



**West Midlands
Combined Authority**

Transport Delivery Committee

Date	4 February 2019
Report title	Metro Investment Programme Briefing
Accountable Director	Laura Shoaf, Managing Director Transport for West Midlands
Accountable Employee	Phil Hewitt, Metro Programme Director Email: phil.hewitt@westmidlandsmetro.com Tel: 07712 089532
Report to be/has been considered by	Metro Board

Recommendation(s) for action or decision:

The Transport Delivery Committee is recommended to note the report:

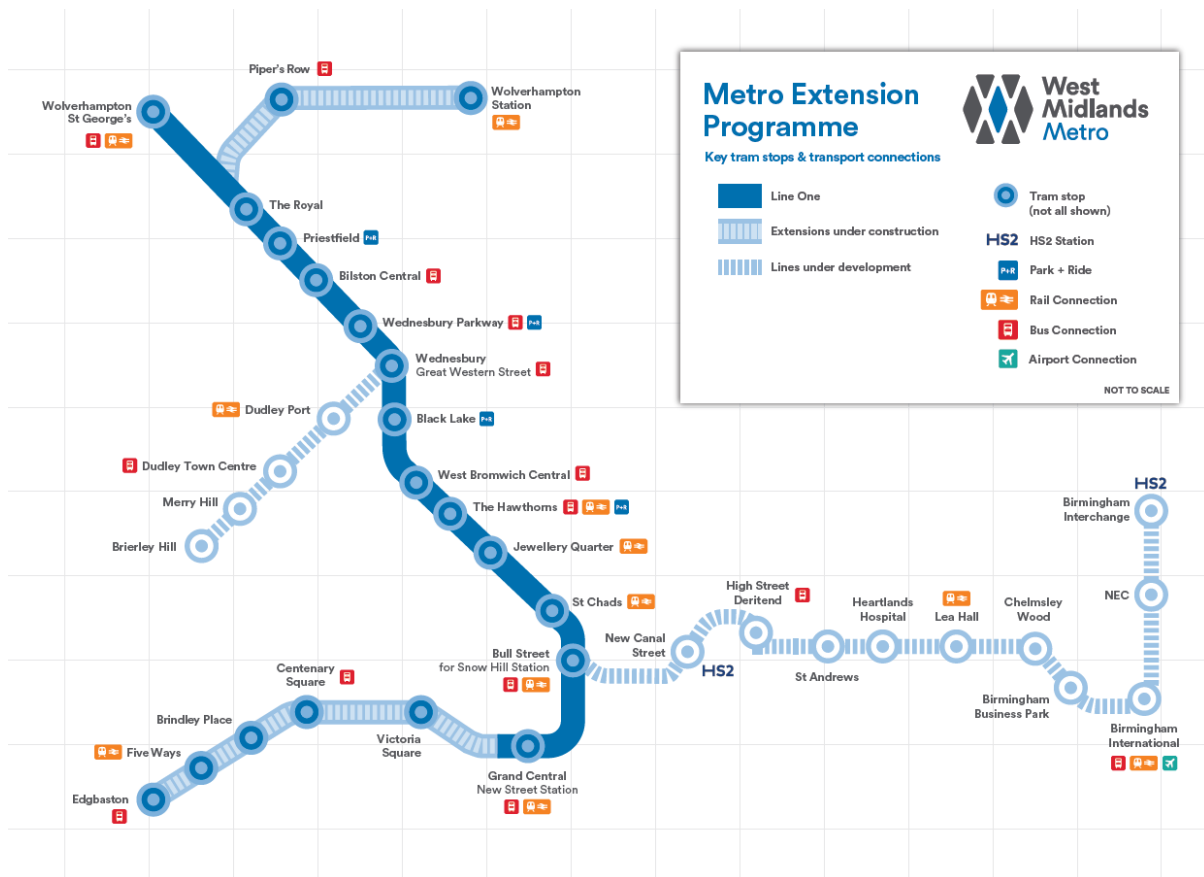
1. Purpose

To report on matters relating to the Metro Investment Programme in the West Midlands.

2. Background

- 2.1 The Midland Metro investment programme has continued to make progress during the 3 months since the last update. This note provides an overview of the main activities of the West Midlands Metro team (comprising TfWM, Midland Metro Limited and the Midland Metro Alliance) and the actions being taken to manage the principal risks / issues and opportunities that have arisen.

- 2.2 TfWM is currently making good progress in developing the funding and finance strategy that will allow the Metro expansion to be delivered in full, in two tranches by 2023 and by 2026.
- 2.3. The following is a summary of the principal highlights of the Programme
- 2.3.1 **Westside Extension – Centenary Square.** Despite additional works arising from the diversion of a district heating main and repairs to the A38 tunnel roof works are progressing well in all sections and the project remains on schedule to open in December 2019
 - 2.3.2 **Westside Extension – Edgbaston.** Enabling works have commenced to strengthen the Broad Street canal bridge and arrangements are in hand to commence the main tramway construction works on 23 April. The project remains on schedule to open in December 2021
 - 2.3.3 **Wolverhampton Extension:** Construction of stages 2 and 3 has progressed well and the track laying has been completed. Urban realm works are progressing ahead of the planned demobilisation of the worksite pending completion of the Wolverhampton Station forecourt works. Opening of this extension is dependent upon the completion of the station enhancement project.
 - 2.3.4 **Wednesbury Brierley Hill:** Works are progressing to finalise the business case and secure the full funding package to allow the scheme to be delivered by 2023. MMA are finalising the Target Cost 1 project proposal and are now undertaking a Value Engineering exercise. The Inquiry into the Transport and Works Order Application will take place from 19 March.
 - 2.3.5 **Birmingham Eastside:** MMA are finalising the Target Cost 1 proposal and discussions are continuing with HS2 and DfT around the potential construction interfaces between the Metro and Curzon Street station works. Approval of the Final Business Case and commencement of the works is on hold pending award of the Transport & Works Act Order granting WMCA statutory powers to progress the scheme.
 - 2.3.6 **East Birmingham Solihull:** The submission of the Outline Business Case and application for powers has been deferred to 2020 to allow for further scheme refinement, assessment of the impacts and benefits of the proposal, definition of the overall funding strategy and to allow time for a thorough consultation on the proposal to be undertaken in the second half of 2019. The project remains on schedule to open in 2026.
 - 2.3.7 **3rd Generation Trams:** 7 submissions were received in response to the Supplier Questionnaire. An invitation to negotiate is planned to be issued in Quarter 1 2019 with award of contract planned for Q3 2019.



3. Financial Implications

All financial information is contained within the report.

4. Legal Implications

No legal implications are identified for this current report, however any further details reported back after this report require legal consideration.

5. Equalities Implications

None.

6. Inclusive Growth Implications

These are addressed in formal submissions relating to each project.

7. Geographical Area of Report's Implications

The Metro Programme report encompasses Programmes and Projects works in Wolverhampton, Sandwell, Dudley, Birmingham, Solihull and Coventry.

8. Other Implications

None.

