



## WMCA Board Meeting

<b>Date</b>	8 September 2017
<b>Report title</b>	Sprint Vehicles
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<b>Report to be/has been considered by</b>	Sprint Programme Board - 11 July 2017 STOG - 17 July 2017 WMCA Programme Board - 25 August 2017

### The WMCA Board is recommended to:

1. Endorse the recommendation set out in this paper, to proceed to scheme development based on an 18m vehicle option; and
2. Pending decision on recommendation 1, confirm that the Sprint programme should contact DfT and recommend not to pursue 24m derogation.

## **1.0 Purpose**

- 1.1 This paper sets out background to vehicle options, and sets out the parameters against a vehicle decision should be made. It sets out the implication of understanding what the vehicle solution should be, and makes a recommendation on the way forward with vehicle and scheme development.

## **2.0 Background**

- 2.1 The background of Sprint and its position within the West Midlands Strategic Plan, 'Movement for Growth' was clearly set out in the Sprint Board paper 'Sprint – Vehicles options update' considered by the board on the 13th June 2017. Sprint is also well documented in both Birmingham Connected and Solihull Connected as an important part of transport infrastructure to support sustainable growth in our region moving forward.
- 2.2 The pursuit of a 24m vehicle solution was advocated by our leaders at the time Sprint was conceived for the West Midlands. Examples of the 24m vehicle were considered in "towards a world class transport network – supporting growth and regeneration in the West Midlands" (April 2013) which set out a long term strategy and vision framework for the West Midlands. Having observed the 24m vehicles in action in Metz, and the clear similarities to a Metro vehicle (but in a more affordable road based context), there was a clear aspiration to deliver a similar quality of 'on vehicle' environment and experience for our travelling public in the West Midlands.
- 2.3 The pursuit of 24m vehicles was supported by then Centro Chief Executive Geoff Inskip, then Centro Chairman Cllr John McNicholas, then Leader of Birmingham City Council Cllr Sir Albert Bore, and endorsed with a letter of support by National Express as representation of operator interests.
- 2.4 As such, pursuit of a derogation permitting the use of 24m public transport (PT) vehicles on our network began, and a scheme and business case which pursued delivery of the 24m vehicles on the first Rapid Transit scheme (A456 Hagley Road) ensued. The scheme promoted at this time was a low cost scheme, with half the identified budget allocated to procurement of the vehicles, with minimal highway intervention.
- 2.5 The scheme would operate between Birmingham and Quinton, largely in the Birmingham area with minimum intervention with the Black Country. GBSLEP supported the scheme through LGF1, and scheme development commenced. The original intention for the service to extend to Halesowen was not given the same support by BCLEP at the time.

- 2.6 The A456 Hagley Road business case considered both 18m and 24m vehicle options on the service, demonstrating a better BCR with 24m vehicles (BCR 3.77(18m) 3.97(24m). The scheme does provide some infrastructure and priority for Sprint vehicles, predominantly through signal priority in the off peak. It does include some additional bus lane on the Hagley Road between Five Ways and Highfield Road. The majority of the journey time savings are attributed to the multi door boarding, off board ticketing solution and lower dwell time offered by the vehicle itself.
- 2.7 To date the scheme has the following business case approvals;
- GBSLEP full approval (April 2017) - £8.1m approved including a caveat on £3.4m allocated to vehicle contribution given the uncertainty of derogation, Clean Air Zones, and continued appetite for 24m vehicles. A change request in 2018 will be required to secure the £3.4m contribution.
  - WMCA OBC approval (May 2017) - £2.4m in addition to the £0.8m already provided by the ITA towards overall scheme delivery. This approval has progressed through the WMCA Assurance process.
  - Operator contribution - £3.4m match to GBSLEP's contribution on vehicle procurement. This has yet to be secured
- 2.8 In June 2016, the Sprint programme team presented to the then Sprint Board, a breakdown of the level of investment the programme would make on this first scheme between investment in vehicles and investment in infrastructure. It made some direct comparisons to BRT schemes elsewhere, and made recommendation that additional funding to support highway interventions on the scheme could significantly further enhance the journey time benefits, especially in the peak hours.
- 2.9 In February 2017, the Sprint team, the Managing Director for TfWM, senior officers at Birmingham City Council (BCC) and the BCC Cabinet Lead for Transport, met to determine the appetite for the delivering more priority for Public Transport on the A456 Hagley Road in support of BRT. Additional Investment for Sprint, and on this corridor, had already been identified within the HS2 Connectivity Package as part of the WMCA devolution deal.
- 2.10 The outcome was favourable, and requesting more priority for public transport. Sprint clearly sits in BCC policy and strategy, and given emerging issues of Clean Air Zones, Network resilience, and increasing congestion, the Sprint Programme was requested to;
- Pursue a phase 2 scheme on the Hagley Road that will deliver more PT priority infrastructure for the benefit of both Sprint and background services (funded through the HS2 connectivity package)
  - Deliver early benefits to the existing PT network works as a staged approach
  - Deliver Park and Ride supported by BRT.

