

WBHE/D3/A

Wednesbury to Brierley Hill



Final Business Case

Midland Metro Wednesbury to Brierley Hill
Extension

Commercial Case

February 2019

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Appendices

D-1 – Alliance Procurement Report

D-2 – Tram Specification

D-3 - Legislative Requirements for the Midland Metro Alliance

D-4 – Owner’s Brief Stage B Deliverables

D-5 – Not used

D-6 – Programme Alliance Agreement Risk or Reward Regime

D-7 – Midland Metro Limited Structure

Commercial Case Compliance

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

Element	Addressed in Commercial Case	Section
Introduction	Outline the approach taken to assess commercial viability.	Chapter D1, 'Introduction'
Output based specification	Summarise the requirement in terms of outcomes and outputs, supplemented by full specification as annex.	Chapter D3, 'Contracts and Specifications'
Procurement strategy	Detail procurement/purchasing options including how they will secure the economic, social and environmental factors outlined in the economic case	Chapter D2, 'Procurement Strategy'
Sourcing options	Explain the options for sources of provision of services to meet the business need e.g. partnerships, framework, existing supplier arrangements, with rationale for selecting preferred sourcing option.	Chapter D2, 'Procurement Strategy'
Payment mechanisms	Set out the proposed payment mechanisms that will be negotiated with the providers e.g. linked to performance and availability, providing incentives for alternative revenue streams.	Chapter D4, 'Payment Mechanisms and Pricing'
Pricing framework and charging mechanisms	To include incentives, deductions and performance targets.	Chapter D4, 'Payment Mechanisms and Pricing'
Risk allocations and transfer	Present an assessment of how the types of risk might be apportioned or shared, with risks allocated to the party best placed to manage them subject to achieving value for money.	Chapter D5, 'Risk Allocation and Transfer'
Contract length	Set out scenarios for contract length (with rationale) and proposed key contractual clauses.	Chapter D3, 'Procurement Strategy'
Human resource issues	Personnel/people management/trade union implications, where applicable, including TUPE regulations.	Chapter D6, 'Human Resource Issues/Contract Management'
Contract management	Provide a high-level view of implementation timescales. Detail additional support for in service management during roll-out / closure. Set out arrangements for managing contract through project / service delivery.	Chapter D6, 'Human Resource Issues/Contract Management'

D1. Introduction

Background

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

Outline of the Commercial Case

- 1.2 The elements that describe the case are set out in chapters linked to the DfT's Guidance. The chapters cover the following areas:
- Chapter D2 – Procurement Strategy details procurement and sourcing proposals and contract lengths.
 - Chapter D3 – Contracts and Specifications sets out the contractual arrangements that WMCA has put in place for the Midland Metro Alliance and sets out the principles of the Output Based Specifications utilised to specify infrastructure and procure trams, and how these were developed within the contractual context of the Midland Metro Alliance.
 - Chapter D4 – Payment Mechanisms and Pricing describes the pricing arrangements put in place for the Midland Metro Alliance infrastructure works, those proposed for the tram procurement and the payment and legislative arrangements which govern the utility diversions.
 - Chapter D5 – Risk Allocation and Transfer describes how risks are allocated.
 - Chapter D6 – Human Resource Issues/Contract Management briefly outlines how human resource issues are planned to be managed on the project, provides a high-level view of implementation timescales, details additional support for in service management during construction and sets out arrangements for managing the West Midlands Metro network through project / service delivery.

D2. Procurement Strategy

Introduction

- 2.1 The Management Case Chapter E2 sets out in full WMCA’s recent experience in delivery of West Midlands Metro extensions and sets out the ambitious scale of the Metro Programme. This recent experience and the scale of planned delivery has enabled both the realisation of an “expert client” function within the core project team and the engagement of world class international partners to bring to bear their experience and innovation. The procurement strategy has enabled a programme approach to delivery, broadly split into infrastructure delivery, through the Midland Metro Alliance, and the procurement of a Third-Generation tram fleet through the WMCA client team.

Infrastructure

- 2.2 The Midland Metro extension projects currently funded, or likely to be funded, together with major renewals, represent a significant investment of the order of £1.3 billion over the next 10 years. However, the civil engineering market has a number of clients also making significant investment in infrastructure, such as Highways England, Network Rail and HS2. Procurement of the Metro programme on a project by project basis in this environment was considered to be very unlikely to attract the experienced major contractors who can deliver the value for money and timeliness through innovation that is required.
- 2.3 Therefore, in order to successfully deliver the design/implementation and secure access to expertise required in an improving economy and very competitive construction market, it was recognised that there are very significant advantages in procuring all proposed tram extension schemes as a single package, making them more attractive to the market and creating economies of scale.
- 2.4 In addition, WMCA is seeking to harness the power of new technologies and techniques in the light rail sector, following up the Department for Transport’s initiatives outlined in “Green Light for Light Rail” and its investment in the Low Impact Light Rail projects¹.

¹ <http://www.uktram.co.uk/innovations-new-technologies/>

2.5 In 2014/15 WMCA therefore reviewed options for the contract form most appropriate to a programme of complex and technically challenging projects in a dense urban environment, seeking:-

- The most appropriate procurement and contract strategy
- Robust risk and cost management
- Operator/maintainer involvement in design and construction
- Adoption of a strong partnering ethos in delivery
- Drivers for innovation over the programme duration

2.6 Further detail is provided below, along with the approach adopted to successfully deliver the above objectives.

Evaluation of Procurement Route and Procurement Strategy

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

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

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

2.9 In respect of previous projects, contractors have been procured through OJEU compliant processes on a project by project basis. The more positive expected funding position led WMCA to reconsider its strategy relating to the preparation and tender of such projects. In order to successfully deliver the design and implementation of these and any future schemes it was recognised that, in order to secure access to expertise in an improving economy, the schemes would need to be procured as a single package. This approach was approved by the Metro Board on 14th May 2014.