West Midland Metro Programme Overview January 2019

Catenary Free Trams

Six trams have now completed the battery retrofitting and testing programme and been accepted back into passenger service. These are as follows:

Tram No	Passenger Service Date
18	20 th April 2018
31	3 rd July 2018
36	1 st August 2018
21	1 st October 2018
28	26 th October 2018
35	11 th December 2018

At the time of writing this report tram number 37 and 17 are out of passenger service and in the Retrofit programme being carried out at the Wednesbury Depot Facility.

The programme of works has been subject to various delays due to staff and equipment resources at the depot. TfWM, MML and CAF have been working closely together to mitigate any further delays to the programme and introduce more efficient working methods. A revised battery retrofit schedule is currently under preparation by CAF with the aim of having sufficient retrofitted trams back into service prior to the commencement of passenger service to Centenary Square.



Picture: Tram 18 running on battery power with pantograph retracted on Soho, Benson Road.

Westside Extension – Phase 1 – Centenary Square

West Side Programme Cost		
£149.2m		
Phase 2 Cost	Construction Start	Passenger Services
£65.8m	12 June 2017	December 2019
Powers	Midland Metro (Birmingham City Centre Extension Etc) Order 2005	
	Midland Metro (Birmingham City Centre Extension Etc), (Land Acquisition and Variation) Order 2016	
Funding	GBSLGF	£7.55m
	Enterprise Zone	£20.35m*
	Third Party	£3.6m
	HS2 Connectivity	£38.7m ¹
Schedule	<ul style="list-style-type: none"> • Install 1st rails – January 2019 • First tram (testing) – October 2019 • Passenger Services commence – December 2019 	On Programme (Dec 2019)
Cost		On Budget

¹ Additional funding of £4.4m has been approved by the EZ Board but is awaiting final approval of the Business Plan prior to formal confirmation.



Pictured: Works taking place in Paradise Circus.



Pictured: Works taking place in Pinfold Street.

This is the next stage of the Birmingham City Centre Extension original powers for which were granted in 2005 and extended in 2016. The extension runs for some 650 metres between Grand Central and a temporary terminus on Broad Street in Centenary Square. The short extension will have an additional stop at Victoria Square and will be operated entirely Catenary Free – a first for the UK.

Works have continued in Area 3 (Centenary Square) and Area 1 (Pinfold Street) and are generally progressing to programme despite the need to reschedule works in Area 3 to accommodate the requirements of the Arena Central (HSBC) development and additional diversion of a district heating main to accommodate which the Centenary Square redevelopment and Arena Central works. Works in Area 2 were dependent upon the handover of the worksite following completion of demolition works at Fletchers Walk as part of the Paradise development are generally progressing well.

Surveys carried out on the existing A38 Queensway Tunnel identified that the waterproofing of the Tunnel had been damaged prior to MMA taking control of the site. The waterproofing system needed to be remediated urgently to enable the Metro extension to be built and these works have been progressed by MMA in order to mitigate programme impacts although agreement of costs with BCC is outstanding.

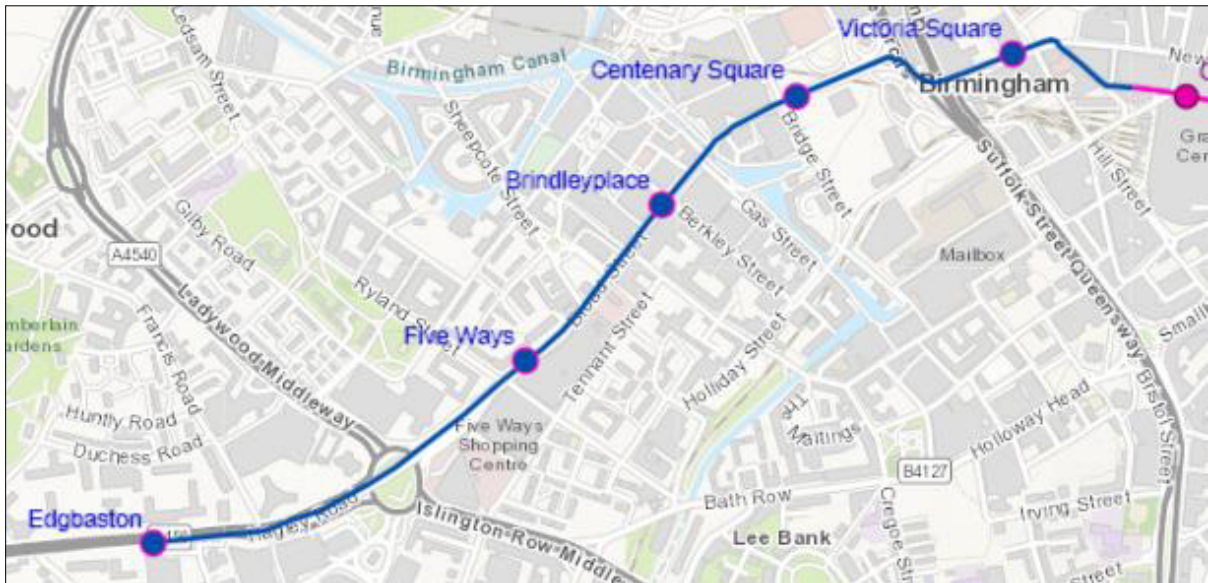
The Midland Metro Alliance working closely with TfWM and BCC continued to review the opportunities to reschedule works and successfully consulted on and subsequently closed Paradise Circus Queensway. This closure commenced on 3 September 2018 and will allow the impacts of the late handover from Paradise contractors and the A38 tunnel remediation works to be mitigated.

Works have progressed in Area 1 with the trackslab construction now well underway, tie-in works on Stephenson Street having started. Construction works have progressed well in Victoria Square although the site was backfilled for the Frankfurt Christmas market. The works resumed on 7 January. Paradise Street construction has progressed well with groundworks largely completed and retaining walls and trackslab work progressing. Rail installation is forecast to commence in January.

First phase tie-in works between the operating tramway and the extension started in September 2018 on Stephenson Street and Pinfold Street with a new 8m deep sewer shaft having been constructed on programme in Pinfold Street south. These works require the closure of the head shunt in Stephenson Street and as a result all West Midlands Metro services will continue to arrive and depart from the same platform at Grand Central metro stop until the headshunt is re-commissioned. The tie-in works are moving forward in line with the MMA programme.

Progress in Area 3 remains dependent upon the coordination of works by the HSBC and Municipal Bank Contractor, Galliford Try, and Centenary Square contractor, Bouygues. The “one team” weekly meetings continue to ensure activities are coordinated and that any blockers to progress across all of the CSQ projects are identified and tackled effectively. Metro works to the frontage of HSBC are underway with south footpath paving works now started.

The issue with the Engie district heating main diversion in Centenary Square has now been sufficiently resolved to allow the Metro works to be progressed without delay to the planned opening date. Nevertheless, agreement needs to be reached between Engie, BCC and TfWM on the allocation of the diversion costs between the Metro project, BCC (CSQ project) and Engie (for Arena Central and ICC network enhancements). Despite the challenges that have arisen over the last six months MMA remain confident that the Westside Extension will be delivered within the approved funding envelope subject to agreement of additional funding to address 3rd party scope changes (i.e. Engie works, surface treatment etc).



Pictured: Birmingham Westside Metro extension route map.

