of longer trunk bus routes which serve the main locations on the WBHE have been assumed for the assessment.

3.4 WebTAG benefits appraisal

3.4.1 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 to set out the impacts on each of a number of appraisal criteria. Underpinning approaches adopted in the appraisal underpinning the business case are set out in a number of detailed WebTAG guidance documents [WBHE/D11-22, WBHE/D24, WBHE/D42].

3.4.2 The impacts that have been assessed for the WBHE are discussed in an Appraisal Summary Report which is provided in Appendix D to the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7], a summary of which is provided in Table 2. Underpinning elements of the appraisal is an assessment of transport user benefits undertaken using the DfT's standard software, TUBA (Transport User Benefit Appraisal), which is the approach recommended in WebTAG.

Table 2. Summary of Key Appraisal Impacts

	Criteria	Assessment Type	Comments
ECONOMY	Business Users and Transport providers	Quantitative	Assessed using TUBA with standard economic parameters
	Reliability Impact on Business Users	Qualitative	The scheme will generate modal change from bus to Metro which will have an impact on journey time reliability
	Regeneration	Quantitative	Land Value Uplift
	Wider Economic Impacts	Quantitative	Assessed using WebTAG approach based on WITA and the DfT's Wider Impacts Dataset
ENVIRONMENTAL	Noise	Quantitative & qualitative-	Reported in the 2005 Order - Environmental Statement Vol 1 [WBHE/B9]
	Air Quality	Quantitative & qualitative-	Reported in the 2005 Order - Environmental Statement Vol 1 [WBHE/B9]
	Greenhouse Gases	Quantitative	Assessed using TUBA with standard economic parameters
	Landscape and Townscape	Qualitative	The street running sections through Dudley and Brierley Hill will be accompanied by major upgrade to the quality of the Townscape in these areas. Outline assessment of the 'urban realm' benefits noted in section 3.4.48 below
	Biodiversity	Not assessed	Surveys are being undertaken
	Water Environment	Not assessed	No significant impact is anticipated
SOCIAL	Commuting and Other Users	Quantitative	Assessed using TUBA with standard economic parameters
	Reliability	Qualitative	The scheme will generate modal change from bus to Metro which will have an impact on journey time reliability
	Physical Activity	Not assessed	No significant impact is anticipated
	Journey Quality	Qualitative	The scheme will generate modal change from bus to Metro which will have an impact on journey quality.
	Accidents	Quantitative	Assessed using WebTAG approach and utilising COBALT software. COBALT (COst and Benefit to Accidents – Light Touch) is a computer program developed analysis of the impact of transport interventions on accidents
	Security	Not assessed	No significant impact is anticipated
	Accessibility	Qualitative	The scheme is a crucial element in enhancing connectivity and accessibility. A distributional impact appraisal of accessibility has been undertaken
	Affordability	Not assessed	The scheme will have limited impacts on the money costs of travel. Any changes to vehicle operating costs will be captured in TUBA.
	Severance	Qualitative	Assessment in accordance with WebTAG A4-1 (Ch 5)
	Option Values	Not assessed	No significant impact is anticipated

Forecast Annual Metro Patronage

- 3.4.3 The additional services operating on the WBHE, alongside the bus operator responses to the new service, are forecast to generate a significant increase in Metro patronage across the appraisal period. Table 3 provides the forecast annualised Metro demand estimates in 2021 and 2031 for the Do Minimum and the Do Something scenarios.

Table 3. Metro Patronage Forecasts (m passenger annum)

Forecast Year	Do Minimum, including committed Metro network (Edgbaston, Eastside and Wolverhampton Interchange) ^A	Do Something, including Metro network with Wednesbury to Brierley Hill	% Change from DM
2021 ^B	11.3	16.2	43%
2031	12.2	17.5	44%

Note: A – Do Minimum scenario includes Eastside Extension Metro route, but not the Eastside Masterplan development proposals. B - Forecasts for 2021 represent a scenario were the Eastside Extension to be open in 2021.

Economic Appraisal – Transport User Benefits

- 3.4.4 The WBHE will offer benefits to users in the form of changes to journey times and cost. The user benefits resulting from these changes have been estimated using TUBA.
- 3.4.5 The appraisal of transport user benefits has been based on PRISM model outputs from the 2021 and 2031 models. As PRISM only models 2021 and 2031, the 2021 model outputs have been used as a proxy for the 2023 year of opening, with this being consistent with TUBA guidance which states that if the scheme opening is only 1 or 2 years after the first modelled year then the modelled year data can be used to represent the WBHE opening year.
- 3.4.6 WebTAG requires that most transport investments, including light rail 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 with an assumption of zero ‘unit’ or ‘volume’ growth in the underlying benefit stream, but with ‘value’ growth reflecting increases in the underlying TUBA values, such as value of time and vehicle operating costs in line, with parameters altered in line with WebTAG guidance.
- 3.4.7 Transport user benefits were estimated using TUBA V1.9.7 with standard parameters including discounting assumptions as stated in WebTAG Unit A1.1

Cost Benefit Analysis, DfT (Nov 2014) [WBHE/D13]. A new version of the WebTAG Databook was released in March 2017 [WBHE/D42]. The main changes relate to values of time and default purpose splits (ie proportion of business, commute and other person type and type of vehicle for each time period). The economics files used within the TUBA assessment were updated to take account of these new values.

- 3.4.8 Section 3.6 below discusses more recent updates to the WebTAG guidance, noting that I would not expect any changes to the guidance to materially alter the appraisal of the wider performance of the WBHE and the conclusions that can be drawn from this.
- 3.4.9 Section 5 of the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7] provides details of the 'purpose splits' used in the appraisal that identify the share of travel demand allocated between travellers on company business, commuters, and others journey purposes, with the respective values of time for each of these segments specified in the WebTAG Databook, DfT (March 2017) [WBHE/D42]. This section of the Economic Case also set out the 'annualisation factors' that have been used to factor up the individual modelled forecasts for each time period annual estimates.
- 3.4.10 In the appraisal, transport user benefits have been derived for public transport users, calculated from changes in travel time and costs from the Do Minimum and Do Something scenarios represented in the PT VISUM model and were only adjusted to meet the format requirements of TUBA. Forecasts of zone-to-zone travel times, fares and demand, representing travel conditions across the West Midlands were taken directly from the model and used in TUBA.
- 3.4.11 Analysis of the TUBA outputs on a sector-to-sector level showed sensible user time benefits. A large proportion of these benefits were generated from sectors within close vicinity of the scheme with fewer benefits arising from sectors further away from the route. For this reason, public transport benefits and disbenefits for all sectors within the model have been included in the appraisal.
- 3.4.12 The highway user benefits in the appraisal were calculated using PRISM highway model outputs, and are expected to arise primarily due to reductions in highway vehicle kilometres, reducing congestion as some travellers switch mode from car to Metro. Time, distance, demand and charge changes from the Do Minimum and Do Something scenarios were taken from the PRISM model and were only adjusted to meet the format requirements of TUBA. An established 'masking'

process, described in more detail in the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7], was used ensure that benefit (and dis-benefit) estimates were directly related to the scheme.

- 3.4.13 The masking process, operating at a sector to sector level (aggregations of model zones) was checked for reasonableness before taking the benefit estimates through to the quantified appraisal.
- 3.4.14 As is conventional for rapid transit schemes, transport user impacts have not been modelled during the construction period. Compared to the 60-year benefits stream the construction impacts are small, especially for this scheme which utilises a former rail alignment for much of its route, occur for a limited period, have isolated geographic impacts, and will as far as possible be mitigated through appropriate traffic management arrangements. Additionally, without a detailed programme of construction works it would not be possible to generate reasonable estimate of the transport user impacts due to construction.
- 3.4.15 The PRISM model represents changes in travel patterns in response to the new journey opportunities created by WBHE, in both changes in travel mode between car and public transport, and in potential changes to trip distribution patterns. It does not fully account for 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 attracted to travel due to increased connectivity. To account for the potential impact on the benefits generated by the scheme, the TUBA user and revenue benefits for specific sectors in close proximity to the Metro route were uplifted by 5% in the AM and PM peaks periods and 10% in the Inter Peak. The benefits have only been uplifted for sectors along the WBHE where a new trip may be generated by the scheme.
- 3.4.16 In transport appraisal, the user time and cost benefit are presented in a prescribed format in the Transport Economic Efficiency (TEE) Table. The full table is presented in Table 5.3 of the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7] allocating benefits between road transport users (cars/light goods vehicles and other goods vehicle) and public transport users, between time, operating costs and other charges, and between business users and non-business users.
- 3.4.17 The total present value of Transport Economic Efficiency benefits of the WBHE is £201.8m over the 60-year appraisal period (present value, 2010 market prices), with the majority of time benefits associated with public transport users, but some

benefits accruing to road users arising through modal shift reducing road traffic flows between the Do Minimum and Do Something scenarios.

- 3.4.18 The TEE analysis also includes the revenue implications of the scheme on private sector providers (here, local bus and rail operators). Whilst Metro experiences an increase in revenue over the appraisal period, bus revenue is forecast to reduce as passengers switch modes which is assessed as a disbenefit to the private sector providers. Associated with these reductions in revenues are a number of corresponding bus service changes, considered in 3.3.18 above, with the resulting operating cost changes included in the Analysis of Monetised Costs and Benefits supporting the cost benefit analysis and considered in section 3.5. The WBHE Metro revenues have been removed from the network-wide public transport revenue assessment in the TEE, as these revenue accrue to the public sector and are consequently handled in the Public Accounts appraisal (as considered later in section 3.5); the operation of Midland Metro having been taken in-house by Transport for West Midlands ((TfWM) trading as Midland Metro Limited.