2.10 A further review was then undertaken via a series of workshops designed to identify the optimum procurement and contracting strategy. The review considered a number of different contracting strategies:-

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

- Prime Contracting
- Alliancing

- 2.11 The workshops looked at Centro’s key goals and success factors in the light of lessons learnt from BCCE and best practice elsewhere. The conclusion of these workshops was that, in order to secure the working relationship the team see as key to the successful delivery of schemes, as well as early contractor involvement in design, an Alliance would be the best route. A copy of the workshop outputs, in the form of a Procurement Strategy Report is included at Appendix D-1.
- 2.12 Learning from the successful experience of clients such as Highways England, Network Rail and water companies such as Anglian Water, Alliancing was therefore found to be the most appropriate model supporting the delivery of Value for Money through a collaborative approach. Project Alliancing was first used by BP for the North Sea Andrew Field in the 1990’s, the project was delivered 6 months ahead of schedule for an actual cost £290m against an initial target of £450m.
- 2.13 WMCA subsequently undertaken a rigorous selection process and let the Midland Metro Alliance (MMA) contract with a single contractor and designer for a period of up to 10 years for the West Midlands Metro extensions work.
- 2.14 In this “Midland Metro Alliance” the designer, contractor and WMCA work as an integrated team to develop and deliver the programme under a contractual framework where their commercial interests align with actual project outcomes.

What is Alliancing?

- 2.15 Alliancing is a form of relationship contracting often used for complex projects or programmes which require speed of delivery and cost certainty. Pure Alliances include the owner, designer and contractor as alliance members who collectively seek outstanding outcomes through an integrated team, characterized by aligned goals, innovative thinking and collaborative behaviours.
- 2.16 This is reinforced through a commercial framework set up to create win-win outcomes by aligning the commercial interests of constructors and designers with the owner’s project objectives, with risk collectively assumed by all participants and rewards determined by collective performance (via KPIs/KRAs).

Essential Features of a Pure Alliance

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

- promotes collaborative behaviours commensurate with a best for project approach;
- assumes collective ownership for performance in programme and project delivery;
- takes collective responsibility of all programme and project risks & opportunities; and
- works to a commercial model that provides for a Pain share and Gain share mechanism



- 2.18 The programme is governed by the Alliance Leadership Team comprising senior representation from all the Alliance members, and where all members have an equal say. Day to day management of the programme is by a seamless integrated Alliance Management Team where all members are assigned to the team on a best-for-project basis whilst the parties agree to resolve issues within the Alliance with no recourse to litigation.
- 2.19 The remit of the Alliance is to design and deliver all Metro extensions over the first 5-year period (subject to WMCA approval of each scheme budget at key stages), with a guarantee to extend for a further 5 years subject to satisfactory performance.

Programme Alliance Agreement

- 2.20 Unlike traditional forms of construction contract which seek to defend positions, the PAA is very different insofar as it is principle based, placing obligations on the parties to act in good faith and committing to Best for Project decision making on the basis that this will deliver the best outcome for all parties.
- 2.21 Other key features of the PAA include shared risk, no claim, no blame and creating a collaborative, self-governing environment in which a high performing, innovative team will thrive. The consequences of failure are dealt with through the commercial model. Owner's rights are reserved to exceptional circumstances i.e. changes in law, breaches in statutory duty and wilful neglect.

Commercial Model

- 2.22 The commercial model works in tandem with the PAA, linking the commercial interests of all the parties to best-for-project outcomes, encouraging all the participants to work as an integrated team to identify and mitigate/eliminate risk and innovate to achieve outstanding results. The commercial model, further details of which are set out in Chapter D4, addresses development of target costs for each project on an open book basis, compensation of the Non Owner Participants (NOP's), manages change, sharing of pain/gain, key results areas (KRA's), programme wide insurances:-

- Target costs are developed jointly on an open book basis and include reasonable estimates of the actual costs to deliver the works including owner's direct costs, design costs, construction costs, contingencies and NOP's fee (overhead and profit);
- As the members collectively assume all risks, scope variations under the Alliance are limited to material change where the client has for instance requested an extra facility that could not have been contemplated at the outset;
- Sharing of pain gain is be limited to the NOP's fee ensuring all parties are equitably incentivized to perform beyond the expectation of the target cost;
- Key Results Areas are developed to incentivize participant performance in areas critical to the project; and

- Project insurance is an essential element of the Alliancing form of contracting. Under Pure Alliancing, as no liability arises between the parties, normal insurances cannot be triggered and therefore cannot be called upon to protect the partners against internal claims. This is overcome by WMCA taking out an all-encompassing project insurance policy.

Key Benefits

- 2.23 Outstanding project outcomes achieved by past Pure Alliances include – on-time or early completion even on the most challenging projects; optimum out-turn costs; more effective stakeholder management; and potential for improved returns for non-owner participants.
- 2.24 Under traditional forms of contract, responsibilities and risk are allocated to different parties with commercial and/or legal consequences for the individual parties where they fail to manage their risks or properly discharge their contractual/legal obligations. Under the alliance the participants:-
- Assume collective responsibility for delivering the project
 - Take collective ownership of all risks (and opportunities) associated with the delivery of the project
 - Share in the "pain" or "gain" depending on how actual project outcomes compare with the pre-agreed targets that they have jointly committed to achieve.
- 2.25 This provides for:-
- Active management of the project in all respects, as opposed to 'reactive' management when problems arise
 - Reduced costs and project durations and improved quality of deliverables through early contractor involvement
 - Continuous and maximised input from the participants
 - Collaborative relationship with mutual trust and shared ownership of risks/problems through the life of a project
 - Value for money developed over a series of projects with continuous improvement over time
 - Single cohesive team without any of 'us and them' attitudes
 - Clear understanding of the purpose/mission of the alliance

Procurement of the Midland Metro Alliance

- 2.26 There were five stages to the OJEU compliant procurement process developed for the procurement of the Midland Metro Alliance. The process commenced in January 2015 and was completed in June 2016:
- Market Appraisal - Identify most appropriate contracting strategy - Jan'15 to Jun'15
 - Prequalification - Shortlisting 3 or 4 designers & constructors - Jul'15 to Sep'15
 - ITN Stage 1 - Down select to leading 2 designers & constructors - Oct'15 to Feb'16
 - ITN Stage 2 - Appoint preferred designer and preferred contractor – Mar'16 to Apr'16
 - Finalisation - Confirm appointments and finalise PAA - Apr'16 to Jun'16
- 2.27 There was significant interest from the supplier market, with a number of larger contractors who have recently completed very major light rail projects in Manchester and Nottingham having experienced teams available for this Alliance, along with significant European interest. In compliance with the OJEU requirements, a PIN notice was published on 4th April 2015.