A testing, commissioning and bringing into use strategy and timetable has been developed by TfWM, MMA and MML and presented to the Office of Rail and Road. The project is on target to complete this work and to open on schedule in December 2019.

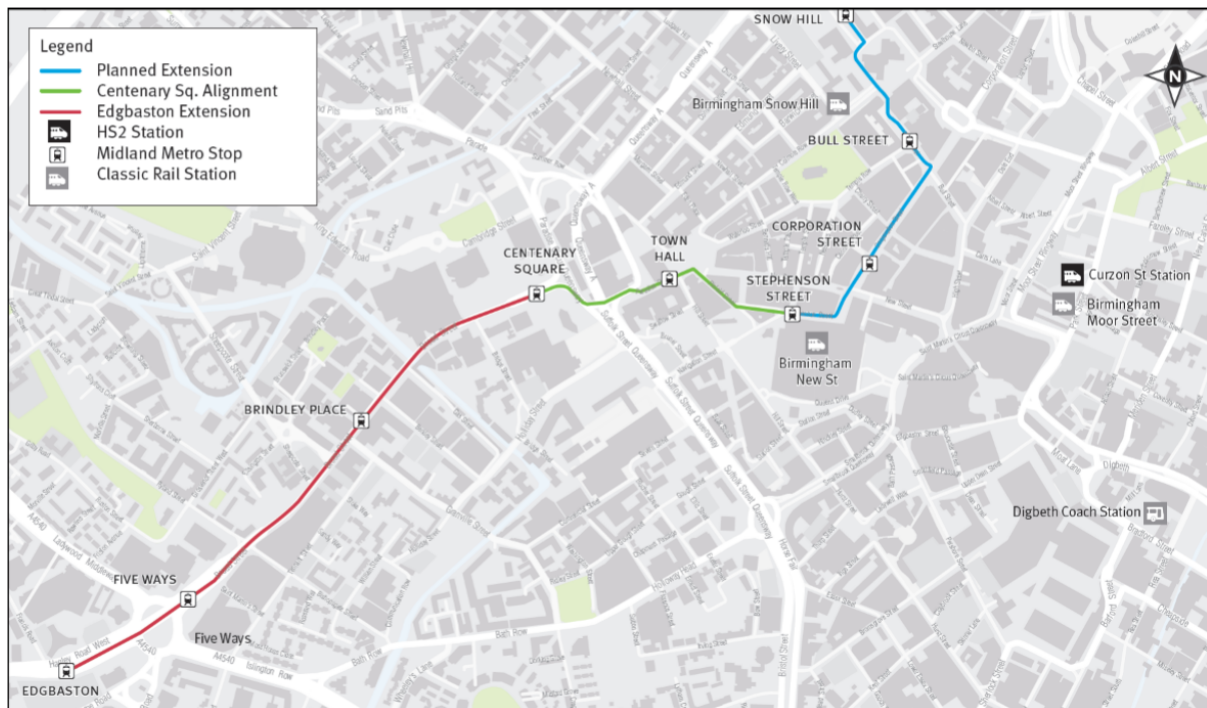


Pictured: Works taking place on Paradise Circus.

Westside Extension – Phase 2 – Edgbaston (Five Ways)

Programme Cost		
£149.2m		
Project Cost [TC1²]	Construction Start	Passenger Services
£83.4m	April 2019	December 2021
Powers	Midland Metro (Birmingham City Centre Extension Etc) Order 2005	
	<i>Midland Metro (Birmingham City Centre Extension, etc.) (Edgbaston Extension Land Acquisition) Order – Application Made – decision Q1 2019</i>	
Funding	Enterprise Zone	£1.3m
	Third Party	£2m
	HS2 Connectivity	£20.3m
	DfT Grant	£59.8m
Current Status	Design – ongoing – completes April 2019 Utilities Phase 2 – December 2017 to July 2019 Complimentary Highway Works – July 2018 to Spring 2019 Canal Tunnel enabling works commenced:	
Programme	<ul style="list-style-type: none"> • Completion of Canal Tunnel strengthening – March 2019 • Commence main works Phase 1 – 23 April 2019 • Passenger Services commence – Dec 2021 	On Programme
Cost		On Budget

² This cost reflects further review and value engineering by the Midland Metro Alliance which has reduced the forecast out-turn cost of phase 3 relative to the TC1 figure



Pictured: Map showing the next two phases of the Birmingham Westside extension.

The final phase of the Birmingham City Centre extension, due to open in December 2021, is some 1.3 km long operating entirely on highway with stops at Brindley Place, Five Ways and Edgbaston (Hagley Road). The sections between Centenary Square and Brindley Place and between Five Ways and Hagley Road will be operated catenary free.

An application for powers to acquire the land to construct and operate the extension was approved by the WMCA Board at its meeting on 17 March 2017. Negotiations with landowners have continued to progress well and the Transport and Works Order processing unit has confirmed that the written representations process has been concluded. WMCA continue to await the DfT's decision whether to grant the Order which is now overdue. To mitigate against potential delay awaiting the Order agreements have been exchanged on behalf of TfWM to acquire the land without compulsory purchase and this is expected to be concluded in spring 2019.

An initial Project Proposal and Target Cost (TC1) submitted by the Midland Metro Alliance for the Edgbaston Extension works was approved by the WMCA Board at its meeting on 17 March 2018, with authority to approve the final Target Cost 2 delegated to the Metro Director and Corporate Services Director, subject to a satisfactory report from the Alliance Auditor. The final Project Proposal and Target Cost (TC2) is due to be submitted for the approval of the Owner's team in March 2019 which if approved by TfWM will allow the main works to commence at Easter.

Funding for the project is fully committed by all parties. TfWM have released funding for the continuation of the project through to the submission of Target Cost 2 (Stage Gate C), for the utility diversion and complementary highway works in Bath Row and Sheepcote Street which are nearing completion and enabling works on the Canal. Utility works are progressing well despite significant restrictions on working

arrangements agreed with the Westside BID to mitigate the impact of these works on the weekend night time economy.

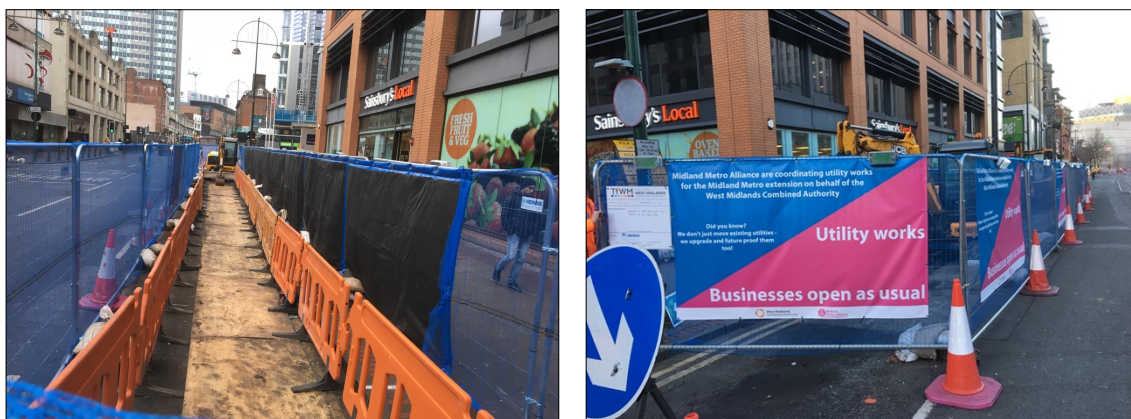
An innovative solution has been identified in order to strengthen the Broad Street Canal Tunnel and MMA commenced construction of this element of work on 2 January 2019. These works are due to be completed in March 2019.