Economic Appraisal – Wider Economic Benefits

- 3.4.19 The core objectives of WBHE, as set out in section 2.9 of the Wednesbury to Brierley Hill Business Case – Strategic Case [WBHE/D5], include a strong focus on the scheme on delivering regeneration and development benefits to the Black Country in order to sustain and develop economic vitality of the area.
- 3.4.20 These economic benefits have been considered in the evidence of Peter Adams [APP/P1.1] in general terms, in the evidence of Paul Ellingham [APP/P5.1] in planning terms, and in my evidence here in respect of specific economic impacts that are considered in the economic appraisal.
- 3.4.21 There are two principal areas considered that have been quantified in the economic appraisal for the scheme:
- ‘Wider Economic Impacts’; and
 - Land Value Uplifts.
- 3.4.22 WebTAG Unit A2.1 Wider Economic Impacts Appraisal, DfT (Sept 2016) [WBHE/D16/A] in Box 1 notes that *“Wider economic impacts refers to economic impacts which are additional to transport user benefits. They arise because market failures in secondary markets (non-transport), such as the labour and land*

markets, mean that the full welfare impact of a transport investment may not be reflected in the transport market.”

3.4.23 Ordinarily transport schemes would be expected to have impacts in markets other than transport (such as the labour market, product market, and land market). 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.

3.4.24 To support the estimation of these benefits, the DfT software ‘Wider Impacts in Transport Appraisal’ (WITA) was used in this assessment and addressed three types of Wider:

- 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 productive jobs)

3.4.25 Agglomeration (indicator WI1) 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.

3.4.26 Output Change in Imperfectly Competitive Markets (indicator WI2) occurs where a transport intervention reduces transport costs for a firm and allows and output profitability to increase. Profitability and welfare gain increase as the gap between consumers’ willingness to pay and the cost of production widens.

3.4.27 Tax revenues arising from labour market impacts (indicator WI3) arising in the appraisal as 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 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.

3.4.28 The Wider Impacts appraisal used WITA version 1.2, with the analysis undertaken at a Local Authority District level for the seven local authorities which form the West Midlands. WITA has used the same PRISM model data as used in TUBA, aggregated appropriately to a local authority level before running WITA. The results of the analysis are reported in Table 4.

Table 4. Wednesbury to Brierley Hill - Wider Impacts (£000, 2010 Price Base)

Wider Impact	2021	2031	60 Year Appraisal Period
WI1: Agglomeration	1,929	2,374	101,925
WI2: Output in Imperfectly Competitive Markets			14,876
WI3: Labour Supply Impact (no resident relocation)	129	82	2,955
Total Wider Impacts	2,058	2,456	119,756

3.4.29 Also considered in the appraisal was land value uplift. Significantly improved transport accessibility to any development site is likely to result in any or all of the following: the site being developed earlier than it would otherwise be; an increase in the density of development of the site; and an increase in the unit value of the site.

3.4.30 The assessment of the potential for land-value uplift has followed the guidance set out in WebTAG Unit A2.2 Appraisal of Induced Investment Impacts [WBHE/D17/A]. A series of workshops and meetings with local authorities and stakeholders were organised to understand the likely locations of any developments dependent on the delivery of the WBHE, and the nature of the development, in simple terms for residential, retail, leisure or commercial uses. Table 5 provides a summary of the dependant developments which were identified in these discussions along with the expected land values based on the local unit values per acre for various land types as set out in 0. As the economic appraisal is undertaken to a 2010 price base,

these local values, provided by New Heritage Regeneration Ltd and as reported in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7] are rebased to 2010 prices.

Table 5. Developments dependent on the Wednesbury to Brierley Extension

Development	Current Land Use	Expected Land Use	Size	Expected Land Value (£'000)
Merry Hill	Vacant Land	Residential and retail	222 acres	74,315
Enterprise Zone	Vacant Land	Commercial	172 acres	32,164
Castlegate, Dudley	Castlegate ^A	Retail	8 acres	3,181
Flood Street, Dudley	Vacant Land	Residential and leisure centre	7 acres	1,468
Portesfield/Cavendish House, Dudley	Vacant Land	Retail	11 acres	5,384

Note A: Site currently occupied by the Castlegate development, but expect to become higher value retail

Table 6. Land Value by Types (2010 prices)

Type	£ / acre
Residential	348,817
Leisure Centre	183,773
Retail	581,362
Distribution	137,830
Commercial	278,889
Castlegate ^A	183,773
Vacant Land	91,886

Note A: Land value for present use of Castlegate site

3.4.31 In addition to developments in Table 5, the impact of the Metro on the Black Country Living Museum and Dudley Zoo was also considered. The WBHE 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 growth; reference in 5.77 of Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7].

3.4.32 The two quantified approaches identified here generate significant quantified benefits; of just under £120 million present value in 2010 prices across the 60-year appraisal period in terms of Wider Impacts, and just over £120 million present value in 2010 prices in respect of the dependent developments. In addition, the WBHE will improve accessibility between Sandwell and Dudley and the wider West Midlands area, including Birmingham, generating welfare benefits and agglomeration benefits. Residents who live along the WBHE 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 WBHE as their employees will be able to access work easier and quicker. This may increase their attractiveness as a place of work. The scheme will also to expand employee catchment areas for firms in Birmingham and Wolverhampton along the existing Metro network, 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.

Economic Impacts Assessments

- 3.4.33 In addition to the WebTAG driven assessment of economic impacts that has contributed to the formal economic appraisal of the WBHE economic case, a number of bespoke Economic Impact Assessments have been developed by specialist planning and development consultants focusing on identifying and quantifying some of the more tangible economic and local growth-oriented benefits of the scheme that would otherwise not be captured in the economic appraisal. In all cases the fuller range of benefits identified cannot be included in the formal Cost Benefit Analysis, but they do demonstrate the strength of the economic case for the delivery of the WBHE, and hence the case for the Proposed Order to provide the required land acquisition powers.
- 3.4.34 The Economic Impact Study for the Brierley Hill Regeneration Partnership [WBHE/D31] conducted by Hunt Dobson (now Quod) in 2002 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 in 2006 by the Regensis report on The Economic Impact of the Expansion of Brierley Hill/Merry Hill [WBHE/D32], which concluded that, based on the development proposals of the Black Country, there would be an estimated growth of 16,000 jobs by 2031, of which 80% would be in office employment.
- 3.4.35 Independent specialist planning and development consultants, Lichfields, were commissioned by Dudley Metropolitan Borough Council in partnership with Sandwell Metropolitan Borough Council, BCLEP and the Black Country Director of Transport to assess and quantify the scale of economic impacts associated with the WBHE and was configured to complement the separate DfT compliant Business Case being developed at around the same time.

- 3.4.36 The Lichfields study, the Wednesbury to Brierley Hill Metro Extension Economic Impact Assessment [WBHE/D28], which was published in August 2017 considered the overall economic impact of the scheme as well as direct and indirect benefits to the wider West Midlands economy.
- 3.4.37 The study identified and quantified some of the more tangible economic and local growth-oriented benefits associated with the WBHE, including the benefits associated with the development value that the WBHE unlocks or enhances, and associated outcomes that it supports.
- 3.4.38 The report of the Lichfields assessment states at paragraph 2.8 that: *“The extension of the Metro through Wednesbury to Brierley Hill provides a game-changing opportunity for the economic, social and environmental regeneration of the area. The location of Metro stations has the potential to facilitate growth and regeneration, including being the focus of higher density development, as well as enhancing connectivity with other public transport modes.”*
- 3.4.39 The study confirmed that the WBHE would act as a significant enabler and accelerator of growth in the area, as summarised in the infographic at the front of the report, which compares the ‘With Metro Extension’/Do Minimum and ‘Without Metro Extension’/Do Something scenarios. In the Do Something scenario, the report, at Table 6.1, predicted the following outcomes, assessed across the West Midlands region, when compared with the Do Minimum:
- A 36% increase in the annual delivery of commercial floorspace (from 634,500m² to 865,900m²);
 - A 29% increase in permanent jobs (from 26,070 to 34,560 over a 25-year appraisal period);
 - Almost double the economic output (from £14.4bn to £28.6bn over a 25-year appraisal period);
 - A 46% increase in council tax receipts (from £396.5m to £580.5m over a 25-year appraisal period); and
 - A 160% increase in business rates (from £121.1m to £318.1m over a 25-year appraisal period).
- 3.4.40 Whilst not eligible for inclusion in the economic appraisal for the business case, the Lichfields’ Wednesbury to Brierley Hill Metro Extension Economic Impact Assessment report [WBHE/D28] confirms the strength of the economic case for the scheme and the support it will offer to the regeneration and development of the Black Country.

Environmental Appraisal

3.4.41 The key environmental impacts of the WBHE were assessed in detail in developing the 2005 Order - Environmental Statement Vol 1 [WBHE/B9] submitted with the application for the 2005 Order [WBHE/B2]. With the scheme remaining, in infrastructure and service delivery terms, largely the same as that assessed in the ES, and following the proportionality principle, a full updating across all environmental indicators used on the WebTAG appraisal has not been undertaken.

3.4.42 In respect of noise, a detailed assessment was undertaken by Environmental Resources Management (ERM) in developing the 2005 Order - Environmental Statement Vol 1 [WBHE/B9]. ERM is an independent environmental consultancy with extensive experience of undertaking EIAs for major transport infrastructure schemes, including light rail schemes throughout the UK. Their assessment, in section 6.4.10 of the 2005 Order - Environmental Statement Vol 1 [WBHE/B9], 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’.