- 2.11 This work is now progressing through an additional scheme 'A456 Hagley Road Phase 2' and includes an extension to Halesowen (separately funded within the HS2 Connectivity package). Park and Ride is also being considered, but as yet, is unfunded. Delivering early benefits to PT, in particular, the bus lane between Five Ways and Highfield Road is being pursued through Stage 1 works.
- 2.12 The question of the vehicle solution remains. Whilst there has been a clear shift and re-focus on infrastructure, the programme still needs to understand what vehicle it is promoting which is the subject of this paper to resolve.

### **3.0 Impact on the Delivery of the Strategic Transport Plan**

- 3.1 In support of this vision the West Midlands Strategic Transport Plan commits us to:
  - 3.1.1 Introduce a fully integrated rail and rapid transit network that connects our main centres with quick, frequent services, and which is connected into wider local bus networks through high-quality multi-modal interchanges.
  - 3.1.2 Increase the number of people that are within 45 minutes travel time by public transport to a minimum of three main centres and the two HS2 stations in central Birmingham and the UK Central Hub.
  - 3.1.3 Reduce transport's impact on our environment – improving air quality, reducing carbon emissions and improving road safety.
  - 3.1.4 Use transport improvements to enhance the public realm and attractiveness of our centres
  - 3.1.5 Ensure that walking and cycling are a safe and attractive option for many journeys especially short journeys, by delivering a strategic cycle network and enhancing local conditions for active travel.
  - 3.1.6 Facilitate the efficient movement of people on our transport networks to enable access to education and employment opportunities and health and leisure services.
  - 3.1.7 Enable businesses to connect to supply chains, key markets and strategic gateways, including Birmingham Airport, through improved strategic connections by road and rail.
  - 3.1.8 Maintain and develop our transport infrastructure and services to ensure they are efficient, resilient, safe and easily accessible for all.
- 3.2 The Sprint network is expected to form a key part of the Metropolitan Tier of transport outlined in the Strategic Transport Plan, as distinct from conventional bus which supports the local tier of transport provision.
- 3.3 The guiding philosophy for this network is to transform the ability of residents to get to a wide range of jobs and activities across the conurbation. This is expressed as every resident of the metropolitan area should be able to travel from their home and be able to get to a range of at least three main strategic centres, including the regional centre Birmingham, within 45 minutes in the AM peak.

- 3.4 The selection of vehicle and definition of vehicle requirements is key to the successful delivery of the Strategic Transport Plan vision.

## 4.0 Benefits

- 4.1 The key benefits of the Sprint Programme are anticipated as:

- 4.1.1 Sub 45 Minute Travel time between key centres leading to modal shift and greater economic development;
- 4.1.2 Improved infrastructure for active travel modes and improved interchange to encourage modal shift and improved health;
- 4.1.3 Reduced emissions and cleaner environment;
- 4.1.4 Better connected communities improving social wellbeing.