Senior personnel from TfWM and the Alliance continue to walk the route regularly to meet with stakeholders. The “Westside Weekly” provides updates about the works and traffic updates with additional information being provided three-times weekly through a WhatsApp group administered by the Westside BID. A video has also been produced and released by the Midland Metro Alliance (as well as shared by WMM) to advertise that Broad Street is open as usual during the works and during the important festive trading period. This video was created in partnership with Broad Street stakeholders and can be found at <https://vimeo.com/306458358>.

The Phase 2 Construction strategy has been produced using GIS technology that enables stakeholders to see how the works will be progressed between Centenary Square and Hagley Road between 2019 and 2021. Following continued positive dialogue with the Local Highway Authority final communication about the main works construction strategy will take place shortly ahead of the start of works on 23 April.

Trams

A review of tram performance characteristics and timetable development work has identified that additional trams will be required to ensure that the existing Line One service levels can reliably be maintained when the Edgbaston extension opens in full. It is anticipated that this will require the additional trams to be delivered in summer 2021.



Pictured: Works currently taking place along Broad Street.

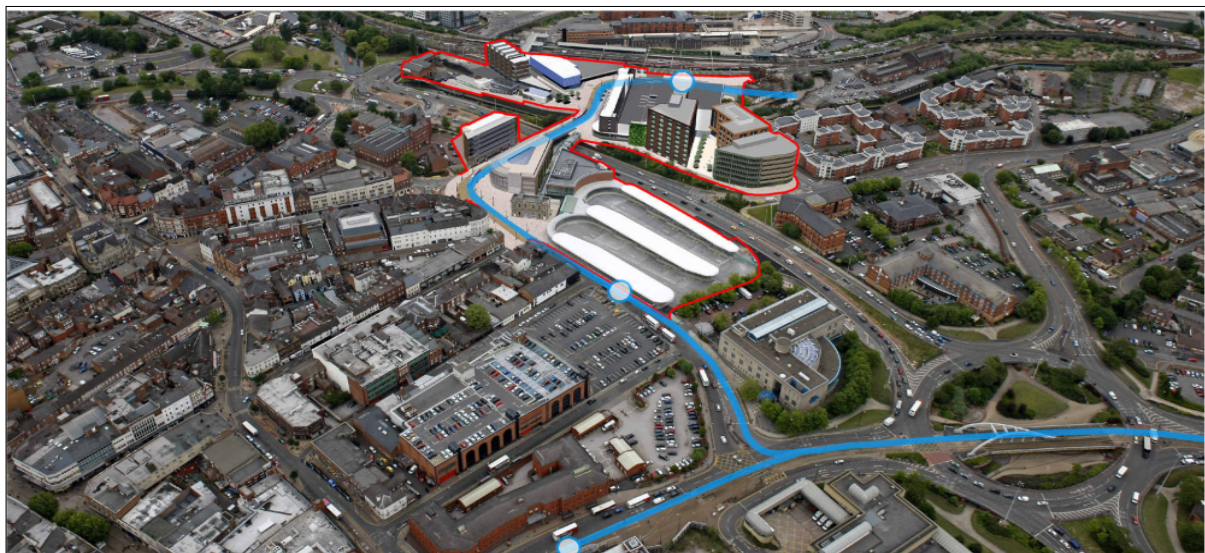


Pictured: Works to strengthen the Broad Street Canal Tunnel.

Wolverhampton City Centre Extension

The extension is a core part of the Wolverhampton Interchange Programme – funding is for the overall WIP.

Project Cost	Construction Start	Passenger Services
Programme £81.8m	August 2017	August 2020
Including Metro £33m		
Powers	Wolverhampton City Centre Extension Order 2016	
Funding	ITB	£3.0m
	LGF	£13.5m
	WMCA (DfT-MSCP)	£21.9m
	WMCA (HS2)	£12.4m
	CWC	£16.0m
	WMCA (IP)	£15.0m
Current Status	Phase 2 & 3 construction – ongoing due to complete October 2018. Project will be suspended pending completion of the Station Construction works. Project schedule rebaselined to reflect current overall WIP programme	
Programme		At Risk
Cost		On Budget



This is a short (850m) on-street extension forming part of the Wolverhampton Interchange Programme (“WIP”). The extension will provide new stops at Wolverhampton Railway Station and at Pipers Row, where it will serve Wolverhampton Bus Station. The extension will connect with Metro Line One at

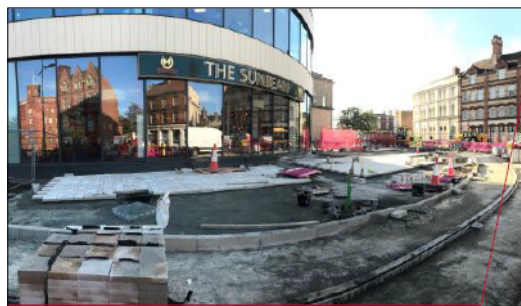
Bilston Street between the Wolverhampton St Georges and The Royal tram stops. Between Piper's Row and Wolverhampton Station the route will operate catenary free.

Following the station works contract being awarded to Galliford Try, it was agreed at the WIP January 2018 steering group that the Midland Metro Alliance would accelerate the tram extension works to run in parallel with the Galliford Try station works. These works started on Pipers Row in April 2018 and on Railway Drive from July 2018 however they exclude the Station Plaza works that will be carried out on completion of the Galliford Try station project.

The main tramtrack construction works have been completed on Piper's Row. These were completed on 3 September 2018 with the road reopening to traffic in time for the back-to-school period as scheduled. Rail construction was completed in Railway Drive, and the site handed back to Galliford Try, shortly before Christmas 2018. The MMA will continue to have a presence in Wolverhampton until summer 2019 as work to improve the street including overhead line equipment foundations, tram stops, paving and street furniture, continue following a brief pause to support the city's Christmas embargo.

As the Metro works in the station forecourt cannot commence until the station works are completed, the Alliance has advised that on completion of Phase 1, the WCCE project will demobilise with only a limited design team remaining active to deal with any station interface issues. The Alliance anticipate remobilising 6 months prior to the completion of the Railway Station works. The scope of Metro works to be undertaken alongside the Railway Station project is subject to coordination with the station project team and we will be seeking to maximise opportunities. On completion of the Station works the Metro construction will run uninterrupted through to completion approximately six month after completion of the station works.

Completion on time is dependent upon access being granted to the Station Plaza site by Galliford Try which is out of TfWM's control.



Pictured: Track being laid.