3.4.43 Local noise impacts will be considered further during detailed design. Any expected impacts will be governed by the Conditions 10 and 11 attached to the deemed planning consents [WBHE/B7].

3.4.44 The impact of the on local air quality of the provision of the WBHE was also assessed by ERM in developing the 2005 Order - Environmental Statement Vol 1 [WBHE/B9], concluding, in section 6.5.10 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”

- 3.4.45 The Greenhouse Gases impacts of the scheme have been obtained from the TUBA assessments based on changes in forecast traffic flows and monetised using WebTAG Unit A3 Environmental Impact Appraisal [WBHE/D21] guidance. This appraisal has identified a small monetised benefits due to the predicted reduction in Greenhouse Gas emissions during the lifetime of the scheme of £0.257m (present value, 2010 prices).

Landscape, Townscape and Historical Environment Impacts

- 3.4.46 The WBHE is predominantly to be constructed on a disused railway line. As a result, the Landscape, Townscape and Historic Environment impacts, as ordinarily assessed through WebTAG guidance will be minimal along these sections.
- 3.4.47 However, the street running sections through Dudley and Brierley Hill will result in changes in Townscape, with the opportunity to significantly improve the street environment. As considered in the evidence of Paul Ellingham [APP/P5.1], it is envisaged that a combination of new tree and shrub planting and high quality surface treatments along and parallel to the tramway will be used to provide a step change in the urban environment to complement the new transport infrastructure provision. Detailed designs for hard and soft landscaping have not yet been developed, but will be considered further during detailed design, as considered in the evidence of Paul Ellingham [APP/P5.1].
- 3.4.48 The potential for the WBHE to deliver urban realm benefits associated with improved ambience experienced by pedestrians and others in areas with street running Metro services has been considered. These benefits have been monetised, although these are not included in the formal appraisal of the scheme. This approach is described in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7] and uses a methodology developed by Transport for London to capture the intrinsic value of how users assess enhanced urban realm, alongside an assessment of the underlying quality of the pedestrian environment

and proposed improvements. The resulting analysis, modified to accommodate the socio-economic differences between the study area and London, suggests monetised benefits of £0.544m (present value, 2010 prices) for the street running section of route. An additional assessment considering the improvements made around Metro stations elsewhere on the route generated benefits of £0.216m (present value, 2010 prices).

Biodiversity and Water Environment

- 3.4.49 As considered in the evidence of Paul Ellingham [APP/P5.1], it is envisaged that a biodiversity management plan will be put in place to manage the delivery of the scheme and longer terms impacts on biodiversity. There will be a need to undertake clearance of vegetation that has grown over time after regular user of the former railway corridor ceased, as well for stops, equipment and access to temporary work sites. For the longer term, the management plan will look to encourage biodiversity in the corridor, with supplementary planting used to complement the landscape quality of the route.
- 3.4.50 The impact of the scheme on the local water environment has not been undertaken as the impacts are deemed insignificant.

Social Appraisal

- 3.4.51 The social appraisal impacts of the WBHE were assessed using a number of indicators set out in WebTAG Unit 4.1 Social Impact Appraisal, DfT (Nov 2014) [WBHE/D22] and primarily concern a number of transport related impacts and how these impact on direct groups of transport users and local residents.
- 3.4.52 **User Benefits.** Transport user time and cost benefits to commuting and other users of the transport network, including Metro users and those remaining on the bus and road networks, are included in the user benefit appraisal presented earlier and form part of the TUBA benefits outlined in the economy appraisal of the WBHE.
- 3.4.53 In line with WebTAG requirements for social appraisal, set out in WebTAG Unit 4.1 Social Impact Appraisal, DfT (Nov 2014) [WBHE/D22], a distributional impact appraisal of non-business journeys has been carried out to demonstrate the distribution of user benefits. Table 7 below tabulates these user benefits according to area deprivation and shows that the WBHE 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 WBHE 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.

Table 7. Distributional Impacts: User Benefits by IMD Bands

	IMD Income Domains £m					
	Most deprived areas				Least deprived areas	
	0%<20%	20%<40%	40%<60%	60%<80%	80%<100%	Total
Total benefits (\sum LSOAs)	186.5	48.6	52.9	3.8	1.9	293.6
Total disbenefits (\sum LSOAs)	0	0	0	0	0	0
Share of user benefits	63%	17%	18%	1%	1%	100%
Share of user disbenefits	0	0	0	0	0	0%
Share of population in the impact area	54%	27%	16%	2%	1%	100%
Assessment	√√√	√	√√	√√	√√	

- 3.4.54 **Reliability.** One of the key objectives of the scheme is to provide a high quality and reliable public transport service that can drive modal shift and support economic vitality. Operating on a largely segregated alignment, the WBHE will have a beneficial impact on reliability for passengers switching mode from bus and car to the WBHE

- 3.4.55 Transport network reliability affects the Black Country and wider West Midlands through congestion leading to unreliability of highway journey times and the consequential impact on bus journey times. The WBHE is expected to provide a more reliable, higher quality mode of transport within the Black Country and between the Black Country, Birmingham and Wolverhampton.

- 3.4.56 Regular monitoring of the perceptions of public transport service delivery is undertaken by Transport Focus. The Transport Focus Tram Passenger Survey [WBHE/F16] identified on pages 2 and 5 that, for Midland Metro, 92% of users were satisfied with service punctuality. In contrast, the Transport Focus Bus Passenger Survey for West Midlands [WBHE/F15] suggests on pages 3 and 9 that although satisfaction with bus punctuality improved from Spring 2017 to Spring 2018 in the West Midlands, only 76% of users were satisfied with how punctual their service was in 2018 (up from 72% in 2017).

- 3.4.57 **Journey Quality.** WebTAG appraisal also consider the wider measure of journey quality, and whilst this indicator should not ‘double-count’ benefits considered explicitly elsewhere in the appraisal, assessing ‘quality’ as a stand-alone issue can be challenging. Although there is an element of double-counting through the

Transport Focus services, their overall measure of passenger satisfaction can provide a useful guide to a journey quality measure, even if not entirely consistent to the WebTAG definition.

- 3.4.58 The Transport Focus Tram Passenger and Bus Passenger Surveys for Midland Metro and the West Midlands (respectively) provide overall satisfaction scores for Midland Metro of 90% [page 2 of WBHE/F16] and for West Midlands buses of 88% [page 3 of WBHE/F15]. This suggests that the WBHE is likely to have a small beneficial impact on journey quality for passengers switching mode from bus to Metro.
- 3.4.59 **Physical Activity.** The scheme will have limited impacts on levels of physical activity, although by encouraging modal shift from car some minor benefits are expected in respect of this WebTAG component. A detailed assessment of this element has not been undertaken.
- 3.4.60 **Accidents.** The WBHE will generate a modal shift from car to public transport, reducing the volumes of car journeys that otherwise take place. The congestion-relief benefits of this are considered in the user benefit estimates, whilst the impact on the number of road network accidents can be analysed as part of the economic appraisal based on WebTAG unit A4.1, DfT (Nov 2014) [WBHE/D22]. This recommends that COBALT software is used for this accident assessment.
- 3.4.61 COBALT (COst and Benefit to Accidents – Light Touch) is an Excel spreadsheet based computer program developed by the DfT to undertake accident analysis in accordance with WebTAG. COBALT uses 'Without-Scheme' and 'With-Scheme' forecast highway model flows, speeds, distances and road types alongside pre-defined accident rates, costs and growth rates to assess the safety benefits of a particular road scheme. As outlined in the Section 5.5.5 to 5.5.8 and Appendices J and K to the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7], the COBALT assessment suggests that over the 60-year appraisal period, the scheme will result in an overall accident benefit of £1.249m (present value, 2010 prices).
- 3.4.62 **Security.** The scheme will have little material impact on security, although the Transport Focus Tram Passenger Survey for Midland Metro and their Bus Passenger Survey for West Midlands identified that passenger satisfaction with personal security is higher for Midland Metro passengers at 83% (on the tram) and 81% (at tram stops) [pages 16 and 15 respectively of WBHE/F16], than for West Midlands bus travellers at 79% (on the bus) and 76% (at bus stops) [pages 13 and

5 respectively of WBHE/F15]. A detailed assessment of this element has not been undertaken.

3.4.63 **Accessibility.** The WBHE 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 area of workplaces is crucial element in promoting economic growth and increasing living standards.

3.4.64 In line with WebTAG Unit A4.2 Distributional Impact Appraisal, DfT (Dec 2015) [WBHE/D18], an appraisal of accessibility has been undertaken. A strategic accessibility assessment has been carried out at for two strategic locations along the WBHE; Dudley Town Centre and the Merry Hill Shopping Centre. Both of these were chosen due to their regional importance as they are key areas of employment, education, recreation and retail.

3.4.65 The detailed assessment, provided in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7] from section 5.60 to 5.69 used average weighted journey times for each origin and destination pair from the PT VISUM model for Do Minimum and Do Something scenarios from each zone to Dudley and Merry Hill to 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 Distributional Impact Appraisal, DfT (Dec 2015) [WBHE/D18].

3.4.66 An overall score for each time period and destination is shown in Table 8.

Table 8. Distributional Impacts: Overall Score

	AM Peak	Interpeak	PM Peak
Dudley	Large Beneficial	Slight Beneficial	Large Beneficial
Merry Hill	Large Beneficial	Slight Beneficial	Large Beneficial

3.4.67 The scheme increases the accessibility to and from Dudley. The WBHE 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 WBHE in place, the number of people living between a 31-40 minute journey time away from Dudley significantly increases.

3.4.68 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.