## 5.0 Supporting information and guidance

- 5.1 The following should be considered in determining a vehicle solution for Sprint;

- 5.1.1 On the 17 February 2017 the WMCA Board approved the **HS2 Connectivity Package** which provides provisional funding for delivery of a Sprint network to the value of £280m. This includes the following Sprint routes;

Route	Provisional Funding Envelope
Hagley Rd Phase 1	£14.65M
Hagley Rd Phase 2	£50.0M
Halesowen Extension	£10.4M
Sutton to Birmingham via Langley	£27.1M
Longbridge to Birmingham	£42.6M
Walsall Birmingham	£33.1M
Dudley Birmingham	£19.3M
Hall Green – Solihull – Airport	£32.1M
Birmingham – Airport (A45)	£50.0M
TOTAL	£279.3M

- 5.1.2 The **Bus Services Act 2017** recently became law and provides an enhanced set of powers for elected Mayors and Mayoral Authorities.
- 5.1.3 On the 5 May 2017 Defra published its draft **UK Air Quality Plan** for tackling nitrogen dioxide ('Improving air quality in the UK: tackling nitrogen dioxide in our towns and cities').
- 5.1.4 The WMITA agreed the '**Sprint Standards**' in March 2016. The expectation of vehicles are extensively covered in the Sprint Standards, and whilst specific vehicle size or length are not specified, the features and principles of the Sprint vehicles required to deliver a step change from bus and provide a premium passenger experience are listed in Figure 1:

**Figure 1** - Vehicle requirements, extracted from the Sprint Standards (2016)

	Target standard – required for high standard Sprint. Provides a high level of attractiveness and efficiency	Minimum standard – required for a good standard of Sprint. This is an acceptable solution that provides a good level of attractiveness.
Factor	Target Standard	Minimum standard
<b>Vehicles</b>		
Identity	Easily distinguishable with an appearance closer to tram and multidoor boarding	Easily distinguishable with an appearance closer to tram and multi-door boarding
Features	Free wi-fi, onboard CCTV, on board real time information, and next stop announcements	Free Wi-Fi, on board CCTV, on board real time information, and next stop announcements
Accessibility	Access for all	Access for all
<b>Fares and fares collection</b>		
Fares	Payment systems to encourage cashless payment and fares aligned with local bus services	Payment systems to encourage cashless payment and fares aligned with local bus services
Ticketing	Ticketing facilitated through conductors	Off board ticketing and on board validation
<b>Environmental credentials</b>		
Emissions	Better than Euro VI technology	Better than Euro VI technology

#### 5.1.5 Headline benefits of Sprint include:

- 5.1.5.1 A new mode of transport – bus rapid transit with the comfort and speed of light rail;
- 5.1.5.2 State of the art vehicles, with low noise, low vibration, and low emission vehicles (Euro VI or better emissions, with an aspiration to operate with zero emission vehicles when practicable);
- 5.1.5.3 Great passenger comfort, with airy interiors, plenty of legroom, and air conditioning;
- 5.1.5.4 Wi-fi, audio visual announcements, and onboard next stop information;
- 5.1.5.5 Journey times that will be at least 20% quicker than conventional bus;
- 5.1.5.6 High quality customer service;
- 5.1.5.7 Distinctive brand and identity.

#### 5.2 The Core Principles TfWM believe must be maintained for Business case integrity or have been subject to a direct ask through our stakeholder engagement are:

- Multi-door boarding with good accessibility;
- Payment separate to driver;
- Onboard environment –
  - Low Noise and smooth ride quality (include automated passenger acceleration)
  - Open with good passenger circulation
  - Flat floor throughout the vehicle

Clean (good maintenance)  
CCTV and charging points  
Wifi and next stop information  
Consistent branding across Sprint network (including consistent high quality infrastructure)  
Pricing structure – seamless integration with nbus  
Engine hybrid technology – better than euro VI  
Zero emission on parts of route  
Cyclist detection software (18m/24m)

- 5.3 Business cases to date have considered 18 and 24m vehicles with a seating and standing capacity of 110 for the 18m vehicle and 145 for the 24m vehicle. Greater passenger benefits are recognised with larger vehicles, both in terms of capacity (particularly beneficial when considering cross city routes), and number of vehicles required to serve the network, reducing the overall number of PT vehicles on the network and in particular within Birmingham city centre.

