



WEST MIDLANDS
COMBINED AUTHORITY

Board Meeting

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| Date | 19 August 2016 |
| Report title | Trial of D Train Prototype on Coventry-Nuneaton Rail Line |
| Cabinet Member Portfolio Lead | Councillor Roger Lawrence |
| Accountable Chief Executive | Laura Shoaf, Managing Director, TfWM Tel: 0121 214 7444 Email: LauraShoaf@wmita.org.uk |
| Accountable Employee | Laura Shoaf, Managing Director, TfWM |

Report to be/has been considered by None

Recommendation(s) for action or decision:

The West Midlands Combined Authority is recommended to:

1. Endorse a West Midlands Combined Authority (WMCA)/Transport for West Midlands (TfWM) match-funding contribution (£90,000 over two financial years) towards a joint project with London Midland and Coventry City Council which will enable the prototype D Train to be used in passenger service on the Coventry-Nuneaton line for a 12 month trial period, providing additional capacity on that line until the end of the current London Midland franchise in October 2017.

Recommendation(s) for noting:

2. A further decision will need to be taken before the end of the trial having assessed the costs and benefits of the pilot, and consider further opportunities for roll out, if appropriate.

1.0 Purpose

- 1.1 To inform WMCA of the results of further analysis of feasibility of the Vivarail “D Train” concept and highlight its potential application for some services on the West Midlands rail network.
- 1.2 To seek WMCA endorsement for a proposed WMCA/TfWM funding contribution of £90,000 (spread over two financial years) to enable the prototype D train to be hired and tested in service on the Coventry-Nuneaton line for a period of 12 months until October 2017 in order to:
 - Provide an interim solution to capacity problems on London Midland’s hourly train service on this route as a result of the opening of new stations (part-funded by the former Centro) at Coventry (Ricoh) Arena and Bermuda Park (by replacing the current 75 seat single car train with a 3 car D Train capable of carrying up to 300 people);
 - Test the suitability of the D Train as a lower cost alternative to traditional railway trains on this and other West Midlands rail lines; and
 - Demonstrate the potential of the D Train concept to the shortlisted bidders for the next (partially devolved) West Midlands rail franchise and inform their bid submissions in relation to provision of additional rolling stock capacity on such routes.

This WMCA/TfWM contribution will be matched by £90,000 being made available by Coventry City Council/CWLEP and a similar contribution (towards the trial implementation costs) from train operator London Midland.

2.0 Background

- 2.1 As reported to the former West Midlands Integrated Transport Authority on 18 November, there is a national shortage of diesel rolling stock across the British rail network, with no new trains built since the Class 172 trains for London Midland’s Snow Hill Lines services in 2011/12.
- 2.2 The impact of this rolling stock shortage is already being felt in the West Midlands, notably on the Coventry-Nuneaton line where it is proving difficult to source additional diesel trains to lengthen the existing **single car/70 seat train** in order to cater for additional passengers from the new Bermuda park and Coventry Arena stations.
- 2.3 It is equally challenging to find trains to provide any additional services for weekend sporting fixtures at the Ricoh Arena.
- 2.4 As a result the stadium’s Safety Advisor Group has prohibited trains from calling at Coventry Arena station for the first hour after any major event, due to passenger safety concerns.

- 2.5 Whilst London Midland has trialled the “spot hire” of traditional locomotives and coaches (predominantly from the 1960s) to cater for Wasps Rugby match day traffic this operation proved costly (**circa £20,000 per day**) and the former “Inter City” style carriages used were not best suited to local operations or movement of high volumes of passengers.

3.0 The D Train Concept

- 3.1 As report to WMITA in November 2015, a new company “Vivarail” (and SME based at Long Marson in Warwickshire) has set out to create a more immediate low-cost solution to the rolling stock shortage. The “D Train” is essentially the conversion of London Underground surface stock (built by Metro Cammel in Birmingham in the 1980s) into as “new” 2 or 3 car diesel trains for use on the national rail network.