Birmingham Eastside Extension

Project Cost	Construction Start	Passenger Services
	Q3 2020	Q4 2022
Target Cost 1£152.2 ³		
Powers	Midland Metro (Birmingham Eastside Extension) Order – Decision expected Q1 2019	
Funding	DfT / DCLG	£131.7m
	LGF	£5.5m
	BCC	£15m [Digbeth Urban Realm]
Current Status	TWAo Decision – March 2019 Preliminary Design – complete May 2019 Preparation of Project Proposal (TC1) – Q1 2019	
Programme	Awaiting TC1 Project Proposal and TWAo Award	TBC
Cost	Awaiting TC1 Project Proposal and TWAo Award	TBC

This is a short but complex 1.7km street running tram route that departs from Line One at Bull Street and runs to Digbeth where a temporary terminus will be provided pending the construction of the East Birmingham to Solihull line. Four new stops are to be provided at Albert Street, New Canal Street (HS2) Meriden Street and High Street Deritend (Coach Station) with the section between Albert Street and High Street being catenary free.

The Public Inquiry took place on 22/23 November 2017 and given the overwhelming case for the project and lack of objections at the Inquiry, the Inspector was able to submit his report in January 2018 via the Planning Inspectorate to the DfT TWA Orders Unit.

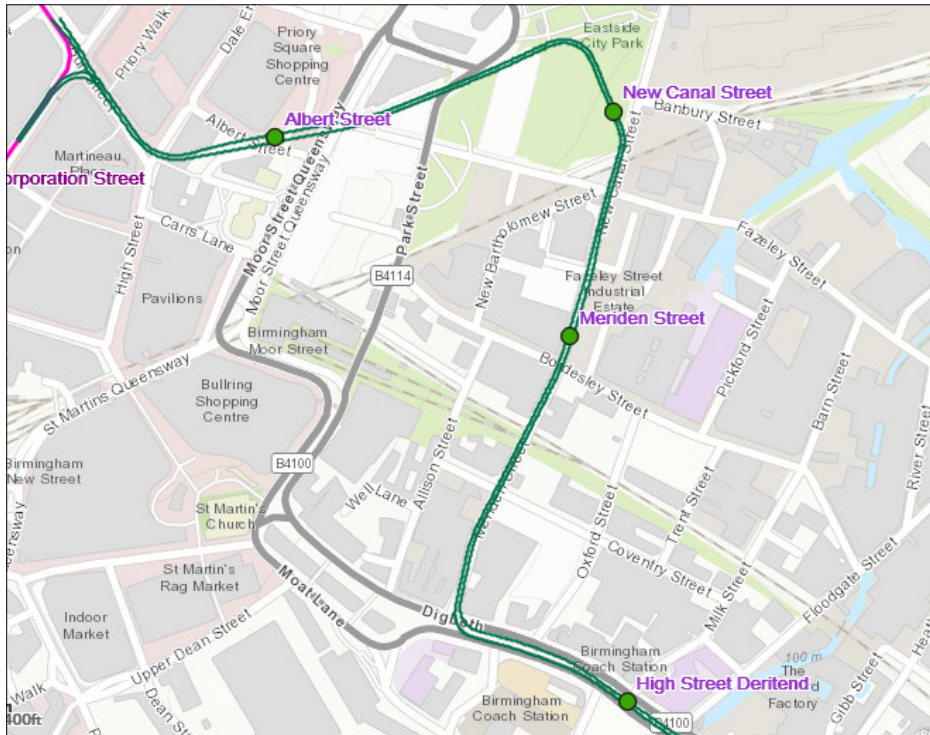
Based on the positive Inquiry and the timing of the Inspector's report it was anticipated that the DfT Orders Unit would have made the Order within the stipulated six month period. Despite this positive position the Order remains to be made and is now six months overdue with consequent impacts on project schedules and cost. Discussions with DfT indicate informally that they are seeking an agreed position between HS2 and WMCA regarding the timing of the construction and operation of the tram prior to making the Order.

Dialogue with HS2 regarding the construction and operation of the Metro during HS2 construction has highlighted areas of perceived cost and schedule risk that need to be addressed. To date an agreed approach to management of these interface risks,

³ This cost excludes any adjustments arising from MMA's formal submission of a target cost proposal (due Q1 2019/20) or arising from the proposed HS2 Development Agreement.

consistent with HS2 and TfWM's programmes is still being developed. WMCA, HS2 and DfT are in ongoing discussions over the route to resolution of these issues thereby allowing the schemes to be progressed in a complimentary manner.

Progression of the HS2/ TFWM Development Agreement is on hold awaiting agreement on the above mentioned interface risks.



Pictured: Birmingham eastside extension route map.

The Midland Metro Alliance has completed and consulted widely on the study of the Digbeth High Street urban realm and has approval for alterations to the alignment of the Metro to provide a passenger transport corridor in the centre and urban realm to the north side of the highway. The City Centre Enterprise Zone/GBSLEP/BCC has provisionally approved funds for this scheme to enable this to be incorporated into the preliminary design for BEE which is nearly complete. BCC's FBC approval of the full contribution (£15m) will take place in line with WMCA governance for the BEE FBC, which commences with TAP in April. The scheme will provide a Metro, Sprint, bus and coach interchange in the remodelled Digbeth High St. A conditional grant agreement is due for signature early January enabling BCC to provide the funding to cover the outline and preliminary design phases.

As a result of the preliminary design development, a number of issues have been identified with the inter-relationship between the tramway and highway geometry at the delta junction of the BEE with line 1 at Bull Street. Significant design has been undertaken by the MMA to produce a solution that fits within the adopted highway boundary and meets the tram performance characteristics. Meetings have taken place jointly with BCC to determine a geometric solution that is acceptable to highways requirements. This final track solution will impact on bus stops on Lower Bull Street and will raise the level of the carriageway. Subsequently MMA have worked with BCC and National Express to determine an acceptable solution and

consequential alterations to the bus provision within this core of the city centre. This work is ongoing and it is hoped agreement in principle will be reached by the end of January. This is likely to lead to significant highways alterations not envisaged within the reference design and may have an impact on the project costs.

In addition to the above issues, activities to inform the benefit to cost ratio associated with the Final Business Case have been impacted by issues associated with the PRISM demand modelling. Work to resolve this issue is ongoing and the team is working towards submission of a Final Business Case to WMCA in April 2019, which once approved through WMCA's governance will be submitted to DfT for final funding approval in the summer.

Trams

The funding package includes provision for procurement and supply of an additional nine trams that have been identified as necessary to allow services to be operated along the following routes:.

- Wolverhampton to Edgbaston
- Edgbaston to High St Deritend
- High St Deritend to Wolverhampton

Wednesbury to Brierley Hill Extension

Project Cost	Construction Start	Passenger Services
£343m ⁴	Q1 2020	Q4 2023
Powers	The Midland Metro (Wednesbury to Brierley Hill and Miscellaneous Amendments) Order granted in 2005 <i>Midland Metro (Wednesbury to Brierley Hill Land Acquisition) Order – submission December 2017</i>	
Funding	BCLGF	£0.4m
	Transforming Cities Fund	£207m
	WMCA	£103m
	Unfunded	£33.2m
	TOTAL	£343.6m
Current Status	Submission of TWA Land Acquisition Order December 2017 Preliminary design ongoing ahead of Target Cost 1 Q1 2019 Outline cost estimate Q2 2019 Progress final business case Q2 2019	
Programme	Opening of Passenger Services 2023	On Programme
Cost	In stage approved budget leading up to Target Cost 1	On Budget

⁴ The forecast out turn cost including Optimism Bias is £420m – June 2017 Business Case's Economic Case E4 - if realised any difference in cost would need to be funded from Alternative sources, As noted TfWM / MMA are completing a full review of programme / project costs.