- 3.4.69 **Severance.** The scheme is expected to have no additional negative impact on severance as the line will generally utilise an existing railway alignment. There are existing crossing points of the disused rail line and in some instances the quality of these links, and new additional links, are likely to be provided as part of the design for new stations. The scheme creates some new access routes at stops along the route providing a small benefit. For the on-street sections of route, careful designs and handling of pedestrian crossings of the tramway and road networks also has the potential to generate small severance benefits.
- 3.4.70 **Option Values.** The scheme is expected to enhance the local public transport network and in doing so improve the options available for those requiring access to current and future residential, commercial, and leisure sites in the area.

3.5 Wednesbury to Brierley Hill Extension Value for Money

- 3.5.1 A central part of the appraisal of WBHE is a cost benefit analysis (CBA). The CBA compares two futures, one with the scheme and one without, DfT's Transport Appraisal Process, DfT (January 2014) [WBHE/D11] sets out that those costs and benefits that can be monetised in a consistent and comparable way should be included in the CBA. The guidance recognises that not all costs and benefits can be readily monetised, but sets out methods for assessing non-monetised costs and benefits, which can be done in either quantitative or qualitative ways, depending on the particular impact concerned.
- 3.5.2 Whilst the monetised cost and benefits components drive the value for money assessment, other non-monetised elements contribute to the allocation of a value for money category, and they form an important and integral part of the overall economic case, as considered above, and in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7].

Scheme Costs

- 3.5.3 The Wednesbury to Brierley Hill Business Case - Financial Case [WBHE/D4] provides estimates for the expected out-turn capital costs for the scheme, alongside the funding sources from which they will be met.

- 3.5.4 In the appraisal of the scheme, the underlying investment costs in the infrastructure required to build the scheme, and in the vehicles required to operate the service, were developed by MMA to include preparation, construction, supervision and land costs. Investment cost profiles were developed for spending between 2017 and 2024, with the main spends occurring in 2021 and 2022, in advance of the 2023 opening of the extension. The costs of trams was spread over a four-year period paid for and delivered between 2020 and 2023, with this being based on the current payment profiles for the commissioning of new vehicles agreed with the manufacturer by MMA.
- 3.5.5 The Funding Statement [WBHE/A6] describes WMCA's proposals for funding the costs of implementing the extension, with a headline out-turn cost estimate, including forecast inflation, to be £343.6 million, with around £69.0m of these costs relating to the acquisition of new vehicles. This assumes construction of is completed, in its entirety, by October 2023.
- 3.5.6 For appraisal purposes, the underlying costs have been adjusted to take out 'sunk costs' in 2016/17 and prior years, and further adjusted for additional delivery risk premium and optimism bias over and above the estimated risks included in the underlying costs of £343.6m. An uplift of 4.4% was applied to all scheme cost components to reflect delivery risk.
- 3.5.7 Optimism bias is a demonstrated, systematic, tendency for project appraisers to be overly optimistic. To redress this tendency, empirically based adjustments to the estimates have been developed based on out-turn project costs across a wider range of project times and stage of development, as described in the Public Sector Business Cases Using the Five Case Model, Green Book Supplementary Guidance on Delivering Public Value from Spending Proposals [WBHE/D10]. In line with the stage of scheme development optimism bias at 20% has been applied to all non-tram scheme cost components, with a lower optimism bias premium of 6% applied to the tram costs, reflecting an increased certainty around future tram costs relative to the more uncertain construction costs elements, especially given the recent track record in vehicle purchases for the Line 1 fleet renewal and expansion.
- 3.5.8 Allowing for delivery risk and optimism bias, but excluding 'sunk costs' of £1.8m spent in advance of the business case submission (£0.310m in 2015/16 and prior years and £1.521m in 2016/17) the appraisal of the WBHE used out-turn cost estimate, including forecast inflation, of £418.1m.

- 3.5.9 For the appraisal, the scheme cost of £418.1m including delivery risk and optimism bias, was 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 provided in Table 6.1 of Annex 6 to the Green Book Appraisal and Evaluation in Central Government, HM Treasury (2003 – as updated in 2011) [WBHE/D9]. The value of the capital costs of the proposed extension is £288.6 million (present value, 2010 prices).
- 3.5.10 The operating costs for the WBHE were derived from a bespoke operating cost model utilising operating costs from the existing Line 1 Metro line. The model assumes that unit costs remain the same between the existing Metro operation and the WBHE extension. Costs were estimated to take account of:
- 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)
- 3.5.11 The marginal operating costs of the proposed extension were generated from models of the extended system operations with and without the WBHE, as considered in section 3.3.9 above. An uplift of 4.4% has been applied to all scheme cost components to reflect risk. In line with WebTAG Unit A1.2 Scheme Costs, DfT (Nov 2014) [WBHE/D14], no optimism bias was applied to operating costs.
- 3.5.12 For the appraisal, the operating costs were 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 provided in Table 6.1 of Annex 6 to the Green Book Appraisal and Evaluation in Central Government, HM Treasury (2003 – as updated in 2011) [WBHE/D9]. The value of the final 60-year stream of operating costs for the proposed extension is £152.7 million (present value, 2010 prices).

Appraisal Assumptions

- 3.5.13 The appraisal reported in the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7] was undertaken using the following assumptions:
- The WBHE is planned to open in 2023. Apart from capital costs which are spent prior to opening, operating costs and benefits streams have only been included from this opening year.

- The WBHE has been appraised over a 60-year period from opening, from the point when the full scheme is open in 2023, but with capitals costs incurred in earlier prior to opening.
- All prices have been re-based to 2010 prices, using a GDP deflator, consistent with WebTAG Transport Appraisal Process guidance [WBHE/D11].
- All costs and benefits have been discounted to 2010. As per guidance, a discount rate of 3.5% per annum has been applied for the next thirty years, with the rate reducing to 3.0% from then on.

3.5.14 With the operating concession for Midland Metro taken in-house through MML, the appraisal allocates system operation to the public sector, with any revenue surpluses accrues to the public sector. In cost benefit terms, this revenue surplus reduces the overall cost of the scheme to the public sector over the appraisal period and is treated as a negative cost in the cost part of the benefit cost ratio (i.e. as part of the denominator).

Analysis of Monetised Costs and Benefits

3.5.15 In accordance with WebTAG guidance Unit A2.1 Wider Economic Impact Appraisal, DfT (Sept 2016) [WBHE/D16/A], three variations of the Analysis of Monetised Costs and Benefits (AMCB) table were developed for the Business Case to set out the principal economic performance for the scheme:

- 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 reflecting dependent development and associated land value uplift benefits (regeneration benefits)

3.5.16 The Level 1 appraisal, is focused around user benefits, with greenhouse gas benefits derived from TUBA, accident benefits derived from COBALT, private sectors revenue and operating costs, and Metro-related operational costs and infrastructure costs. This initial appraisal generates a net present value for around £34m (present value, 2010 prices), and an initial benefit to cost ratio of 1.16.

3.5.17 The Level 2 appraisal extends the analysis to include the wider economic impacts generated using the DfT's WITA software. This expanded appraisal generates a

net present value for £154m (present value 2010 prices), and an adjusted benefit to cost ratio of 1.71.

3.5.18 Table 9 below presents a full AMCB table for the Level 3 appraisal which takes account of Land Value Uplift. This is based on the core present value of benefits, expanded to includes the wider economic impacts generated using WITA and the benefits arising from the Metro scheme ‘unlocking’ development along the corridor. The costs include both operational costs and infrastructure costs.

3.5.19 For the Level 3 appraisal, the scheme generates a net present value of £275m (present value 2010 prices), and an adjusted benefit to cost ratio of 2.27.

Table 9. Net Present Value and Adjusted Benefit to Cost Ratio

	£'000 (present value 2010 prices)
Greenhouse Gases	257
Accidents	1,115
Smarter Choices and Travel Planning Initiatives (benefits)	23,200
Network Rail Maintenance Saving	3,087
Economic Efficiency: Consumer Users (Non-Business)	
- user time, car operating costs, user charges	270,047
Economic Efficiency: Business Users and Providers	
- user time, car operating costs, user charges	18,101
- private sector bus revenues	-86,364
Private sector bus operating costs savings	44,794
Wider Public Finances (Indirect Taxation Revenues)	-23,249
Present Value of Benefits (PVB)	250,987
Wider Economic Impacts	119,756
Land Value Uplift	121,141
Adjusted Present Value of Benefits (PVB)	491,884
Broad Transport Budget	
- Metro investment costs	-288,594
- Metro operating costs	-152,704
- Metro revenues	227,757
Smarter Choices and Travel Planning Initiatives (costs)	-3,317
Present Value of Costs (PVC)	-216,858
OVERALL IMPACTS	
Net Present Value (NPV)	275,026
Adjusted Benefit to Cost Ratio (BCR)	2.27

3.5.20 Table 9 above sets out the benefit to cost ratio for the WBHE and is supported by a number of standard analysis tables prescribed by WebTAG guidance. These are included as Table 4.4 (Public Accounts (PA)), Table 5.3 (Transport Economic Efficiency (TEE)) and Tables 6.1 - 6.3 (Analysis of Monetised Costs and Benefits (AMCB)) in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7]. Also included in the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7] is the Appraisal Summary Table (AST) for WBHE,

which brings together all aspects of the appraisal in a summary format. Again, the format of the AST is prescribed by the Department for Transport.