Twenty-six expressions of interest were received. An industry briefing day was held in Birmingham 23 July '15 and attended by over 30 suppliers, with 65 people.

- 2.28 At prequalification stage six submissions were received from market leading design consultancies and nine from leading contractors, all interested in joining the Midland Metro Alliance.
- 2.29 The Alliance contract was signed on 1 July 2016. The Designer is a consortium led by Egis Rail, supported by Pell Frischman and Tony Gee and Partners. The Contractor is a sub-Alliance led by Colas Rail and including Colas Ltd, Thomas Vale, Barhale and Auctus Training.
- 2.30 It is worthy of note that both Designer and Contractor were intimately involved in the design and construction of the Besancon “tramway autremont” that was pointed to by the Department for Transport in the “Green Light for Light Rail” document as an exemplar for quality coupled with value for money via innovation. The aim of the Midland Metro Alliance is to harness this experience to set new standards for delivery going forward.

Procurement within the Alliance

- 2.31 The Alliance has its own procurement function, with further legal and procurement support available in the alliance partners through which contracts are placed, including the WMCA. The Alliance has also engaged an Independent Programme Assurance Adviser to independently monitor the performance of the Alliance.
- 2.32 The Alliance partners look to self-deliver where possible, limiting the number of sub-contracts required. Part of the approval process for placing orders within the main delivery partner is to confirm that there are no conflicts of interest, and sub-contracts placed are reported to senior management within the Alliance in order to monitor them.

Trams

Overview

- 2.34 The introduction of tram services on the Wednesbury to Brierley Hill extension, as with the commencement of services on the committed Birmingham Eastside Extension, will necessitate a change from the previous single line operation of West Midlands Metro to a more complex network approach requiring more vehicles as set out in the Strategic Case. This, together with the future addition of services beyond Eastside via East Birmingham to Solihull will require the total tram fleet to be expanded to 74 trams, including provision for peak service and the necessary number of spare trams for maintenance.
- 2.35 Under the 2012 tram supply contract with CAF procured under the Birmingham City Centre and Fleet Replacement Programme, WMCA procured 21 trams, therefore within the context of the wider-scale requirements for an expanded, Third Generation tram fleet for the West Midlands Metro expansion programme, including committed trams for the ongoing Westside extensions, this Wednesbury to Brierley Hill Extension, Eastside and the East Birmingham to Solihull Tramway projects a further 53 trams are required in the Third Generation Tram Fleet, of which 16 trams are required for this Wednesbury to Brierley Hill extension.
- 2.36 A key feature of the ongoing network extensions is that they incorporate sections of catenary free running. The existing trams are currently undergoing a conversion programme to incorporate catenary free running using battery technology, as detailed below. The new Third Generation Trams will all need to be able to operate catenary free.

Catenary Free Retrofit

- 2.37 WMCA has placed orders for the retrofit of battery equipment to the existing CAF Urbos 3 tram vehicles to enable “catenary free operation” along sections of the route, within contract options in the 2012 Tram Supply Agreement.
- 2.38 A programme for the retrofit operation was developed and agreed with CAF, with the majority of the battery retrofits taking place at Wednesbury. The first of the trams to be retrofitted was sent back to Spain in January 2017 and underwent retrofit and prototype tests prior to being sent back to Wednesbury in September 2017. The retrofit works for the remaining 20 trams commenced in December 2017 with the final retrofit being planned to be completed in January 2019. A proportion of these contractually committed costs are included (some as sunk and some in future years based on the contractual payment profile) in the project cost estimate.



Figure 2.1 Catenary Free Tram 31 (in new West Midlands Metro livery) in service in Bull Street

- 2.39 The first “wire-free ready” tram was tested, commissioned and accepted in December 2017. The final tram will be accepted by March 2019, which enables trams to be available for testing and commissioning of the first phase of the Edgbaston extension to Centenary Square and operation of that phase with testing and commissioning of the whole extension in accordance with the delivery schedule. The retrofit is planned to be undertaken without impacting on Line 1/BCCE service levels.

Third Generation Tram Procurement

- 2.40 The long-term objective for the West Midlands Metro programme is to procure a new fleet of trams to supplement the existing fleet of CAF Urbos 3 trams to be able to operate on the catenary free sections on the extensions to the network. To be able to service the expanded network it is currently estimated an additional 53 new trams are required overall in the Third-Generation supply contract.
- 2.41 The new trams will need to be available in stages as each of the new extensions enter passenger service. All new trams need to be delivered before the opening of the East Birmingham to Solihull extension, planned to coincide with the opening of HS2 in 2026. WMCA will agree a contract for supply of all the trams required for all the extensions, but place orders to buy the specific number of trams needed for each extension as and when needed.
- 2.42 Total Third Generation Tram project costs are circa £160 million, and proportionate funding for these vehicles is included in the Birmingham Eastside, Wednesbury Brierley Hill and East Birmingham Solihull project funding envelopes. This will be subject to change based on the actual costings to deliver each of the aforementioned projects. It is estimated that the cost per tram will be approximately at £3.2m however due to changes in exchange rates and fluctuations in raw material costs this may vary for optional orders over the life of the contract.
- 2.43 As a method to combat such instances a price escalation condition has been inserted into the contract to allow both the WMCA to control cost increases and for suppliers to realistically estimate the costs per tram throughout the contract period.