Pictured: New CGI of Wednesbury to Brierley Hill Metro extension

The Wednesbury to Brierley Hill Extension is 11km long and has the benefit of a Transport and Works Act Order, which was granted in 2005. 7km of the route runs along a former railway corridor with the remainder running on-street in Dudley town centre, Merry Hill and Brierley Hill. The scheme will provide up to 17 stops and will integrate with Dudley Port train station and the new Dudley Bus Interchange as well as improving accessibility to other public transport facilities accessed from the existing operational Metro line and proposed extensions in construction or being planned.

In accordance with current WMCA / NR agreement the project is required to make passive provision for joint future freight train operation (forecast to be no earlier than 2040). The details of the passive provisions to be incorporated into the Metro design continue to be progressed as part of land acquisition discussions with Network Rail. Work is progressing on the WBHE preliminary/outline design and PRISM modelling to support production of the final business case for WMCA approval. MMA are also in the process of identifying activities that would benefit the scheme if progressed in advance of the main construction works.

Funding

WMCA has approved the allocation of £207m of Transforming Cities Funding to the project and has authorised the Alliance to spend a further £12m (cumulative £19.6m) on furthering the scheme development as outlined below. A further £103m has been identified within the HS2 Connectivity package and TfWM are drawing up plans to secure the additional funding required to bridge the identified gap (together with any additional costs identified through the development of the Target Cost 1 Project Proposal)



Pictured: Overnight borehole survey work being carried out in Dudley.

Management of the Statutory Process

This workstream includes the activities needed to secure, by means of a TWA Order, the Compulsory Purchase powers necessary to construct the line. WMCA, supported by MMA, is managing the ongoing statutory processes, with its own experienced team working in partnership with Parliamentary Agents, Counsel, WMCA's legal team and expert witnesses as necessary. The work includes:

- Negotiation with objectors and achieving an agreed settlement via legal agreement or assurances prior to inquiry where possible,
- Preparation of Statement of Case
- Preparation of Proofs of Evidence
- Management of the public inquiry process
- Preparation of rebuttals
- Public Inquiry

There were 24 objections to the Draft Order (with a further objection logged after the deadline had passed) and 12 of these have been withdrawn. Good progress has been made with the remaining objectors and negotiations are progressing well. Under the TWA Guidance, the Secretary of State has decided that an inquiry should be held, and that it will take place March 2019.

Discussion are also progressing with Statutory and Non-Statutory Stakeholders such as Canal & River Trust, Intu, National Grid and Local planning and highway authorities where elements of the scheme are subject to their approval and compliance with existing agreements.

Connecting Sandwell & Dudley

The first edition of the new quarterly WBHE newsletter, Connecting Sandwell & Dudley, was published in November. Content included information about preparatory works being completed, an article about the sponsorship of Parkhead Canal Festival, award winning opportunities, Remembrance Sunday and more. The next edition will be released in February 2019.

Dudley Town Centre Package of Works

The first package of advance utility works in Dudley Town Centre was recently completed on schedule. The work was carried out to prove the location of the existing utility networks in the area, which will help feed the detailed design, and took place over a four-week period in November. Dudley Council's Cabinet Member for Regeneration and Enterprise, Councillor Keiran Casey, Sandwell Council's Cabinet Member for Highways & Environment, Councillor David Hosell, and Midland Metro Alliance's Director, Alejandro Moreno (pictured below) all welcomed the positive progress.



Depot

Potential site of a new stabling facility for the WBH extension trams has been identified adjacent to the line in Sandwell. Positive discussions are progressing with Sandwell Council officers and TfWM propose to take this site forward for planning approval in 2019.

East Birmingham Solihull Extension

Project Cost	Construction Start	Passenger Services
£735 ⁵	2023/4	2026
Powers	Midland Metro (East Birmingham & Solihull Extension) Order to be sought December 2018	
Funding	Enterprise Zone	£183m
	Funding Gap	£552m
Current Status	Preliminary Design and Outline Business Case development progressing Submission of Transport and Works Act Order – September 2018	
Programme		On Programme
Cost	Current stage	On Budget



This 16.5km extension will link growing residential areas and key community destinations such as St Andrews, Bordesley Green, Heartlands Hospital and Meadway with existing and new growth areas including Curzon HS2, Birmingham City Centre office and retail districts, Paradise Circus/Arena Central developments and Brindley Place/Five Ways/Edgbaston to the west, and the NEC/Airport UK Central and HS2 Interchange Station to the east.

The extension of the Midland Metro from Digbeth to east Birmingham and north Solihull will play a key role in delivering the full potential for growth and jobs of HS2 and provide transformational benefits to areas with a persistent and high incidence of multiple deprivation by giving people access to jobs and services, linked to the Greater Birmingham and Solihull Local Enterprise Partnership (GBSLEP) training and skills agenda.

⁵ The forecast out turn cost + optimism bias will be reviewed prior to submission of the Outline Business Case in the second half of 2019

The EBS project is much more than a transport project. By aligning initiatives promoted by a wide local partnership in Education, Health, Employment, Housing and Education it seeks to transform the East Birmingham and North Solihull areas, breaking the people of this area out of the past and present embedded high levels of incidence of multiple deprivation.

The Metro scheme is the key backbone for this transformation, not only providing local jobs in design and construction through the Midland Metro Alliance, but by linking people to major current centres for employment and the future jobs and growth hubs in the Birmingham City Centre Enterprise Zone and UK Central, and by providing a stimulus to development along the corridor.

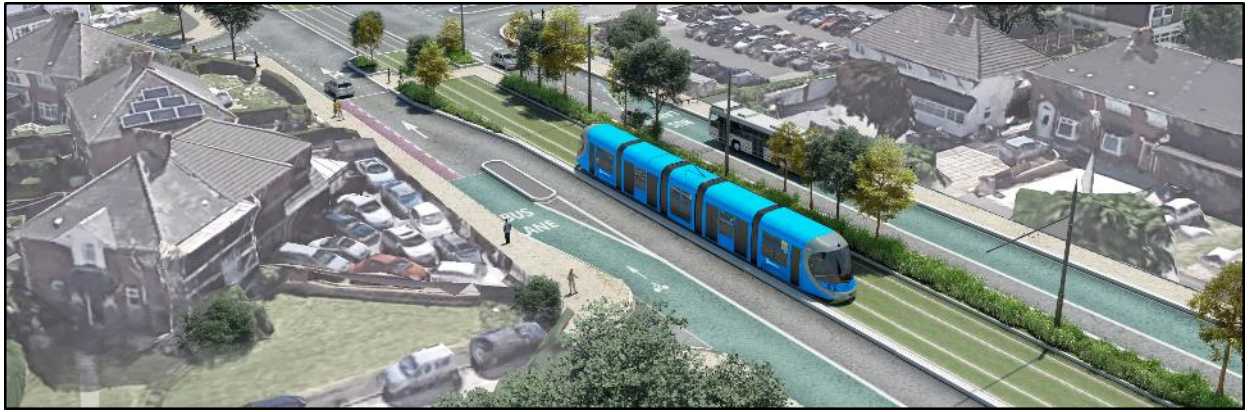
Initial work on the project in 2015-16 focussed on high-level engineering studies to develop the indicative route with which to test the viability of the project through development of an Initial Outline Business Case (IOBC). This work demonstrates a good value for money case exists for the project, with a Benefit: Cost Ratio of 1.6:1, rising to around 2:1 when wider benefits are added to this initial assessment.