Value for Money

- 3.5.21 The Department for Transport has established a set of categories for benefit cost ratios. At the time of the development of the business case the value for money categories were set out in the DfT's Value for Money Assessment Advice Note for Local Transport Decision Makers, DfT (Dec 2013) [WBHE/D24].
- 3.5.22 The Value for Money categories used at the time of the development for the Wednesbury to Brierley Hill Business Case – Economic Case [WBHE/D7] were:
- Poor VfM if the BCR is less than 1.0
 - Low VfM if the BCR is between 1.0 and 1.5
 - Medium VfM if the BCR is between 1.5 and 2.0
 - High VfM if the BCR is between 2.0 and 4.0
 - Very High VfM if the BCR is greater than 4.0
- 3.5.23 The Level 3 appraisal adjusted benefit to cost ratio of the WBHE of 2.27 suggests that it should be considered as offering 'high' value for money. Before concluding on the value money allocation, it is necessary to consider other non-monetised impacts which can either add or detract from the scheme's value for money. My review of the wider non-monetised appraisal impacts in section 3.5 above suggests that there are no significant adverse impacts that require a reduction in the value for money category for the scheme. Whilst there are some very strong economic development associated with the scheme, these have been captured in the monetised appraisal, and the wider beneficial impacts, whilst positive, are not sufficiently strong to require an increase the scheme's value for money category.
- 3.5.24 Whilst the new guidance has expanded assessment of the Value for Money case, including wider categorisations and introducing a stronger emphasis on uncertainty, in my opinion application of the new guidance would not materially change the value for money assessment of the scheme. It can be inferred that the DfT consider the scheme to offer sufficient value for money for the awarding of funding via the Transforming Cities Fund.

Value for Money Statement

3.5.25 In my opinion, the economic performance the WBHE represents value for money. This view is derived from a consideration of the benefit cost ratio of the scheme driven by both by transport benefits and very strong wider economic benefits, alongside additional impacts that do not form part of the benefit cost ratio but provide strong policy support in terms of connectivity to employment and other facilities, and in supporting wider local and national policies. I would also suggest that this view is more widely held and confirmed by the DfT in awarding funding for the scheme through the Transforming Cities Fund.

3.6 On-Going Updates to Transport Appraisal Guidance

3.6.1 The 2017 business case for the WBHE, as set out in the Wednesbury to Brierley Hill Business Case [WBHE/D1-D5], was based on guidance applicable at the time.

3.6.2 Following the submission of the Wednesbury to Brierley Hill Business Case [WBHE/D1-D5], an update to the Green Book, the Green Book Central Government Guidance on Appraisal and Evaluation [WBHE/D9/A], was published in March 2018. In this section of my evidence, I have made an assessment of the likely impact of the new Green Book on the case the scheme.

3.6.3 Since the initial development of a comprehensive approach to the appraisal of transport proposals around 50 years ago, the appraisal processes have continued to evolve with guidance updated on a fairly regular basis. The 2017 business case for the WBHE was also based on guidance applicable at the time, with the awarding of funding via the Transforming Cities Fund on this basis.

3.6.4 In line with the proportionality approaches advocated in the WebTAG Proportionate Update Process [WBHE/D12], a full reappraisal of the case for the scheme following all new appraisal guidance has not been undertaken.

3.6.5 The updated appraisal guidance documents are provided to the Inquiry linked to the guidance used in the 2017 appraisal for the scheme, using a 'A' identifier as appropriate, for example, the update to the WebTAG Transport Appraisal Process, DfT (January 2014) [WBHE/D11] is provided as the WebTAG Transport Appraisal Process, DfT (May 2018) [WBHE/D11/A]. Table 10 and Table 11 provide a listing of the guidance documents used in support of the Business Case and a review of the changes made to the guidance and my view of the likely impacts of the changes

on the case for the WBHE. Further details of the changes made in Transport Appraisal Guidance are provided in Appendix 1 to this Proof of Evidence [APP/P2.3].

Table 10. WebTAG Document Versions

Document	Reference	Version Used	Subsequent Versions
Green Book Central Government Guidance on Appraisal and Evaluation	WBHE/D9	2003-updated 2011	March 2018
Transport Appraisal Process	WBHE/D11	January 2014	May 2018
Proportionate Update Process	WBHE/D12	January 2014	No Updates
A1.1 Cost Benefit Analysis	WBHE/D13	November 2014	May 2018
A1.2 Scheme Costs	WBHE/D14	November 2014	July 2017
A1.3 User and Provider Impacts	WBHE/D15	November 2014	March 2017
A2.1 Wider Economic Impact Appraisal	WBHE/D16/A	September 2016	May 2018
A2.2 Induced Investment Impacts	WBHE/D17/A	September 2016	May 2018
A4.2 Distributional Impact Appraisal	WBHE/D18	December 2015	No Updates
A2.3 Appraisal of Employment Effects	WBHE/D19/A	September 2016	May 2018
A2.4 Appraisal of Productivity Impacts	WBHE/D20	September 2016	May 2018
A3 Environmental Impact Appraisal	WBHE/D21	December 2015	No Updates
A4.1 Social Impact Appraisal	WBHE/D22	November 2014	December 2017
VfM Advice Note for Local Transport Decision Makers, DfT	WBHE/D24	December 2013	July 2017 – Renamed to Value for Money Framework
WebTAG Databook	WBHE/D42	March 2017	Multiple Updates, latest version November 2018

Table 11. WebTAG Versions Review

Green Book new edition in 2018 replaced previous 2003 edition (updated 2011). The most notable changes are around environmental appraisal, and building monitoring and evaluation into all stages of policy development. Updates around fuel prices, carbon emissions etc have been adopted in the latest WebTAG databook. There is also the introduction of a lower discount rate for health and life impacts. Whilst these amendments may result in small changes in the appraisal, for example in increasing the value of the stream of accident savings, I consider it unlikely that the revisions in the new edition of the Green Book would have a material impact on business case and the value for money assessment of the WBHE.

Transport Appraisal Guidance has been updated to reflect changes to the individual sections described below, most notably the restructuring of the Wider Economic Impacts Guidance. It has also been updated to reflect changes to Value for Money Framework. The impact of these changes is described in each section below.

A1.1 Cost Benefit Analysis updates have covered minor changes to wording around extrapolation and long-term benefits, in particular requiring sensitivity testing where continued long-term growth is being assumed. The changes in the guidance do not affect the appraisal of the WBHE scheme and therefore I consider it unlikely that applying the new guidance would materially alter the business case.

A1.2 Scheme Costs updates to suggested optimism bias rates. These changes do not affect Light Rail, and with costings now at a fairly advanced stage, I consider there to be no impact on business case of these changes.

A1.3 User and Provider Impacts, values of time updated, but during the later stages of the Business Case development the WebTAG Databook, DfT (March 2017) [WBHE/D42] was used. Further updates to the Databook as considered below.

A2.1 Appraisal of Wider Economic Impacts, update provides an increased level of detail, introduces use of term 'non-welfare measures' and alters where wider impacts should be reported. Throughout the update previous references to measuring using GDP have been changed to 'non-welfare measures such as GDP'. The presentation of wider impacts that are not part of adjusted metric has been moved from being a sensitivity test to being reported within the value for money assessment as indicative impacts. The justification for supplementary modelling has also been updated to state that this is necessary when structural impacts are expected to be a significant proportion of overall impacts, with a suggestion of putting forward the potential for such modelling to be used early in the appraisal process to inform high level strategic decisions. With respect to extent of additionality versus displacement, this guidance is explicit in that this means appraisal must capture responses at a national level. The guidance on reporting and structure of Economic Narrative and Economic Impacts Report is now all within A2.1 rather than across units, with these expected to be annexes to the business case. The Wednesbury to Brierley Hill Metro Extension Economic Impact Assessment [WBHE/D28] effectively provides this requirement in both the general narrative throughout the document and the quantification of local impacts in the WBHE corridor and more widely throughout the West Midlands.

A2.2 Appraisal of Induced Investment Impacts, has been updated along the same lines as A2.1, notably with use of the term 'non-welfare measures' replacing GDP, increased demand for supporting evidence, and change in location of reporting. It includes a greater requirement for evidence around demonstrating additionality rather than displacement. The Wednesbury to Brierley Hill Metro Extension Economic Impact Assessment [WBHE/D28] considers impacts locally to the WBHE corridor, but also more widely throughout the West Midlands. Where considering land value uplift, previously stated to have low level of robustness, this has been somewhat softened in 2018 guidance to note a dependence on the extent to which the factors have been identified and evidenced. In estimating additionality for land value uplift, guidance on use of National Trip End Model (NTEM) forecasts has been replaced with recommendation to follow DCLG approaches. The latest version also includes discussion of how user benefits for existing users could be negative in a situation where scheme is to enable dependent development.

A2.3 Appraisal of Employment Effects, is similarly updated with additional detail and changes on where impacts should be reported. In particularly non-welfare GDP impacts are to be included in the

economic, rather than the strategic, case. Increased detail is also provided with respect to evidence for Employment Effects and the assumption on valuing labour supply has been reworded.

A2.4 Appraisal of Productivity Impacts, has the same changes with respect to referencing non-welfare measures and where to report impacts, that is in the economic, rather than the strategic, case. Agglomeration is now stated to capture total productivity rather than urbanisation, whilst a new paragraph details why this approach is not applicable to pedestrian or urban realm schemes. There is also an additional statement that generalised travel costs should be estimated for all relevant modes and trips to ensure an accurate estimation of base case effective densities in quantifying productivity impacts.

For the Wider Economic Appraisal units (A2.1 to A2.4) the changes between 2016 and 2018 represent relatively minor change in both technical and reporting approaches, and I am content that these are unlikely to have a material impact on the appraisal reported in Table 9 above and the conclusions from the business case.

A3 Environmental Impact Appraisal has been updated with respect to NO_x damage costs. As the environmental impacts of the WBHE are modest, I consider that these changes will have no material impact on the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7].