Market Sounding (Engagement)

- 2.44 A Market Sounding exercise commenced in December 2017 and was conducted ahead of the tram procurement to help inform the procurement approach and subsequently assist in the content to be included within both the Selection Questionnaire (SQ) and Invitation to Negotiate (ITN) documentation.
- 2.45 It is worth noting that whilst the Market Sounding exercise was invaluable to the WMCA in terms of documentation shaping as well as gleaning a level of interest and understanding of capacity from the tram fleet providers, it is deemed a separate activity from the procurement process and stages (namely SQ and ITN). To stress this point correspondence received via the Market Sounding exercise will not influence any bid appraisals or evaluations during the SQ and ITN stages of this procurement.
- 2.46 In addition to the Market Sounding exercise WMCA has, in the same way as other promoters both in the UK and the remainder of the EU, reviewed published procurement outcomes from the large volume of tram production and supply orders worldwide in what is a well-established and competitive market with high levels of both standardisation and turnover. This gives significant confidence to the estimated prices used to compile the Wednesbury to Brierley Hill project estimate which informs the Financial Case for the project.

Duration and Type of Agreement

- 2.47 The WMCA is procuring what is known as Tram Supply Agreement (TSA) which is commonplace within the light rail (tram) fleet industry. The high-level timeframe for this is as follows:
- Start Date: 13 September 2019
 - End Date: 31st December 2027
- 2.48 The TSA will be for an initial order of 21 trams (serving both the Westside Extension and the Wednesbury to Brierley Hill extension) with the option to order an additional 32 over the specified agreement period above.
- 2.49 In addition to this a Technical Support and Spares Supply Agreement (TSSSA) will be awarded for the following period:
- The date of first tram delivery potentially for the life of the trams i.e. whilst the tram(s) are in operation
- 2.50 Finally, an Onboard Energy Storage System Services Agreement may also be required that if needed will run from:
- The date of first tram delivery potentially for the life of the trams i.e. whilst the tram(s) are in operation

Sourcing Strategy

- 2.51 It is anticipated that a single tram fleet provider will be appointed.

Route to Market

- 2.52 This opportunity is a single procurement project which will be undertaken in multiple stages as detailed above.

2.53 Upon evaluation of the Selection Questionnaire responses WMCA will be able to select the 4 highest scoring bidders, who have met the thresholds and passed the mandatory questions, who will subsequently be shortlisted and progressed on to the Invitation to Negotiate stage.

2.54 WMCA will reserve the right to hold a BAFO stage should it become apparent that two or more bidders are close to be considered for award and as a result further consultation regarding commercial matters will be required in order to reach a conclusion and subsequent appointment of a singular successful tram fleet provider.

Opportunity Advertising

2.55 This procurement exercise has been advertised openly via the OJEU Contract Notice website, via the FinditinBirmingham and Contracts Finder portals and finally within the Opportunities Listing area of the BravoSolution e-tendering Portal where both the SQ and ITN documentation were published and made available for prospective bidders.

Procurement Schedule

2.56 The tram procurement timetable is as follows, and will enable ITN prices (or depending on timing BAFO prices) to be reflected in the Financial Case costs:

- Issue PIN 3 November 2017
- Issue Contract Notice 30 July 2018
- Issue Selection Questionnaire 30 July 2018
- Issue Amended Contract Notice 4 December 2018
- Issue ITN February 2019
- Issue BAFO August 2019
- Award Contract September 2019
- Tram 1 delivered July 2021
- Trams 1-9 delivered, tested & commissioned December 2021

Tram Specification

An output-based Tram Specification has been developed for the Third Generation Tram procurement and is provided at Appendix D-2. This is based upon the 2012 Tram Supply Contract specification and incorporates lessons learned from that procurement, the testing and commissioning phase of the CAF Urbos 3 contract, and the recent Catenary Free Retrofit project, as well as updated standards and guidance where relevant.

Utility Diversions

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

2.58 There are three strategies that can be employed to undertake the necessary diversions:

- As part of the relevant construction package;
- By an ‘Enabling Works’ contractor; or
- By the utility companies’ own contractors.

- 2.59 It is currently considered that best value will be obtained through the diversion of utilities by the utility companies' own contractors. This strategy was put forward in the BCCE and Fleet Replacement Business Case Procurement Strategy (Appendix C1) and accepted by the Department for Transport at that time. It has proven very successful in the recent first phase of Metro network expansion, with the advanced utility diversions being delivered on time and to budget. This experience has been repeated in the recently completed second phase relating to the Centenary Square Extension. The Midland Metro Alliance (formerly Centro) Utilities team is highly experienced and has developed excellent relationships with the local utility companies, ensuring a flexible, common sense and practical site-based relationship that enables problems to be rapidly resolved to the benefit of all parties. The team has recently been highly praised by the Westside BID for its sensitivity to the needs of the night-time economy frontagers on Broad Street in Birmingham.
- 2.60 To ensure best value, optimum programme and appropriate stakeholder communications, the MMA actively co-ordinates and manage the utility companies' programmes, in conjunction with Dudley and Sandwell Councils pursuant to their statutory role as Traffic Manager and NRSWA co-ordinator and has procured an over-arching traffic management contract to support delivery in a co-ordinated manner, managed through the Midland Metro Alliance.
- 2.61 Going forward the Midland Metro Alliance is working with utilities to explore further options to "self-lay" advanced diversions of apparatus through the Colas Rail sub-Alliance partner Barhale and further enhance the current shared trenching approach.
- 2.62 Alternative strategies, such as Edinburgh Tram phase 1, have not proven successful, and a similar approach to the WMCA proposed strategy has been successfully adopted by TfGM in taking forward utility diversions for Manchester Metrolink, and by the PFI consortium delivering the Nottingham Phase 2 extensions.
- 2.63 The strategy in practice is to undertake the majority of the requisite diversion works before the commencement of the Metro infrastructure works. This has both a time and cost benefit to a project and significantly de-risks the scope since the act of undertaking the diversions gives greater certainty of ground conditions and provides the main works contractors with a 'clear site' as far as possible, although in the complex palimpsest of historic town centre locations such as Dudley there is always a residual risk of unknown historic utility apparatus in the highway.