The project team remain committed to the delivery of the scheme in 2026, just prior to the opening of HS2, although there is no room for delay if this is to be achieved. The next key milestone is to submit an application for Transport and Works Act Order (TWAo) powers to build, maintain and operate the extension and to confirm the route for funding the full cost of the project.

Concept design has been completed and topographical surveys undertaken to allow the commencement of preliminary design to feed into the TWAo submission. PRISM traffic modelling necessary to assess the impacts of the scheme on the highway network is running behind schedule. This modelling will influence the design decisions in key constrained sections of the route, ahead of the public consultation on the preferred alignment option.

The TWAo submission has been deferred to early 2020 to accommodate the public consultation and modelling work and subject to the necessary approvals from WMCA and confirmation of the overall funding package. This will not impact upon the opening date for the extension (2026)

Briefings to ward councillors along the route commenced in November 2017 following agreement with the Cabinet members for Birmingham and Solihull. Public consultation on the preferred alignment for the scheme will take place in the summer of 2019 and is an essential precursor to the submission of the Transport and Works Order application.



In July 2017 the Investment Board approved funding of £12m to progress the project through the Transport and Works Act process.

Work has continued on the development of the Outline Business Case which will be submitted in summer 2019, having been delayed by issues with the PRISM 5.0 model. Work on the Environmental Statement Scoping Report is also underway and there has been ongoing consultation with key stakeholders to ensure collaboration and integration with other major projects along the route which are due to be developed and delivered within similar timescales.

A study has recently been commissioned to look at the integration of the HS2 Automated People Mover (APM) within the wider public transport offering within the UK Central area and the implications of this on the EBS Metro scheme. Initial findings are anticipated to be shared with key stakeholders in February 2019.



Pictured: Possible alignment of Metro at St Andrews

A budget and plan for taking the project forward beyond March 2019 (when current funding from WMCA expires) is in preparation and will encompass all activities needed to secure the powers and funding for the scheme.

3rd Generation Trams (3GT) – TfWM Metro Team

Project Cost	ITN	First Tram In Service
c. £150m	Q1 2019	Q2 2021
Powers	N/A	
Funding	£1.5m Procurement funding included in Eastside Budget	
Current Status	Market Sounding Workshops completed in Q2 2018 Contract Notice Q2 2018 – completed Evaluation of Supplier Questionnaires – Jan 2019 Invitation to Negotiate ITN Q1 2019 Contract Award Q3 2019	

This project will be progressed by TfWM's Metro team outside of, but with support from, the Alliance and the Operator.

Modelling of the network has been undertaken and in order to operate the extended network with a five minute frequency service, TfWM will need to order a fleet of up to 50 additional trams capable of running catenary free.

The expectation is that the trams will be required to be delivered and commissioned in phases approximately 6 months prior to the opening of the following extensions.

Project	Trams
Edgbaston	6 Trams [Q3 2021]
Eastside	3 Trams [Q1 2022]
Wednesbury Brierley Hill	16 Trams [Q3 2023]
East Birmingham Solihull	23 Trams [2025/2026]

Funding for these vehicles is included in the Eastside, Wednesbury Brierley Hill and East Birmingham project funding envelopes.

To operate the trams additional depot facilities will be required together with upgraded / new control and communications systems. These facilities and systems will need to be procured, delivered and commissioned in parallel with the 3GT procurement.

The information received following the Market Sounding in 2018 indicated the market is very interested and has proven tram products to offer, albeit with some clear concerns on the extent to which catenary free sections can be deployed on future extensions because of range limitations of vehicle power storage technologies. A paper was taken to the Metro Board on the 14th November where approval was granted to issue an amendment to the Contract Notice to inform the market of the removal of tram maintenance.

The amended Contract Notice was issued on the 4th December and no challenges were received. Seven suppliers responded to the SQ, the five suppliers that responded to the original SQ have updated their responses to the maintenance questions and two new suppliers responded, those responses are now being evaluated. The four highest scoring suppliers that meet the minimum thresholds will be pre-qualified and taken through to the Invitation to Negotiate Stage (ITN).

The baselined schedule shows a contract award date of 13th September 2019, however this date is at risk due to the delays associated with the removal of maintenance from the procurement and reviewing two additional responses to the SQ. There is time risk allowance of 71 days between contract award and the delivery of the first tram, so although contract award may be delayed the delivery of the first tram should not be. Mitigation actions will be put in place to try to recover some of the lost time and to make every effort to minimise any further delays.

The suppliers that have responded and are under consideration are:

- Alstom
- Bombardier
- CAF SA
- CRRC Qingdao Sifang
- Durmazlar Makine Sanayi ve Ticaret A.S
- Skoda
- Stadler

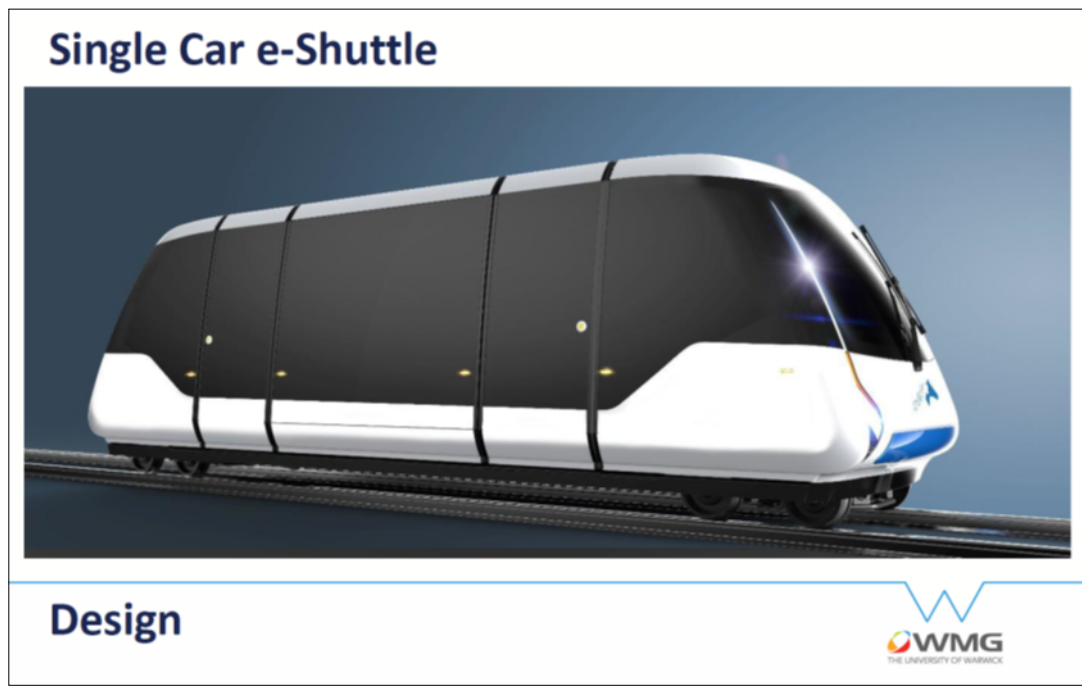
Birmingham City Centre Extension

In this period there have been no further incidents to report on the completed scheme.

