

Investment Board

Date	21 March 2022
Report title	Metro – Power Supply Business Case for CRSTS
Portfolio Lead	Councillor Ian Ward - Transport
Accountable Chief Executive	Anne Shaw, Managing Director - Transport for West Midlands Email: anne.shaw@tfwm.org.uk
Accountable Employee	Michael Anderson, Metro Projects Director – Transport of West Midlands Email: Michael.anderson@tfwm.org.uk
Report has been considered by	Investment Panel. (Investment Board, 21 March 2022 – Post WMCA Board).

Recommendation(s) for action or decision:

Investment Board is recommended to:

- (1) Note the requirement for the Line 1 Power Supply investment to enable the expansion of the West Midlands Metro network and approve the Full Business Case for the project.
- (2) Approve a total budget of £17.3m (including a CRSTS contribution of £12.6m) to deliver the Depot expansion, subject to:
 - WMCA securing Government approval towards the regional CRSTS funding settlement together with appropriate terms and conditions; subject to a separate report at this meeting.
 - Confirmation thereafter that the project remains within the £17.3m budget for the scheme when proposals are finalised.
 - Endorsement of the Final Business Case by WMCA Investment Board
- (3) To note the intention to instruct Midland Metro Alliance to deliver this scheme, being the preferred delivery partner.
- (4) To note that the Full Business Case for the project will be considered by Investment Board on 21 March 2022 which is required to fully address the assurance obligations of the investment, noting that any material matters arising from that review will be referred back to WMCA Board in June 2022.
- (5) Authorise the WMCA Monitoring Officer and WMCA Director of Finance so that they can jointly agree for WMCA to enter in to any such contracts which may be reasonably required to allow for the project to be delivered.

1. Purpose

The purpose of this report is to present the Full Business Case for the West Midlands Metro Line 1 Power Supply upgrade scheme. This scheme is one of the named schemes in the WMCA City Region Sustainable Transport Settlement (CRSTS) application, also subject to approval at this meeting and subsequent Department for Transport for approval. This business case is being considered by the Board concurrently due to the timescales required for delivery of the project to support the opening of current extensions of the West Midlands Metro under construction.

2 Background

- 2.1. West Midlands Metro is delivering four extensions to the existing line: Westside, Wolverhampton City Centre, Wednesbury-Brierley Hill, and Eastside.
- 2.2. When Line 1 was constructed, 3 Substations were removed from the design for cost saving purposes, but this reduced resilience and provided an unbalanced power supply on the route.
- 2.3. The equipment on Line 1 is over 22 years, consequently, significant elements are obsolete and access to spares is already an issue.
- 2.4. The existing sub stations are overdue for the upgrade of operationally critical elements.
- 2.5. When the extensions open, the existing Line 1 will become the core of the new network and will therefore carry more frequent operations of trams and will be impacted by the reliability of that core if the additional sub stations and upgrades are not available.
- 2.6. Although a submission was made for LUF funding, this was not successful, and the scheme therefore featured in the Programme Level Business Case for CRSTS approved by WMCA Board in January 2022.
FA

3.0 Power Supply Upgrade

Although the initial findings from an external consultancy recommended the replacement of all electrical plant and equipment together with a significant increase of capacity at all substations on the route. Following a series of reviews, the scope has been rationalised to re-instating the 3 missing substations on Line 1 and upgrading the existing substations with modern control systems and replaced components.

FA

The £4M budget previously agreed at WMCA Board in 2019 against borrowing on future revenues has been used to carry out modelling of Traction Power supplies as the network extensions are completed, substation failures and redundancy needs, and to

deliver one new substation (sub 4) and upgrade Sub 2 in Wolverhampton, which were the most urgent of the requirements.

MMA has been contracted to project manage the delivery of the new substation 4 and the upgrade to substation 2 with Matrix Power as subcontractor delivering the design and components for those upgrades. Substation 2 is now in testing and delivery schedules for substation 4 are being finalised.