D3. Contracts and Specifications

Introduction

- 3.1 Chapter **Error! Reference source not found.** of this Commercial Case gave details of the procurement of the Midland Metro Alliance, which covers the tramway infrastructure, and the Tram Supply Contract for the Third Generation tram fleet, which includes the new trams required to operate the Wednesbury to Brierley Hill Extension.
- 3.2 The unique participative and collaborative Midland Metro Alliance contract sets the context for the development of a specification for each project, or section of a project, within the overall programme. These are intrinsically linked to the Target Price for that project or section of a project. Thus, an iterative, developmental process is followed to derive appropriate specifications, utilising repeatability and standardisation to provide best value in whole life cost terms, as is explained further in the following paragraphs.

Programme Alliance Agreement

- 3.3 The procurement of the Midland Metro Alliance, as set out in Chapter **Error! Reference source not found.** has coupled the experienced WMCA in-house team with very experienced designers and contractors, who have been involved in other recent tram projects world-wide. The Programme Alliance Agreement (PAA) sets out the way WMCA as Owner-Participant and the Non-Owner Participants work together to scope, specify, cost and deliver the programme.
- 3.4 The principles followed in the PAA are set out in Chapter **Error! Reference source not found.** from paragraph 2.17 onwards and are not therefore reproduced here for brevity, however its key provisions are principle based, placing obligations on the parties to act in good faith and committing to Best for Project decision making on the basis that this will deliver the best outcome for all parties.
- 3.5 Other key features of the PAA include shared risk, no claim, no blame and creating a collaborative, self-governing environment in which a high performing, innovative team will thrive. The consequences of failure are dealt with through the commercial model. Owner's rights are reserved to exceptional circumstances i.e. changes in law, breaches in statutory duty and wilful neglect.

- 3.6 As stated above, an iterative, developmental process is followed to derive appropriate specifications and target costs for works under ordered under the PAA. This flows through from seeking overall outcomes laid down in a Value for Money Statement, a schedule to the PAA, setting down the scope of work ordered via an Owner’s Brief, which is in turn responded to by the Alliance with a formal Project Proposal setting out relevant details of design, proposed construction standards and cost. Within the lifetime of a project the process will refine the project from its earliest outline design stage, refine those designs sufficiently to secure land and powers to construct the project, deliver robust budget costs to secure Final Business Case approvals and deliver the final product in line with the initial brief.
- 3.7 Each of the three key components of this process, the Value for Money Statement, Owner’s Brief and Project Proposal are dealt with in further detail in the following paragraphs. To conclude this chapter the Commercial Model is examined to illustrate how risk and reward are shared between the Participants.

Value for Money Statement

- 3.8 The Value for Money Statement is a Schedule to the PAA signed in 2016. It covers matters at Programme level, and where possible matters at Project level for the early delivery projects of Centenary Square /Edgbaston Extension Wolverhampton City Centre Extension which are now in construction.
- 3.9 The Purpose of the Value for Money statement was/is to:
- Communicate the Owners ‘vision and direction’ to the Alliance;
 - Inform the drafting of the Programme Alliance Agreement (PAA) by forming an integral part of the PAA;
 - inform the Alliance Participants of the scope of Programme and general details of Projects and works known at signature;
 - articulate the Programme deliverables to be achieved by the Alliance and the success criteria requirements and expectations; and
 - where possible articulate the Project deliverables to be achieved by the Alliance and the success criteria requirements and expectations of those Projects.
- 3.10 The Value for Money Statement sets outs Alliance Objectives at a programme level, including:
- Promoting and implementing the objectives of the Alliance Charter;
 - Selecting the right people based on a best for task and a best for project basis;
 - Successful delivery of the outputs set by the Alliance Business Plan;
 - Achieving continuous improvement through Programme and Project efficiencies resulting from early contractor and early supply chain involvement, collaborative design management and a joint working environment;
 - Implementing a commercial model that will provide long term sustainable benefits for all parties;
 - Achieving right first time;
 - Creating a single cohesive high performing team in an environment which exhibits the collaborative behaviours commensurate with successful Programme and Project delivery;
 - Ensuring a continuous best for project tri-party relationship with mutual trust and cooperation that is empowered and self-governing and that actively implements decision making on a best for project basis;
 - Minimising the impact on stakeholders and operations;

- Achieving the social and economic benefits expected by the Owner;
- Undertaking all activities in a transparent manner;
- Implementing effective services to deal with third party comments, queries and enquires;
- Management of activities to budget;
- Management of activities to schedule; and
- Conducting all activities in a safe environment.
- Undertaking activities in a manner that is considerate to others and those affected;
- Carrying out activities in a manner sympathetic to the environment (achieved through measurement of CEEQUAL Awards); and
- Undertaking activities in a manner that prevents or reduces the impact on the wider Owner operations.

3.11 The Value for Money Statement also lays down the key building block for the Specification of setting down legislative requirements that Alliance Participants will be required to comply with for all works carried out within all Projects implemented under the Alliance Programme. These are reproduced in Appendix D-3 of this Commercial Case. Alliance Participants are required where appropriate to comply with these regulatory standards listed and all other applicable standards, codes and guidelines, rail industry standards and other industry standards to the extent that such codes and standards are relevant to the Works to be undertaken as part of the Alliance.