All works were successfully completed by Balfour Beatty as identified in the defects tracker. Half of the retention monies were released during November ahead of receipt of final documents for Design certificates and Network Rail sign-off. Final sign-off on Network Rail handback was completed in December with certificates circulated between the three parties.

Works were completed at Snow Hill to install a “tank trap” style measure to reduce the potential for vehicles to drive up the grass track and this has so far proved successful in reducing incursions. Further measures were installed on New Street and Corporation Street in October to reduce the risk to pedestrians following review by the operator. The measures extend down Stephenson Place with additional deterrent paving and signage being installed throughout January 2019. A glazed barrier system at Grand Central has been designed and is planned for installation in March as part of the wider residual measures. Finally, the project will need to complete a stage 4 Road Safety Audit which is slightly delayed whilst the above mitigations are installed. Handback of the highway to Birmingham City Council is forecasted for Q1 2019/20

Coventry Very Light Rail (VLR)



The Coventry Very Light Rail Research and Development Project is focussed around a proposal for the development of a new prototype vehicle along with a new form of thinner, lighter more easily laid, removable and replaceable trackform.

The smaller lighter vehicle is aimed at possible very light rail tramway schemes. It is proposed that ultimately a VLR route network would be operated in a fully autonomous manner. Currently Tramways including Very Light Rail operate in an urban highway environment on a line of sight basis like other road vehicles. Currently the regulatory requirements will not permit fully autonomous operation of tramcars in the highway, therefore requiring staffing of all of the vehicles with a driver initially.

The preferred VLR vehicle to be developed through CCC, WMG and TDI International who are contracted to WMG, is a single unit of some 9m length with driver cab/s and a tram style cabin. A normal operating capacity of circa 50 passengers will be possible, with an expected crush loading of up to a maximum passenger capacity of some 68 people per vehicle. It is currently not intended to allow formations of multiple vehicles or recovery by another VLR vehicle.

It is being assumed the vehicles will be electrically powered through on board batteries. WMG with their battery technology expertise are ideally suited to advise the project on the most appropriate specification of the batteries, and re charging method.

It has been identified that whilst many of the current Light Rail standards/ guidance apply to VLR as a form of tramway and the DfT consider this to be necessary, there is a need to clarify additional VLR standards to be applied specific to the mode. CCC are therefore proposing progressing this matter with appropriate industry representative/s / DfT etc.

A lighter, thinner, possibly modular trackform is also proposed to be developed by WMG that could minimise the need for utilities works associated with the construction of the scheme – a major cost elements in the provision of Light Rail Schemes in the UK. The principle of the acceptability of such a lighter thinner trackform avoiding the need to divert utilities apparatus is yet to be accepted by statutory undertakers.

To permit the testing of the new vehicle and trackform options, including its resistance to wear and the potentially higher loadings of heavy goods vehicle road traffic are a major consideration. A test track is proposed to be constructed at the location of the Very Light Rail National Innovation Centre at Castle Hill, Dudley, to allow the structural and wear related testing of the track form prototypes, in association with the prototype vehicle. In this regard the two projects are also linked from a delivery programme perspective.

The VLR Project is divided into four main work streams these are:-

- WS1 Vehicle – Development of a Prototype Vehicle – lead Organisation WMG
- WS2 Trackform – Research and development of options – Lead organisation WMG
- WS3 First Route - lead Coventry (in partnership with TfWM)
- WS4 VLR Operations - Lead organisation TfWM

Throughout the project, TfWM's Metro Team has been providing tramway related advice, including guidance on Transport and Works Act Order acquisition processes and tramway related safety implications across the work streams.

Route development has been progressed and this has included the need to assess both the prime route option between the City Centre and University and a secondary option between the City Centre and the east of Coventry towards the University Hospital. This has been necessary to support business case assessment and provide evidence of alternative route corridor option assessment for any future TWA Order application process.

The trackform development continues to be one of the more challenging areas of the Research and Development work streams. With the identified loading of the very light rail vehicle of some 3T per axle, the normal loadings of heavy goods vehicles will be significantly greater, requiring an appropriately resistant track construction. The Track development R and D is progressing through its procurement process led by WMG.

The route assessment workstream has involved more work and expenditure than originally envisaged due to the need to undertake additional high level assessment of the Benefit Cost Ratio (BCR) and the need to assess both additional alignment options within the preferred corridor and additional corridor options. This has also adversely affected the initial route identification schedule. It has been identified that the current available high-level Benefits Cost Ratio business case indicator figures for the route options need further refinement to comply with the DfT WEBTAG Scheme Assessment criteria and TfWM have highlighted that this needs to be

rectified to enable appropriate consideration/comparison by both WMCA and DfT for strategic funding prioritisation assessment purposes.

From an operational workstream perspective, it continues to be problematic to prepare necessary operations strategy and requirements until there is further clarity about the outputs of the workstreams 1 to 3. The current spending on this aspect has been low up to now for this reason. TfWM continues to provide input and support where possible to the other work streams though there is a need for further clarification of responsibilities and resourcing requirements/ risks, in association with progression of the proposed route development/ design / TWA Order and Planning powers acquisition processes.

Discussions with CCC have also taken place with respect to refining governance for workstreams 3 and 4 to reflect that they are not part of the original vehicle and track research and development and involve other broader forms of project development and implementation with associated greater scale of costs.

Funding

The project, is being funded by the Government's Local Growth Fund through the Coventry and Warwickshire Local Enterprise Partnership and West Midlands Combined Authority Devolution Deal.

R and D workstreams 1 Vehicle and 2 Track are being managed by researchers from WMG at the University of Warwick in collaboration with Coventry City Council and TfWM.

The workstreams 3 and 4 are being managed by CCC and TfWM respectively with TfWM providing support and guidance to CCC with respect to light Rail (VLR) scheme requirements.

CCC has requested that TfWM jointly promote a TWA Order with CCC for the necessary route powers at the appropriate time. The project is also exploring options to bring WMCA Devolution Deal funding forward.

Bilston Road

Bilston Rd Project Cost	Construction Start	Completion
£16m	12 June 2017	1st December 2017
Powers	Midland Metro Act 1989	
Funding	Funded through HS2 Connectivity Debt	
	£650k contribution from City of Wolverhampton	
Programme		Completed [2 Weeks Early]
Cost		On Budget

Construction work is complete and the tramway is open for traffic.

Construction work progressed well and the Midland Metro Alliance completed the works with the road fully reopening to traffic on 2 December 2017, two-weeks ahead of programme.

The Tramway service resumed on Friday 8 December 2017, following testing and commissioning and driver training.

Testing of the new infrastructure's stray current performance is continuing and MMA are working with TfWM to investigate areas where readings are non-compliant

The corridor remains under warranty from MMA.