A bid was made in 2021 for LUF funding including both Power Supply upgrades and Depot Upgrades, but that was unsuccessful. It is imperative that we continue the remaining power supply upgrades in time for the opening of the extensions to the current operation to ensure a reliable system on which the tram service can operate. Hence the addition of this package to the WMCA CRSTS programme.

The power supply upgrade is closely linked to the depot upgrade, as both are required to achieve the full benefits of the extensions as proposed in their respective business cases.

4 Scope

To achieve that we are proposing to commission MMA to deliver:

- the 2 additional new substations on Line 1 (sub 6A and Sub 7A) and
- the upgrade of the existing ones (Subs 3, 5, 6, 8 & 9)

Delivery will be over 22/23 and 23/24.

This is likely to be the quickest route to market and an extension of their current delivery.

However, we are carrying out a review to check if other procurement routes could offer an alternative delivery option.

5 Financial Implications

In March 2019, the WMCA Board approved £18m for wider network enhancements from which £4m was included for metro Power Supply Upgrade works to accommodate the increase in the fleet of trams to support the wider tram network extension.

The current cost estimate for the Power Supply Upgrade is based on a TC2 for substations 2 and 4 and a TC1 estimate for phase 2 works which has been provided by the Midland Metro Alliance. The results of this are summarised in the table below:

Cost Type (£000's)	2020/21	2021/22	2022/23	2023/24	Total
Construction Cost	652	2,252	4,587	8,039	15,530
Contingency	0	9	586	1160	1,755
Total Cost	652	2,261	5,173	9,199	17,285

The estimate provided includes a 13% risk allowance (excluding sunk costs) as part of the total cost of £17.3m. The cost estimate is based on 2020/21 rates with the application of the BCIS All-in tenders index (Dec 21). Funding for the Power Supply Upgrade works have been summarised in the below table:



Funding (£000's)	2020/2 1	2021/2 2	2022/2 3	2023/2 4	Total
Prudential Borrowing (Approved March 19)	652	2,262	543	543	4,000
WCCE Secured Grants			714		714
CRSTS Funding Requirement			3,914	8,657	12,571
Total Funding	652	2,262	5,171	9,200	17,285

Whilst the above outlines the funding requirements against the phasing of the costs for the Power Supply Upgrade works, the commitment of funding will be required in early 2022/23 at the contract award stage.

As detailed within this report, the availability of the budget for the full scheme will be subject to a review the scheme remains affordable within the requested funding allocation.

The operating costs of the project will be met by Midland Metro Limited and incorporated into the operations and maintenance contract arrangements which exist between WMCA and Midland Metro Limited.

6. Equalities Implications

- 6.1 No equality implications arising from this report. The scheme is likely to have a mainly positive impact through the impact of the extensions providing better connectivity, journey frequency and reliability.

7 Legal implications

- 7.1 There are no legal implications arising in regard to the endorsement for approval set out in (1) (see above) of this report as the works are being carried out by the MMA, under the Programme Alliance Agreement and the Head of Procurement has advised on the procurement for the scheme. If there are any contracts required legal advice should be sought. Legal support is being provided by the WMCA in regard to the deliverables arising in regard to the FBC.
- 7.2 There are small packages of land to be procured for the two new sub stations. Agreements with landowners will be pursued to meet the requirements of the delivery schedule.
- 7.3 Planning permission will need to be sought once final locations are agreed upon.

8. Inclusive Growth Implications

Considering the eight fundamentals of inclusive growth across the Inclusive Growth Framework, the implications of the investments into the expansion of the Wednesbury

depot and the upgrading of the power supply will be positive on Climate Resilience, Connected Communities, and Inclusive Economy.

9. Geographical Area of Report's Implications

This work is along the route of the existing Line 1. The approximate location of the new substations has been defined.

10. Schedule of Background Papers

10.1 Line 1 Power Supply Upgrade – Full Business Case - private