A4.1 Social Impact Appraisal was updated with respect to new approach to estimating physical health benefits of walking and cycling including update of absenteeism benefits. Whilst the WBHE will have an impact on physical activity in encouraging walk/cycle access to the Metro service for those transferring mode from car to public transport (including elements of walking/cycling to the Metro stops), I consider that there will be no material impact on the overall appraisal of the scheme of this change in guidance.

WebTAG Databook has undergone 6 updates post-March 2017. The majority of these relate to revised economic, demographic and fuel cost forecast changes plus updates to car speeds and car/bus journey times, accident/casualty data, fuel mix splits. Other changes include to diversion factors related to bus/cycling interventions, various factors directly related to conventional rail. Therefore, I consider it unlikely that these changes would have a material impact on business case and the value for money assessment for WBHE. In due course, when developing the Full Business Case, the latest version of the WebTAG Databook will be used.

Value for Money Advice Note for Local Transport Decision Makers has been updated and renamed. The updated framework is considerably more detailed, for example in detailing types of monetised impact to reflect the level of robustness of forecasting method. Whilst there have been changes in the way Value for Money is assessed, including a widening of the 'allocation' categories, the Value for Money category to which WBHE can be allocated has not changed, and I would not expect any other changes in the guidance to materially change the conclusions from the business case. It is possible that, following further work on scheme costing and benefits supporting the forthcoming Full Business Case the value for money category allocation for the scheme may change.

- 3.6.6 After WMCA submitted the business case to the DfT, the 2013 Value for Money Advice Note for Local Transport Decision Makers, DfT (Dec 2013) [WBHE/D24] was withdrawn and replaced by a new document, the Value for Money Framework, DfT (July 2017) [WBHE/D24/a]. The 2017 guidance expanded the number of value for money categories, but only by splitting the former 'poor' category into 'poor' and 'very poor'. With the WBHE Level 3 appraisal benefit to cost ratio of 2.27, the scheme can remain allocated to the 'high' value for money category when considered under the new guidance.
- 3.6.7 WebTAG guidance is continually evolving, generally through relatively small 'tactical' changes, but occasionally through strategic updates and major 'refresh' exercises. DfT will, generally, provide advanced warning of major refreshes, allowing appraiser time to understand and work through the necessary reappraisal that will follow. I understand that there are no plans for any early strategic updates to the appraisal guidance that will fundamentally change the approach to assessing scheme performance and value for money as the WBHE moves through to the final business case approvals.
- 3.6.8 Therefore, whilst some changes have been made to the formal appraisal guidance, and further evolution is likely in the short to medium-term, I would not expect any of these changes to materially alter the appraisal of the wider performance of the WBHE and the conclusions that can be drawn from this.
- 3.6.9 Furthermore, whilst there appear to be no plans for any major strategic changes in appraisal guidance as the scheme progresses further, in the longer-term I would anticipate the underlying transport, social and economic policy and appraisal drivers to strengthen the case for the WBHE and other Metro extensions, as the need to support economic vitality through sustainable transport provision becomes greater.

3.7 Final Business Case

- 3.7.1 As noted earlier, and in accordance with normal practice, and in line with Department for Transport guidance, WMCA will prepare a Final Business Case for the WBHE, in which the above benefits will be reassessed using the latest transport appraisal guidance, updated modelling and relevant updated guidance. In line with the proportionality approaches advocated in the WebTAG Proportionate Update

Process [WBHE/D12], it is likely that a full reappraisal of all Economic Case elements of the scheme, will not be required.

- 3.7.2 However, the reappraisal will need to consider any changes in the cost estimates for the WBHE based on the more advanced design and costings being developed at present, including reassessing the cost risks and contingencies. The costs to be used in the Final Business Case will be the contracted tender costs submitted by MMA to WMCA following further design and estimation work.

4. THE SECRETARY OF STATE'S STATEMENT OF MATTERS

4.1 Secretary of State's Statement of Matters

4.1.1 The Transport and Works Act Orders Unit, on behalf of the Secretary of State for Transport, has issued a Statement of Matters [GEN 3] concerning particular issues upon which he wishes to be informed. For this section I have reviewed the Statement of Matters, addressing these issues in the summaries below or where required cross-referencing other sections of my evidence or other Inquiry documents.

4.1.2 My evidence addresses Matters 1, 3, 4a, 4b and 4c.

Matter 1 – Justification for the Transport and Act Order in relation to the proposed Wednesbury to Brierley Hill Extension scheme

4.1.3 This matter is largely dealt with through the evidence Peter Adams and Paul Ellingham [APP/P1.1 and APP/P5.1 respectively], however, in so far as it concerns my evidence, the compulsory purchase powers sought through the Proposed Order are essential to the delivery of the range and scale of benefits I outline in my evidence.

Matter 3 – The anticipated benefits of the scheme

4.1.4 My evidence concerns on the economic case for the WBHE, including the range of economic and wider benefits ordinarily considered through the DfT's appraisal guidance used to assess the expected performance of major transport schemes such as WBHE. Section 3 of my evidence shows that the WBHE delivers net economic benefit and is Value for Money.

Matter 4 – The likely impacts of the exercise of powers in the proposed TWA Order on land owners, tenants, occupiers and statutory undertakers.

4.1.5 My evidence primarily focuses on the impacts of the scheme during its operational phase and, for appraisal purposes, over the long-term, including the economic impacts during the standard 60-year appraisal period.

4.1.6 As predominantly an off-street route, the WBHE will have limited impact on the operation of the long-term road network, with only local changes in the way the road network functions.

Matter 4a.

- 4.1.7 The evidence of Ian Collins and Himanshu Budhiraja in their Proofs [APP/P3.1 and APP/P4.1 respectively] considers the impacts of the operation of the local road network and the specific routing and junctions affected by implementation of the Metro network in the WBHE corridor. This evidence covers the potential impacts of on-street construction works and works sites affecting the road network and any local parking or servicing provision.
- 4.1.8 I expect that, following detailed design, there will be no long-term adverse impacts of any magnitude on the ability of land owners, tenants and business and other undertaking to carry out their business effectively and safety. Through providing a high quality public transport network, WBHE can offer genuine alternatives to car travel resulting in modal shift from car that can reduce future the growth in traffic demand and congestion.

Matters 4b and 4c

- 4.1.9 The evidence of Ian Collins [APP/P3.1] considers the operational impacts on the local road networks and local businesses and occupiers.
- 4.1.10 In respect of the economic impacts during construction, it is acknowledged that there will some impacts on traffic flows during construction in Dudley Town Centre and in crossing Waterfront Way and Level Street in Brierley Hill. However, with carefully traffic management measures in place, and given the modest scale of construction works overall affecting the operational highway network, any impacts will be small following mitigation as set out by Ian Collins in his evidence [APP/P3.1]. In economic appraisal terms, any localised economic cost of any residual impacts lasting only during parts of the construction phase will be negligible over the 60-year economic appraisal period used in the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7].
- 4.1.11 In additional to these operational impacts during construction, there are likely to be a number of wider, less geographically specific impacts on local business in the WBHE corridor and in the Black Country. The Midland Metro Alliance is committed to using local resources where possible to deliver the scheme resulting on direct spending on local suppliers and creating multiplier effects from wider supplier chain spending and construction workers spending wages on goods and services in local shops. These issues are considered in more detail in the Lichfields' Wednesbury to Brierley Hill Metro Extension Economic Impact Assessment [WBHE/D28].

- 4.1.12 In section 3 of my evidence I identify that the WBHE delivers, once operational, increased transport accessibility, especially to Dudley Town Centre (including the Churchill Shopping Centre) and to the Merry Hill Shopping Centre. Increases in connectivity and accessibility to these locations, as well as others commercial locations, is likely to delivery increased throughput and accessibility to workforces delivering both short- and longer-term benefits following to business in the WBHE corridors.
- 4.1.13 My evidence also shows that the WBHE delivers net economic benefits and is Value for Money. This is integral to the case for compulsory purchase powers.

5. ISSUES ARISING FROM OBJECTORS' LETTERS AND STATEMENTS OF CASE

5.1 Issues Arising from Letters and Statements of Case

5.1.1 For this Proof, issues arising from the Statements of Case submitted by objectors and supporters are being considered. For this section I have reviewed the Statements of Case and provide an initial assessment of the issues arising in relation to the Transport and Economic Case issues, either responding directly to issues arising here, or by providing cross-reference to other sections of my Proof.

5.2 Objectors' and Supporter's Letters and Statements of Case – Transport and Economic Case

5.2.1 Issues arising from the Statements of Case relating to Transport and Economic Case have been considered below on case-by-case basis using the initially allocation of reference codes to Objector and Supporter letters.

Objectors

5.2.2 **OBJ 01 to OBJ 04** – objections withdrawn

5.2.3 **OBJ 05 - Jewson Ltd, Saint Gobain and SGDB Property Holdings**

Pedmore Road Plots 303, 307 in the Book of Reference but objection also identifies an interest in plots 308-311

5.2.4 This objection identifies a number of issues, including land acquisition, objectives of the scheme (as set out in the Statement of Aims [WBHE/A4]), Value for Money and Human Rights.

5.2.5 The issues of land acquisition, objectives of the scheme and Human Rights are primarily dealt with in the evidence of Peter Adams [APP/P1.1] and specifically in relation to this objection in Section 11.

5.2.6 In respect to the objection that there is no information to indicate what assumptions have been made in the appraisal of the high value for money of the WBHE, I demonstrate in Section 3.5 of my Proof of Evidence that the appraisal been undertaken using established techniques, compliant with Government guidance. Furthermore, the appraisal and, specifically, the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7] demonstrate that WBHE delivers net

economic benefits and is Value for Money scheme. This has been reviewed and accepted by the DfT in awarding funding to WBHE.