3.12 The Alliance Participants are responsible for determining what applicable regulatory standards apply to the Works and where necessary will be responsible for consulting with local authorities, government departments and the like in determining what regulatory standards are applicable. Regulatory standards that typically apply to Works carried out by the Alliance include:

- Statutory documents (Acts and Statutory Instruments)
- British Standards (BS and BS EN)
- European Standards (EN)
- Employer Standards
- Industry Standards
- Building Regulations

3.13 It is the responsibility of the Alliance Participants to identify and comply with specific regulatory standards as part of the development of proposals in response to the Owner's Brief.

3.14 All Works must comply with the requirements of the Health and Safety Executive (HSE) and Office of Rail Regulation.

3.15 The Participants will be responsible for obtaining all necessary approvals in the undertaking of Works including though not limited to:

- Discharge of planning conditions
- Building regulations approvals
- Fire and Rescue Regulations approvals
- ORR / HMRI approvals
- Water discharge consents

- 3.16 The Owner, as the only body with the appropriate legislative powers, is responsible for obtaining Transport and Works Act Orders for relevant projects. Participants are required to assist and cooperate with the Owner in doing so.

Owner's Brief

- 3.17 The next stage in the development of a specification and target price for the project is for the Owner (WMCA) to specify discrete packages of work from MMA; this is undertaken by means of a project-stage-specific Owner's Brief.
- 3.18 The initial Owner's Brief to the MMA for the Wednesbury to Brierley Hill Extension project covered development of the project through Stage B Project Development in the MMA Stage Gate Framework, further detail of which is provided in the Management Case and within Appendix E-1, with work proceeding associated with the removal of objectors to the TWAO through to complete preliminary design and granting of the TWA Order. The Owner's Brief set out the background to the project, information on the scheme's status and the considerable design progress achieved with the WMCA's previous engineering consultants, and details of the 2005 Order. It also provided details of site constraints, assumptions, details of other interfacing projects, project risks, the desired schedule and details of key stakeholders, also confirming the Owner's budget for this stage of the project.
- 3.19 Of key relevance to the development of the specification and target costs, the Owner's Brief instructed MMA to proceed with the deliverables as set out in the Brief and to do so in accordance with the broader MMA Stage Gate Framework; these are provided in Appendix D-4.

Project Proposal

- 3.20 At the end of the Stage Gate covered by the Owner's Brief discussed above the PAA requires that MMA provide a formal Project Proposal to the Owner. This is the subject of the commercial assurance processes relevant to the development of a Target Cost, which is developed by the Project and Commercial teams within MMA.
- 3.21 As noted in the Management Case, WMCA has appointed Turner & Townsend to the role of 'Independent Programme Alliance Assurer', and they provide a Project Target Price Audit/Validation Report in accordance with their brief; a copy of the brief is at Appendix E-6.
- 3.22 In addition to the external validation provided by an independent Auditor, the Midland Metro Alliance also undertakes a series of robust internal reviews at different levels to validate the Project Target Price. This included the following validation activities:-
- Estimating Workshops
 - Peer Review - individuals from NOP1, NOP2 and the Sub-Alliance, have carried out robust Peer Reviews of the PTP. Including rates and quantity checks, prelims and programme development and risk workshops.
 - Alliance Management Team Review
 - Parent Company Approval - NOP1 & NOP2
- 3.23 In addition to the above, the Project Proposal is subject to an Owner's Team review and a final sign-off review by the Alliance Leadership Team before formal submission.
- 3.24 The Project Proposal reports on design progress and sets out the details of the design in the various design categories, specifying the project through a series of drawings for formal acceptance. The drawings themselves can be provided if required on request.

- 3.25 The Project Proposal also sets out risks and opportunities, together with mitigation plans, the works schedule and how the project will be constructed, including construction compounds, details of how the obligations within any relevant Third-Party Agreements will be complied with, any novel plant proposed to be used and includes details of the reimbursable costs incurred in producing the proposal.

Stage C Owner's Brief

- 3.26 In accordance with the PAA and in response to the Project Proposal set out above, the WMCA as Owner provides a further Owner's Brief to take the project to the next Stage Gate. This is similar to the Stage Gate B Owner's Brief outlined above but will include the further detail developed in Stage Gate B, instructing the MMA to undertake detailed design and undertake all relevant and necessary activities to progress the project in line with the approved project schedule. This will include finalising and obtaining the relevant approvals for the designs, being therefore equivalent to the design stage of a non-Alliance Design and Build contract, but with the greater involvement of the WMCA's expert client team as part of the MMA.

D4. Payment Mechanisms and Pricing

Introduction

- 4.1 The contractual arrangements developed for the West Midlands Metro programme are set out in Chapters **Error! Reference source not found.** and D3; they are the result of considerable development to ensure that best value for money is delivered to provide the fit for purpose and reliable infrastructure and trams needed to deliver the project benefits set out in the Strategic Case.
- 4.2 The arrangements are reviewed in three sections in this Chapter, Infrastructure (with delivery via the Midland Metro Alliance, Trams via the Third Generation Tram Supply Contract and Utilities, following the strategy set out in Chapter D2, paragraphs 2.57 onwards, under the provisions of the New Roads and Streetworks Act Diversionary Code.

Infrastructure – Midland Metro Alliance Commercial Model

- 4.3 The Commercial Principles that underpin the MMA and guide the way in which participants behave and deliver their commitments are set out in the PAA as follows:-
- Scope variations limited to material change
 - All parties are equitably incentivized to perform beyond the expectation of the target cost;
 - No disputes
 - No blame to be associated
 - Open book pricing and accounting across all Alliance activities
 - A whole life cost approach
 - Consistency with the VFM Statement
 - Equitable sharing of risk and reward
 - We all win, or we all lose
 - In all cases, achieve the Best for Alliance
- 4.4 The commercial model operates on the open-book actual costs incurred by the Alliance Participants and provides for a painshare and gainshare mechanism commensurate with the specifics of a project and the overall Alliance Programme. This is set out in a Schedule to the PAA and this is included as Appendix D-6.