- 3.2 The D Train uses the original Underground train’s corrosion-free aluminium body shell which was refurbished internally and fitted with modern bogies around 10 years ago. The D Train conversion process adds automotive diesel engines to power the existing electric motors, improved structural crash worthiness, new electronics and signalling interface systems for use on the national rail network.
- 3.3 Since the previous report to WMITA, the D Train prototype has progressed from a single demonstrator vehicle to being a proper 2 car train (a third vehicle will also available shortly but is currently awaiting completion of a new interior).



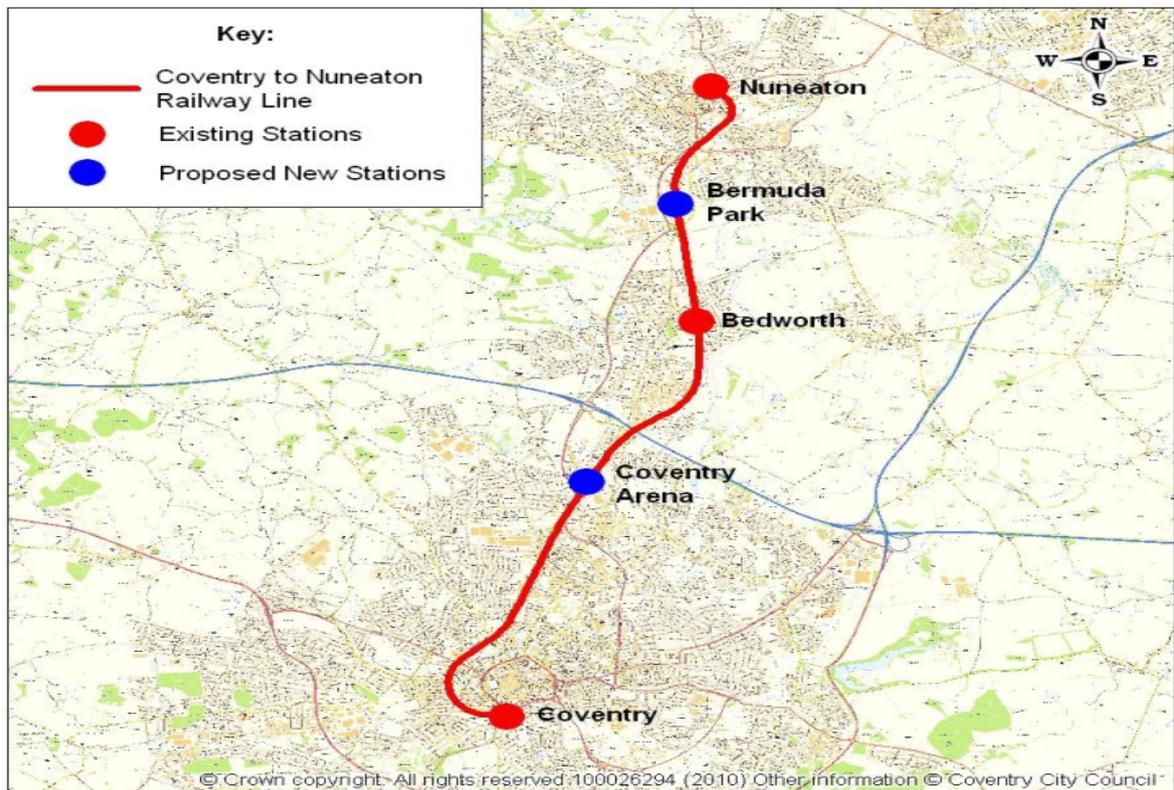
- 3.4 Whilst certifying the prototype train for trial use on the national rail network has taken longer than anticipated, Vivarail has now indicated that the D Train should start initial main line trials from its south Warwickshire base at Long Marston within the next couple of weeks with a view to receiving authorisation to carry fare paying passengers from later this summer.