5.2.7 **OBJ 06 – LCP Estates (Churchill Centre, Dudley)**

Churchill Shopping Centre, Dudley Town Centre Plots 174, 175, 179, 180, 182, 183, 184

5.2.8 This objection [OBJ 06/SOC] concerns site specific issues linked to construction works and impacts of permanent land take, including access to car parks, bus stops and the Churchill Shopping Centre service yard. These issues does not concern any matters in relation to Transport and Economic Case issues.

5.2.9 **OBJ 07 – Jessops Europe Ltd**

Merry Hill Plot 336

5.2.10 This objection [OBJ 07/SOC] primarily concerns business disruption during construction, maintenance costs and engagement. These issues are primarily dealt with by colleagues, although in respect of the economic impacts during construction, it is acknowledged that there will some impacts on traffic flows during construction. However, with traffic management measures in place as considered in the evidence of Ian Collins [APP/P3.1], any residual disruption impacts will be small.

5.2.11 Furthermore, in Section 3.5 of my Proof of Evidence, I note that WBHE delivers net economic benefits over the economic appraisal period used in the business case. In Section 3.6, I also note that the improved connectivity provided by WBHE will increase public transport access to the Merry Hill Shopping Centre, and that the modest modal shift from car to Metro has the potential to generate further benefits through reduced pressures on highway access routes and existing car parking facilities. These responses have significant wider benefits delivered over the long-term resulting on increased visitor throughput at Merry Hill and wider regeneration and development benefits.

5.2.12 **OBJ 08 – objection withdrawn**

5.2.13 OBJ 09 – Tata Steel UK Ltd

Plot 320 Merry Hill

5.2.14 This objection [OBJ 09] concerns site specific issues only relating to use of the site, freight train access and construction issues. These issues do not concern any matters in relation to Transport or Economic Case issues.

5.2.15 OBJ 10 – Intu

5.2.16 This objection [OBJ 10/SOC] focuses around issues of:

- the justification over the extent of land required;
- vehicular access to the Merry Hill site for car borne access to the centre for shopping and leisure purposes and for service and delivery vehicles;
- operational impacts during construction, and the economic impacts of disruption arising during construction;
- economic impacts of any disruption to Merry Hill operations due to on-going Metro operations;
- environmental impacts, especially availability of the earlier Environmental Impact Assessment (EIA) documentation;
- funding availability to cover the expected local funding contributions, and
- some specific design elements affecting stop provision.

5.2.17 Of these points, I deal with economic impacts of the scheme in my Proof of Evidence focusing on specific economic impacts that are considered in the Business Case, including, below, considering the potential economic impacts during construction. Wider issues relating to impacts during construction and Metro operations are dealt with in the evidence of Ian Collins and Himanshu Budhiraja [APP/P3.1 and APP/P4.1 respectively]. The other key points do not directly concern matters of relevance to my evidence, although there are links to the evidence provided by Peter Adams [APP/P1.1] covering funding issues, Himanshu Budhiraja [APP/P4.1] covering operational traffic issues and Ian Collins [[APP/P3.1] addressing stop design issues, and I have supported my colleagues in considering their evidence and responses in these respects.

5.2.18 In respect of the economic impacts during construction raised in the objection, it is acknowledged that there will some impacts on traffic flows during construction. However, with carefully traffic management measures in place, and given the modest scale of construction works overall affecting the operational highway network, any impacts will be small following mitigation as set out by Ian Collins and

Himanshu Budhiraja in their evidence [APP/P3.1 and APP/P4.1 respectively]. In economic appraisal terms, any localised economic cost of any residual impacts lasting only during parts of the construction phase will be negligible over the 60-year economic appraisal period used in the business case.

- 5.2.19 In respect of the longer-term impacts, these are addressed in the evidence of Peter Adams in general terms [APP/P1.1], in the evidence of Paul Ellingham in planning terms [APP/P5.1], in the evidence of Ian Collins in civil engineering terms [APP/P3.1], in the evidence of Himanshu Budhiraja in operational terms [APP/P4.1], and in my evidence in section 3 in respect of economic impacts that are considered in the economic appraisal supporting the Wednesbury to Brierley Hill Business Case - Economic Case [WBHE/D7].
- 5.2.20 It is acknowledged that there could be some adverse economic impacts as a result of Metro operation were access and servicing arrangements around the Merry Hill complex to be compromised by traffic management arrangements associated with the WBHE. However, following concerns expressed by Intu based on initial design configurations, a number of modifications have been proposed to the design to seek to mitigate any shopping centre servicing and access impacts, as set out by Ian Collins and Himanshu Budhiraja in their evidence [APP/P3.1 and APP/P4.1 respectively]. Peter Adams, in his evidence [APP/P1.1], also notes that WMCA has been and will continue to work closely with Dudley Council and Intu to minimise disruption during construction of the WBHE. On the basis of this evidence, in my view, any adverse impacts to Merry Hill operations can be fully mitigated.
- 5.2.21 In addition to the focus on serving regeneration and development sites along the corridor, the routeing of the WBHE has been specifically configured to serve the major regional Merry Hill Shopping Centre owned by this objector. Merry Hill and the Waterfront is one of the largest attractors of travel demand in the area, with significant numbers of employees working on site and visitors to both retail and wider activities in the centre and its immediate vicinity.
- 5.2.22 As considered in Section 3.4 above, the economic case for the scheme has been underpinned by transport demand and benefit forecasts generated through the PRISM strategic multi-modal transport model of the West Midlands. Whilst this model is suitable for forecasting in relation to the corridor as a whole, and has generated the economic appraisals identified above, it was recognised that the strategic nature of the PRISM model did not fully reflect the spatial travel patterns

associated with the regional shopping centre at Merry Hill, which are unique to the West Midlands.

- 5.2.23 Therefore, a spreadsheet-based model for Merry Hill Metro stop was developed using the best available data on levels of demand and distribution of trips associated with this major regional retail and leisure complex.
- 5.2.24 The model itself works with two 'user classes' representing commute (travel to work) and other travel purposes (including shopping, leisure and other trips). At its core is a mode choice model (car vs public transport) utilising an incremental logit form used to model choices between competing options based on generalised costs of travel (including time and money components). The choice between public transport sub-modes (bus and Metro) is based on splits from the PRISM model extracted using a process to identify trips using Metro in the with-scheme scenario.
- 5.2.25 Using data supplied by INTU concerning employee numbers and trip rates, visitor numbers, daily visitor profiles, spatial distributions and aggregate modal splits, a base model scenario was developed from which future scenario forecasts could be generated. Underlying future year growth was based on the National Trip End Model (NTEM) factors extracted from TEMPRO for origins and destinations to/from the zone containing Merry Hill by mode (car / public transport), purpose (commute / shopping), and time period, assuming that the shopping centre remains unchanged with respect to any longer-term development plans.
- 5.2.26 Following a model calibration exercise and series of 'realism tests' to understand model sensitivities relative to established WebTAG model elasticities, the final forecasts were generated by including an uplift to address potential 'induced' demand impacts of the implementation of the WBHE in further improving access to Merry Hill through additional travel being made by new public transport users or existing users travelling more frequently as a result of the scheme.
- 5.2.27 The model develops forecasts, which have been shared with the objector, suggesting:
- patronage at Merry Hill stop is forecast to be around 2.0 - 2.2 million passenger p.a. in each direction;
 - public transport modal shares to/from Merry Hill increase as a result of the scheme from 11.5% to between 13.4% and 14.3%; and
 - the new Metro service increase visitor numbers by between 0.27m and just under 0.50m per annum (1.3% to 2.3% respectively).

- 5.2.28 In addition to increasing public transport use and increasing visitor throughput at the Merry Hill centre, the modest modal shift from car to Metro has the potential to generate further benefits through reduced pressures on highway access routes and existing car parking facilities. These responses provide an opportunity for a further expansion in visitor numbers for car-bound travellers who may otherwise be put off due to congestion or car park capacity constraints.
- 5.2.29 **OBJ 11 – Waterstones**
Merry Hill Plot 336 and 337
- 5.2.30 This objection [OBJ 11] concerns access over two roads which serve the shopping centre in which Waterstones has a retail outlet. These matters are primarily dealt with by Peter Adams in Section 11 of his Proof of Evidence [APP/P1.1]. However, if so far as the economic impacts of changes in temporary access arrangements are concerned, as noted in my Sections 5.2.20 and 5.2.21, I would expect that any adverse impacts to Merry Hill operations of construction works will be largely or fully mitigated, and with significant benefits delivered over the longer-term to the retail and others businesses in Merry Hill through increasing public transport use, modal shift from car to Metro reducing pressures on highway access routes and existing car parking facilities, and an expansion in visitor numbers.
- 5.2.31 **OBJ 12 – objection withdrawn**
- 5.2.32 **OBJ 13 – National Grid**
Plots 20, 21, 22, 23, 24, 25, 26, 27, 32, 35, 39 and 326
- 5.2.33 This objection [OBJ 13/SOC] concerns the impact of the scheme on National Grid's infrastructure. There are no matters in relation to Transport and Economic Case issues.
- 5.2.34 **OBJ 14 – objection withdrawn**
- 5.2.35 **OBJ 15 – MFG (formerly Malthurst Group)**
Merry Hill Plot 336
- 5.2.36 This objection [OBJ 15] concerns the access issues to the Merry Hill Service Station and other property now owned by MFG. These matters are primarily dealt with by Peter Adams in Section 11 of his Proof of Evidence [APP/P1.1], and specifically by Himanshu Budhiraja in his Proof of Evidence [APP/P4.1] covering the operation phase of the WBHE. Insofar as the economic impacts of changes in temporary access arrangements are concerned, as noted in sections 5.2.20 and 5.2.21

above, I would expect that any adverse impacts to Merry Hill operations of construction works will be largely or fully mitigated, and with significant benefits delivered over the longer-term to the retail and others businesses in Merry Hill through increasing public transport use, modal shift from car to Metro reducing pressures on highway access routes and existing car parking facilities, and an expansion in visitor numbers.