## 6.0 24m Vehicle Derogation

- 6.1 24m vehicles are not currently permitted to operate on UK roads. To date, TfWM are awaiting on a response to Ministers view on a derogation that would enact EU law, permitting their use here in the UK. The DfT have been seeking legal/policy advice as a change in the current law would mean that 24m vehicles could operate anywhere in the UK. Alternatively, it is thought that a local derogation could set a precedent. Potential issues of this that the DfT foresee include,

- Current mechanisms available to local authorities to restrict their operation. For example - on roads that are too narrow or where proposed stopping places would be dangerous.
- Manoeuvrability – additional length reducing the manoeuvrability of the vehicle, causing inconvenience to other road users and potentially present an increased risk of accidents and injuries.
- Safety issues at Railway Crossings and Overtaking – increased time that a longer vehicle would take to clear a junction or a railway crossing, execute a manoeuvre or to be overtaken.
- Effect on infrastructure. Roads – effects on structural and surface road wear. Bridges – effects on vertical loading, collision on supports.
- Vehicle containment barriers – effects on the performance and behaviour of vehicle containment barriers
- Rest stops, parking / interchange points – effects on access, manoeuvrability, size of parking bays
- Safety impact of these vehicles being potentially used as long distance coach services on motorways and major “A” roads.

- 6.2 Some of these issues have been addressed through information provided to the DfT in support of their evidence gathering exercise. Whilst TfWM first approached the DfT on this matter in June 2015, we still await them submitting the evidence and recommendation to the Minister to further consult on this matter. Following the general election, it will be for Minister Jesse Norman to consider the evidence and advise on a decision to move this forward to the next stage. TfWM are engaged with the DfT and await confirmation that this has been passed on for a decision.

## **7.0 Requirements for a Vehicle decision**

- 7.1 A decision on the nature of the vehicle to be applied on the Sprint network is required for the following reasons;
- 7.1.1 Business Case – many of the benefits attributed in the business case development for schemes are attributed to features of the vehicle. This includes factors such as journey time benefit, journey ambience and elasticity values for use of the service offer. These quantified benefits are important for the development of business cases, but also to the integrity of the business cases should significant changes be made at a later date. Outline Business cases for schemes within the HS2 Connectivity Package will be developing over the coming year.
  - 7.1.2 GBSLEP requirement – update in 2018. As set out in para 2.7, there is a requirement to respond to the LEP in 2018 with a decision on vehicle selection in order to secure their £3.4m contribution to vehicles for the first scheme.
  - 7.1.3 Re-visit vehicle procurement framework – TfWM currently have a vehicle procurement framework with a preferred supplier of both 24m and 18m vehicles. However, suppliers were precluded should they not be in a position to offer a 24m solution. Should WMCA decide not to pursue 24m vehicles, this framework will need revisiting. The DfT have also noted this when considering draft chapters of the A45 scheme Outline Business Case.
  - 7.1.4 Operating models and operator procurement – the vehicle selection process will have an implication on operating models and costs. Factors such as number of vehicles, housing and maintenance, infrastructure required to operate the vehicles including depot, and other infrastructure in the event of zero emission technologies, staffing, all will be dependent on the vehicle chosen. To date TfWM do not have an operator for Sprint.
  - 7.1.5 Advance review on zero emission options – once TfWM have a vehicle in principle identified for Sprint, further detailed consideration will be made of zero emission technologies available to support the propulsion on the vehicle. TfWM are aware that there are more zero emission options available on a 18m solution compared to the 24m.
  - 7.1.6 Provide more certainty to scheme – the matter of the vehicle has caused some concern by those required to champion the scheme, particularly within a Local Authority and Members context. A decision on the vehicle will help re-frame the programme focused on infrastructure, and allay concerns over what the vehicle may or may not be.

## **8.0 Impact on Infrastructure**

- 5.1 The impact on highway infrastructure of a 12m, 18m and/or 24m vehicle has been reviewed across all proposed routes on the current Sprint network.