- 4.5 This model was utilised on the successful Bilston Road Phase 2 Track Replacement works undertaken in Autumn 2017, which saw the Alliance partners deliver this construction project which involved breaking out 2.7km of road and existing track, building replacement drainage systems and a concrete base to support new rails. The replacement tram track was then laid and welded into place before the remaining concrete and road surface was installed and the traffic and tram signalling reinstated.
- 4.6 The works, which started in June 2017, finished ahead of schedule and under budget and the A41 Bilston Road was reopened to traffic in both directions to and from Wolverhampton on Saturday 2 December 2017. Similarly, tram passenger services also resumed earlier than scheduled on Friday 9 December 2017 when testing and commissioning completed two days early.

Trams

- 4.7 As stated in Chapter D2, it is proposed that WMCA will directly procure the Third Generation Tram fleet. As far as possible the specification will enable most suppliers to offer their standard products and will not require anything bespoke.
- 4.8 Experience from other projects across the world, and in the 2012 West Midlands procurement has shown the terms upon which suppliers expect to do business and as far as prudently possible WMCA will seek to reflect what has already been commercially accepted.
- 4.9 The supply agreement will include a contract payment regime based on key milestones with bonding as appropriate. WMCA will also require a post service performance level for the fleet based upon reliability and linked to a final payment milestone. WMCA will purchase extended warranties for key components from the manufacturer in order to reduce the risk of poor performance.
- 4.10 It is likely to be prudent to hedge the payments, should they be contractually required to be made in Euros. Hedging against exchange rate volatility was undertaken for the CAF Urbos 3 and Retrofit contracts signed in 2012 and 2015 and will be considered for the Third Generation Tram procurement close to the time of orders being placed, when the hedging costs and uncertainties around Brexit may be clearer.
- 4.11 Tram manufacturers payment regimes are well established in the market and are expected to follow a profile similar to that for the 2012 Centro procurement, as shown below:-

Contract Signature	10% of the Purchase Price attributable to all Trams
Start of production of primary parts	15% of the Purchase Price attributable to all Trams
Completion of manufacture of underframe for the first Tram	15% of the Purchase Price attributable to all Trams
Set-up of carbody on bogie for the first Tram	20% of the Purchase Price attributable to all Trams

Delivery of a Tram to the Depot	25% of the Purchase Price attributable to the relevant Tram
Acceptance of a Tram	10% of the Purchase Price attributable to the relevant Tram
Delivery of Initial Spares and Tooling	100% of the Purchase Price attributable to the Initial Spares and Tooling
Final Fleet Milestone	5% of the Purchase Price attributable to all Trams

Utilities

- 4.12 Work to divert utilities' apparatus is not carried out under a contract between the utility companies concerned and WMCA. Apparatus is placed and maintained under statutory powers granted to the undertaker, in accordance with the restrictions placed on them by the New Roads and Street Works Act 1991, the Traffic Management Act 2004 and, where apparatus is encountered off-highway, the Town and Country Planning Act 1990.
- 4.13 Costs of diversions are apportioned in accordance with the Street Works (Sharing of Costs of Works) (England) Regulations 2000 and orders are placed and works are undertaken in accordance with the long-established Diversionary Works Code (Measures necessary where Apparatus is affected by Major Works (Diversionary Works) 1992). The Code regulates the way in which diversionary works are undertaken, providing greater clarity on costs as the process progresses from the early design stages to final account. The stages are as follows:-
- Scheme Identification and Preliminary Inquiries (C2)
 - Budget Estimates (C3)
 - Detailed Estimates (C4)
 - Scheme Commencement (C5)
 - Issue of Main Orders (C6)
 - Construction (C7)
 - Claims (C8)
 - Invoicing and Payment (C9)
- 4.14 WMCA has well established relationships and procedures for the planning, management and cost control/recovery of the diversionary works with the local utility undertakers.

D5. Risk Allocation and Transfer

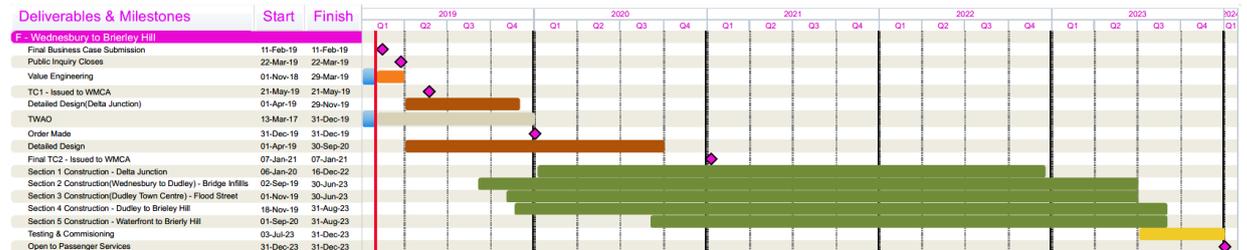
Risk

5.1 The Risk Management Strategy (see Management Case and Appendix E-1) sets out the process for the detailed risk management processes that the Midland Metro Alliance uses to generate and value the project risks. These risks are collectively managed within the contractual mechanisms of the Midland Metro Alliance set out in Chapters **Error! Reference source not found.** and D3 of this Commercial Case via appropriate mitigation plans. WMCA’s aim is to receive the best value for money in managing risk within the Alliance model for the Metro infrastructure works.

Implementation Timescales

- 5.2 A detailed bottom up approach to programming has been adopted in order to avoid over optimistic programming.
- 5.3 Actual delivery durations for the several light rail projects that have been procured in the UK were reviewed to provide a benchmark for the programme. The high-level milestones are detailed in Chapter E4 of the Management Case and these are consistent with the benchmarking exercise.
- 5.4 The WBHE schedule is presented in overview below in figure 5.1.