5.2.37 **OBJ 16 to OBJ 19** – objections withdrawn

5.2.38 **OBJ 20 – McDonalds**

Merry Hill Plot 336 and 337

5.2.39 This objection [OBJ 20] concerns the access issues to a unit in the Merry Hill Shopping Centre occupied by the objector. These matters are primarily dealt with by Peter Adams in Section 11 of his Proof of Evidence [APP/P1.1]. However, if so far as the economic impacts of changes in temporary access arrangements are concerned, as noted in my Sections 5.2.20 and 5.2.21, I would expect that any adverse impacts to Merry Hill operations of construction works will be largely or fully mitigated, and with significant benefits delivered over the longer-term to the retail and others businesses in Merry Hill through increasing public transport use, modal shift from car to Metro reducing pressures on highway access routes and existing car parking facilities, and an expansion in visitor numbers.

5.2.40 **OBJ 21 – Argos Ltd**

Merry Hill Plot 336 and 337

5.2.41 This objection [OBJ 21] concerns the access issues to a unit in the Merry Hill Shopping Centre occupied by the objector. These matters are primarily dealt with by Peter Adams in Section 11 of his Proof of Evidence [APP/P1.1]. However, if so far as the economic impacts of changes in temporary access arrangements are concerned, as noted in my Sections 5.2.20 and 5.2.21, I would expect that any adverse impacts to Merry Hill operations of construction works will be largely or fully mitigated, and with significant benefits delivered over the longer-term to the retail and others businesses in Merry Hill through increasing public transport use, modal shift from car to Metro reducing pressures on highway access routes and existing car parking facilities, and an expansion in visitor numbers.

5.2.42 **OBJ 22 – TK Maxx**

Merry Hill Plot 336 and 337

5.2.43 This objection [OBJ 22] concerns the access issues to a unit in the Merry Hill Shopping Centre occupied by the objector. These matters are primarily dealt with by Peter Adams in Section 11 of his Proof of Evidence [APP/P1.1]. However, if so far as the economic impacts of changes in temporary access arrangements are concerned, as noted in my Sections 5.2.20 and 5.2.21, I would expect that any adverse impacts to Merry Hill operations of construction works will be largely or fully mitigated, and with significant benefits delivered over the longer-term to the retail and others businesses in Merry Hill through increasing public transport use, modal shift from car to Metro reducing pressures on highway access routes and existing car parking facilities, and an expansion in visitor numbers.

5.2.44 **OBJ 23** – objection withdrawn

5.2.45 **OBJ 25** – objection withdrawn

Supporters

5.2.46 **SUPP 01 – Dudley MBC**

Supporter. Fully supportive due to the potential impact on future economic wellbeing of Dudley and Sandwell, the Black Country and indeed the wider West Midlands. Specifically, it considers that the proposed extension would support employment, businesses, economic growth and connectivity. Explicitly cited the impact on the Enterprise Zone at DY5 (Brierley Hill), the renaissance of Dudley Town centre, the planned partnership with Dudley College to create a ‘University Centre’ and the proposed development of a Music Institute at Waterfront. Further expanded on the potential improvements to the visitor economy in Dudley as result of the proposed extension, including the Zoo, Castle, Canal Trust and Living Museum as supportive factors.

5.2.47 **SUPP 02 – The Association of Black Country Local Authorities**

Supporter. Fully supportive of the proposed extension due to the potential impact on the future economic wellbeing of Dudley and Sandwell, the Black Country and indeed the wider West Midlands. Suggested that the proposed extension would support the regeneration of projects across the boroughs of Sandwell and Dudley and included the consideration of commercial, residential, employment; educational and visitor economy developments. Also cited the development of the DY5 Enterprise Zone and Brierley Hill as a supportive factor as well as the

increased connectivity, in relation to HS2 to increase work opportunities for residents. Further added that the proposed extension would support a renaissance and help achieve sustainable economic growth for its communities.

5.2.48 **SUPP 03 – Dudley Zoological Garden**

Supporter. Fully supportive of WBHE due to the potential increase in local visitor economy and assistance in regeneration by improving connectivity and providing alternative transport options. Further supported in relation to making use of the High Speed 2 link. Highlighted the need for improved alternative transport links to alleviate congestion, in relation to the growing visitor economy on Castle Hill, Dudley. Also, expressed concerns in regards to the impact of the internal combustion engine on the environment and suggested therefore the provision of alternative transport is essential.

5.2.49 **SUPP 04 – Dudley Canal and Tunnel Trust**

5.2.50 Supporter. Fully supportive due to the potential impact on the local economy investment and regeneration to aid transport across the area, which would be beneficial to visitors in terms of ease. It is also noted that the proposed extension would enable the Dudley Canal & Tunnel Trust to attract more visitors.

6. SUMMARY AND CONCLUSIONS

- 6.1.1 The scope of my evidence is primarily to demonstrate the economic case for the WBHE, setting out the economic appraisal methodologies used and the resulting economic appraisal and Value for Money assessment. As such, my evidence contributes to the consideration of Matters 1, 3 and 4 of the Statement of Matters [GEN 3]. My evidence also addresses a number of the issues raised by Objectors, primarily covering economic impact issues, both of the construction phase and the longer-term operational phase.
- 6.1.2 The granting of the 2005 Order [WBHE/B2] followed an examination of the transport and economic case for the scheme submitted to Government and the 2004 Public Inquiry.
- 6.1.3 Since the approval 2005 Order [WBHE/B2], further work has been undertaken on updating the business case for funding the Metro extension. Based on the Wednesbury to Brierley Hill Business Case [WBHE/D3-D7], funding of £250m from the Transforming Cities Fund was allocated to the West Midlands Combined Authority (WMCA) by Government on 20th November 2017, as set out in the Funding Statement [WBHE/A6].
- 6.1.4 The economic appraisal of the WBHE has been undertaken in line with the Department for Transport's appraisal guidance (WebTAG) and accordingly meets wider Treasury economic appraisal requirements. In my opinion, the appraisal of the WBHE has been undertaken in a way that is proportionate to the cost of the WBHE and the scale of its impacts.
- 6.1.5 Following this approach, the WBHE generates a net present value of £275m (present value 2010 prices), and an adjusted benefit to cost ratio of 2.27 when including wider economic impacts and land value uplift.
- 6.1.6 In addition to the monetised cost benefit analysis, the WBHE offers strong support in other appraisal areas, especially in terms of connectivity to employment and other facilities and in providing benefits to deprived areas along the WBHE routes and along the Metro line between Wolverhampton and Birmingham. The WBHE generates limited adverse impacts, with any environmental impacts governed by the Conditions 10 and 11 attached to the deemed planning consents [WBHE/B7].
- 6.1.7 In my opinion, the economic performance of the WBHE represents value for money, with the benefit cost ratio for the WBHE suggesting the scheme offers 'high' value for money. This view is derived from a consideration of the benefit cost ratio

of the scheme driven by both by transport benefits and very strong wider economic benefits, alongside additional impacts that do not form part of the benefit cost ratio but provide very strong support for wider local and national policies. I would also suggest that this view is more widely held and confirmed by the DfT in awarding funding for the scheme through the Transforming Cities Fund.

- 6.1.8 The economic case includes wider economic impacts and land value uplift based on established WegTAG appraisal approaches. Further work undertaken through the Wednesbury to Brierley Hill Metro Extension Economic Impact Assessment [WBHE/D28] identified and quantified some of the more tangible economic and local growth-oriented benefits associated with the WBHE, stating, in 2.7, that “*The extension of the Metro through Wednesbury to Brierley Hill provides a game-changing opportunity for the economic, social and environmental regeneration of the area. The location of Metro stations has the potential to facilitate growth and regeneration, including being the focus of higher density development, as well as enhancing connectivity with other public transport modes.*” This work confirms the strength of the economic case for the scheme and the support it will offer to the regeneration and development of the Black Country.
- 6.1.9 In addition to the strength of the economic case, as assessed through the WebTAG based scheme appraisal, I have considered the potential for additional use of Metro in accessing the Merry Hill, and expect Metro to significantly improve accessibility to the shopping and other facilities, increasing public transport use and increasing visitor throughput. The modest modal shift from car to Metro also has the potential to generate further benefits through reduced pressures on highway access routes and existing car parking facilities. These responses provide an opportunity for a further expansion in visitor numbers for car-bound travellers who may otherwise be put off due to congestion or car park capacity constraints.
- 6.1.10 In response to the Objectors and Supporter to the WBHE, in my opinion my evidence clearly demonstrates that the WBHE will deliver strong long-term economic benefits, including transport user benefits, increased connectivity for residents in accessing employment, for business in accessing their potential workforce, and increased throughput for retail and leisure providers in Dudley and Merry Hill. Whilst there may be some short-term impacts of construction works on localised traffic flows, with carefully traffic management measures in place, and given the modest scale of construction works overall affecting the operational highway network, any impacts will be negligible over the operational lifetime of the scheme appraisal period used in the business case.

- 6.1.11 With a compelling economic case, funding available from DfT and local sources, and the project ready to proceed, I urge the Inspector to recommend the powers applied for.

7. LIST OF APPENDICES

Appendix 1 - Review of Updates to Transport Appraisal Guidance