- 5.2 This review highlights that significant infrastructure changes are required to deliver bus priority with any vehicle type (between 15 and 19 junction changes). Although the 18m and 24m options do require more interventions across the network than the 12m option (13 compared to 1), these changes are unlikely to be challenging or costly.
- 5.3 The main difference in impact on the highway is at Sprint stops. The 24m vehicle requires more space at each stop than the 18m vehicle, and the 18m vehicle will require more space than 12m vehicles currently used. Therefore, the size of the vehicle will determine the impact on parking and access in area adjacent to stops. Whilst the changes to accommodate a 24m vehicle over an 18m vehicle are not likely to incur significant additional cost, the 24m vehicle option will be more locally challenging to deliver and require more stops to be relocated.

## 9.0 Proposed way forward

- 9.1 The Sprint programme is proposing that the Programme Board endorse a decision to pursue an 18m option based on the following;
  - 9.1.1 A need to progress the programme and scheme development
  - 9.1.2 Feedback from the 7 authorities, LEPs and other interested stakeholders on the appetite for a 24m solution.
  - 9.1.3 Some Cabinet Leads and Members have expressed reservations or do not support the idea of a 24m vehicle.
  - 9.1.4 Uncertainty of a decision on 24m derogation
  - 9.1.5 The 18m alternative to the 24m maintains standards and credibility of already funded business cases and the Sprint target standards.
- 9.2 Advantages to making this decision now include;
  - 9.2.1 More acceptable to local authorities – can move forward with delivery of definition, concept, and scheme development
  - 9.2.2 Could maintain to deliver Sprint quality and target standards with an 18m
  - 9.2.3 More vehicles on the market, more manufacturers and competition to drive down prices
  - 9.2.4 More propulsion/zero emission options on an 18m
  - 9.2.5 Similar schemes are being delivered in the UK, e.g. Belfast
  - 9.2.6 No derogation required – no further delay anticipated to the exploration of a vehicle solution
- 9.3 Implications
  - 9.3.1 Would affect operational costs. Lower capacity vehicles could result in more vehicles being required to fulfil the demand of the network, with many of the same operational costs and challenges. Conversely it enables more flexibility on schemes with lower initial demand to deliver capacity requirements at lower operational costs
  - 9.3.2 Scheme would be designed for 18m, in terms of on route kerbspace identified, and in particular in city and other urban centres where stop infrastructure would be designed for 18m not 24m. Subsequently it would be difficult to introduce larger capacity vehicles at a later date
  - 9.3.3 Given that Programme scope now includes for cross city routes, and opportunities for Park and Ride, the demand case for high capacity vehicles such as the 24m vehicle is further strengthened

- 9.3.4 Any decision on depot requirements, layout, and design, would be based on an 18m vehicle which could be costly/inhibitive to introducing 24m vehicles at a later stage

## **10.0 Wider WMCA Implications**

- 10.1 There are limited wider WMCA implications as the Sprint Network is primarily contained within the constituent member areas.

## **11.0 Financial implications**

- 11.1 The intention to fund the vehicle acquisition cost from within the existing, agreed budget for each route remains unchanged by the recommendations within this report.
- 11.2 The volume of fleet will be determined as the network is developed and established. Whilst there is no definitive answer regarding the acquisition cost of the fleet including 24m and / or 18m vehicle sizes, the overall costs are expected to be broadly comparable, partly due to intentions to run 18m vehicles on selected routes regardless of the derogation outcome.

## **12.0 Legal implications**

- 13.0 The legal implications will be determined by the nature of the vehicle chosen and the commercial operating model selected. Further guidance will be sought during this process.

## **14.0 Equalities implications**

- 14.1 TfWM will undertake a further equalities assessment for each proposed vehicle type.

## **15.0 Schedule of background papers**

Sprint Programme Board. 13 June 2017  
**Sprint – Vehicle options update**

Sprint Programme Board. 11 July 2017  
**Sprint – Vehicle options update**

STOG. 17 July 2017  
**Sprint vehicles**

WMCA Programme Board. 25 August 2017  
**Sprint Vehicles**