4.0 D Train Feasibility Analysis

- 4.1 The feasibility work (endorsed by the November 2015 WMITA meeting) undertaken for London Midland indicates that, whilst there are some risks associated with any new train design these issues should be satisfactorily addressed by the rail industry's standard vehicle acceptance process and compliance with or derogation from appropriate industry standards.
- 4.2 Gauging analysis has also been undertaken in order to ensure that the D Train actually "fits" on the Coventry-Nuneaton route.
- 4.3 However, as the train operator, London Midland will also need to amend its own "safety certificate" and re-train a number drivers and conductors before it can actually operate the D Train in service.
- 4.4 This cannot start until Vivarail's own safety certification has been complete, however, there would there would appear to be no major obstacles to the introduction of the prototype D Train on services on the route between Coventry and Nuneaton later this year.
- 4.5 The D Train also appears to be suitable for operation on shorter routes across the West Midlands without any major modification to the original "London Underground District Line" interior seating configuration (which has a mix of seating arranged in bays or alongside the interior walls) and without the expensive provision of toilets which would be unnecessary for relatively short journeys.
- 4.6 The original internal layout also lends itself to dealing with large volumes of people travelling short distances to major events and as such would be particularly suitable for serving venues such as the Ricoh Arena.

5.0 Proposed Trial of the D Train on Coventry – Nuneaton Rail Line

- 5.1 Subject to the above vehicle certification/staff training issues, there appears to be a "window of opportunity" to trial the passenger use of the prototype D Train on the Coventry-Nuneaton for the final 12 months of the London Midland rail franchise until October 2017. **The route of the proposed trial is shown below. Please note the proposed stations in blue are now open.**



5.2 The trial of the three car prototype D Train on this route in place of the existing Class 153 train, would achieve a number of short term operational objectives:

1 Accommodate the additional patronage generated by the two new NUCKLE Phase 1 stations at Coventry Arena and Bermuda Park

These stations have been part-funded by the former Centro (alongside Coventry City Council and Warwickshire).

However, the existing Class 153 75 seat single car train used on these services is inadequate for peak time capacity and a constraint on the stations achieving their full potential for the local commuter markets.

Replacing the Class 153 single car train with 3 car D Train would provide around double the number of seats and an overall capacity of up to 300 passengers per service.

2 Assist in providing an interim solution to problem of match day and major event train services to the Ricoh Arena

The train operator London Midland has been unable to source sufficient additional rolling stock to cater for this significant, but irregular, market. As a result the stadium’s Safety Advisory Group has prohibited the operator from calling at Coventry Arena station for the first hour after any major event.

A trial operation, hiring in locomotives and coaching stock from another operator, was undertaken earlier this year by London Midland, but the cost of this was an unsustainable **£20,000 per day** to hire and staff the train.

Hire of the 3 car D Train as the normal train for the Coventry-Nuneaton service works out at £500 per day (assuming 360 operational days per year).

The 3 car D Train would provide space for a peak load of at least 300 people per train on match days. They are also particularly suitable for event use because of the higher number of doors and faster door opening/closing times which would permit faster Boarding/alighting of high volumes of passengers.

On the strength of the D Train's additional capacity, the stadium's Safety Advisory Group has indicated that it would **remove the prohibition** on trains calling at Coventry Arena station for the first hour after any major event.

Use of the D Train on match days could potentially also be supported by the 2 car train which London Midland has hitherto provided, but this would be subject to separate discussions with the train operator.

- 5.3 It is envisaged that the existing Class 153 single car train will be kept on stand-by at Coventry during the initial phases of the trial and used to cover for the D Train when it is undergoing maintenance.
- 5.4 The D Trains are being developed and produced by local SME "Vivarail" at Long Marston in Warwickshire so the trial of the prototype in the West Midlands will also support local jobs and potentially lead to further D Train orders from other Train Operators and Leasing Companies.
- 5.5 However, it is envisaged that the trial will enable an assessment to be made of the long term suitability of the D Train for use on Coventry – Nuneaton and other similar routes across the West Midlands and identify whether there are any potential operational benefits and/or cost savings from D Train operation.
- 5.6 The trial should also prove helpful in demonstrating the D train concept to the shortlisted bidders for the next West Midlands franchise.