Figure 5.1: WBHE Schedule Overview



D6. Human Resources Issues/Contract Management

Midland Metro Operation Prior to 2018

- 6.1 Midland Metro Line 1 was procured as a concession on a turnkey Design, Build, Maintain and Operate basis. The contract reflected a Private Finance Initiative format, though the majority of the finance was provided by Centro. Maintenance and Operational costs were borne by the concessionaire who also retained all fares and advertising revenues.
- 6.2 The 23-year Concession was awarded to Altram LRT Ltd in August 1995 and the system opened to the public in May 1999. Altram subcontracted the Design & Build and Operate & Maintain elements to a Laing/Ansaldo Joint Venture and West Midlands Travel Ltd (Trading as Travel Midland Metro) respectively. In 2005 West Midlands Travel Ltd acquired 100% control of Altram. West Midlands Travel Ltd is part of the National Express group, the operating arm being branded as National Express Midland Metro (NXMM).
- 6.3 On 17 March 2017 the WMCA Board approved that the operation of Midland Metro would be brought back in house and this took place on 24 June 2018. Under TUPE legislation, this ensured that the highly-experienced NXMM team was retained with a clear focus on delivering this project under the direct control of WMCA. The NXMM team has been closely involved in the designs for the Wednesbury to Brierley Hill project.

Current Midland Metro Operation

- 6.4 Under the brand name West Midlands Metro, the region's expanding tram network is now operated by Midland Metro Limited (MML). MML is a new company which, although 100% owned by the West Midlands Combined Authority, functions as a standalone business. It was awarded a 15-year operations and maintenance contract for the Metro system by the WMCA starting on 24 June 2018. The company structure is included at Appendix D-7.

6.5 The senior management team at MML have extensive experience in the management of tramway businesses in both public and private sector:-

Phil Hewitt - Metro Programme Director and Chairman of MML was TfL's Director of London Trams. Phil acted as the TfL Client representative in managing the PFI Concession between 1997 and 2008 at which point he led the team that took over the PFI Concessionaire (Tramtrack Croydon Limited) and operated Croydon Tramlink as a wholly owned subsidiary of TfL. In 2012 Phil joined Tramlink Nottingham Ltd, a privately owned (Meridiam, Infravia, Alstom, Vinci, Keolis & Wellglade) special purpose vehicle responsible for the design, construction, operation maintenance and financing of NET Phase 2, initially as CEO and latterly as Executive Chairman. Phil took on the post of WMCA's Metro Programme Director in January 2016 and is WMCA's lead on the Midland Metro Alliance.

Nafees Arif - has been appointed as MML Company secretary. Prior to joining WMCA as the Midland Metro Alliance Finance and Commercial Director Nafees was CFO on the NET Phase 2 project as well as CFO on a number of other PFI's on behalf of Fulcrum Asset Management Ltd (a subsidiary of Meridiam, a worldwide infrastructure investor managing some €5bn of infrastructure funds)

Carl Williams - Carl was appointed as Operations Director for Midland Metro in 2017 and now leads the MML management team following the transfer of services from Altram LRT Ltd. Carl has 25 years private sector leadership experience having been General Manager at Sheffield Supertram (Stagecoach) and Manchester Metrolink (Stagecoach / RATP Dev). Carl has also been employed in senior roles at Transdev (Edinburgh) and Keolis (Nottingham, Gold Coast, and Canberra, Canada)

6.6 The remainder of the senior management team in MML transferred in from National Express West Midlands Travel and continued in their previous roles. Key roles that were subject to TUPE transfer include

- Operations Manager
- Fleet Manager
- Infrastructure Manager
- Training Manager
- Safety & Standards Manager
- Customer Services Manager

6.7 MML marketing support has been secured in the short term from the team that has successfully grown the Edinburgh trams market and that led the marketing of Nottingham Express Transit between 2013 and 2016. A permanent commercial marketing manager is to be recruited into MML following the transfer of operational services.

Fares and Ticketing

6.8 The Transport for West Midlands (TfWM) Mobilisation team procured independent fares and ticketing modelling and pricing support in order to develop a new revenue forecast for MML. The ticketing / revenue model was subsequently reviewed by TfWM's Head of Ticketing and adjusted to reflect comments received and additional information that TfWM and Altram were able to provide.

6.9 The key features of the recommended fares strategy for the first year of MML operations are:

- Tickets and Fares are generally be in line with those previously charged by Altram LRT Ltd
- MML has become a member of the Multi-Modal “n ticketing” schemes operated by WMCA
- MML accepts West Midlands Concessionary passes on the same terms as currently accepted by Altram LRT Ltd
- MML will, subject to negotiation of an acceptable financial reimbursement mechanism offer through tickets with National Express West Midlands Travel services. Such through ticketing arrangements will be available to other operators on the same terms.

6.10 The following table presents an overview of the principal fares that are offered by MML; these fares have been used as a basis for the economic modelling and revenue cost forecasts in the Economic Case.

Product	Adult		Child	
	Current Price	Proposed Price	Current Price	Proposed Price
Short hop	£1.00	£1.00	£0.50	£0.50
Single tier 1	£2.70	£2.50	£1.35	£1.30
Single tier 2	£3.30	£3.20	£1.65	£1.60
Single tier 3	£4.20	£4.00	£2.10	£2.00
OP return tier 1	£3.20	£3.00	£1.60	£1.50
OP return tier 2	£4.70	£3.80	£2.35	£1.90
OP return tier 3	n/a	n/a	£2.60	£2.60
Peak return tier 1	£3.40	£3.20	£1.70	£1.60
Peak return tier 2	£5.50	£5.00	£2.75	£2.50
Peak return tier 3	n/a	n/a	£3.35	£3.30
MM peak day	£6.70*	£5.50	£4.40*	£4.00
MM off-peak day	£5.20*	£4.00	£3.60*	£3.00

Note: * marked fares are currently bundled products and not Midland Metro only

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