6.0 Financial Implications: D Train Trial Costs and Potential Revenue

- 6.1 The cost of hiring the prototype Class 230 D Train for the 12 month trial period is £180,000 including 6 months maintenance provision.
- 6.2 Coventry City Council and CWLEP have agreed to meet half of this cost with a matching contribution of £90,000 from WMCA/TfWM which will be spread over two financial years (2016/17 and 2017/18).
- 6.3 London Midland's driver/conductor training costs are anticipated to be between £50,000 to £100,000+ (depending on duration of training and timescales). The Department for Transport has agreed that London Midland can fund these costs from franchise revenue as part of its contribution towards the trial service.
- 6.4 London Midland could incur management costs (e.g. due to changes to its Safety Certification) and it is proposed that these are covered-off where possible through use of Coventry/Warwickshire's existing NUCKLE project consultants.
- 6.5 There are also likely to be some additional operational costs associated with using a three car Class 230 D Train instead of a single car Class 153 train which are currently estimated to be in the region of:

6.5.1 6 Months Maintenance (2017/18) £65k

6.5.2 Additional Fuel and Track Access Costs £55k

- 6.6 This gives a potential further financial exposure to TfWM and Coventry of circa £120,000, the majority of which would accrue in the 2017/18 financial year.
- 6.7 However, the allocation of operational additional costs will be subject to negotiation with London Midland, which will accrue many of these in the first instance.
- 6.8 These operating costs should, however, be partly offset through **additional revenue generated** from extra capacity provided by the 3 car Class 230 train and by **some reduction in maintenance costs** for the existing Class 153 fleet.
- 6.9 The best case scenario is that the additional operating costs of the trial will be more than covered by additional revenue and/or potential contributions from other 3rd parties such as Wasps Rugby.
- 6.10 Any outstanding operating cost/revenue shortfall may, however, need to be covered jointly by the trial partners (including Coventry City Council, TfWM and potentially London Midland).
- 6.11 The worst case is that all the operating costs above will need to be fully covered, although this seems an unlikely scenario given the revenue generation potential.
- 6.12 There would be no on-going financial commitment for either TfWM/WMCA or Coventry City Council beyond the scope of the initial 12 month trial.

7.0 Legal implications

- 7.1 Any trial of the D train concept would need to be contractualised with both Vivarail as the vehicle owners and London Midland as the service operators. Under the Transport Act 1968 s10(1) the PTE has the power "(viiiic) with the approval of the Authority, to enter into and carry out agreements with the owner of any locomotive or other rolling stock concerning the persons to whom, or the terms on which, the locomotive or other rolling stock may be let on hire;" – this power has transferred to WMCA.
- 7.2 Any funding arrangements between WMCA/TfWM and other contributors to the trial would also need to be formally documented and to comply with the statutory powers and constitutional requirements of the WMCA upon inception.

8.0 Equalities implications

- 8.1 There are no immediate equalities implications stemming from the contents of this report.
- 8.2 However, the longer term implications of increased overcrowding on the rail network may impair the ability of some users to access rail services and have a consequent detrimental impact on their mobility and access employment, training and services.

9.0 Environmental implications

- 9.1 There are no immediate environmental implications stemming from the contents of this report. The D Trains engines meet latest EU emission standards, and “stop-start” technology optimises engine use. The result is lower fuel consumption, lower emissions, and less noise the equivalent heavy rail vehicles. Low weight further reduces energy uses, and minimises track wear.
- 9.2 The use of “upcycled” mechanical parts, bodysells and bogies also avoids the CO2 caused by new vehicle construction.

10.0 Schedule of background papers

- 10.1 A report on the D Train concept was previously considered by West Midlands ITA in November 2015.
- 10.2 An initial report on the D Train was also considered by STOG in October 2015, with a further updated report presented to STOG in May 2016.