West Yorkshire Combined Authority | Tracy Brabin Mayor of West Yorkshire

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Task Order

This Order Form is dated

BETWEEN:

(1) **WEST YORKSHIRE COMBINED AUTHORITY**, whose registered office is at Wellington House, 40-50 Wellington Street, Leeds, LS1 2DE (the "**Buyer**"); and

(2) **BAMFORD BUS COMPANY LIMITED (Trading as Wrightbus)**, a company incorporated under the laws of England and Wales with company number 12214576 whose registered office is at North Bailey House, 12 New Inn Hall Street, Oxford, United Kingdom OX1 2RP (the "**Supplier**").

This Order Form is made under and forms a Contract under the Crown Commercial Services Framework Schedule 6 (Call-Off Reference CA99099) dated 30 March 2026 (the "**Master Agreement**"). The Contract formed by this Order Form between the Supplier and the Purchaser incorporates the terms of the Master Agreement. All terms defined in the Master Agreement and used in this Order Form shall have the meanings given to them in the Master Agreement.

Lot Number and Order Number	Lot 1- Order 1 Purchase Order to be shared within 7 days of task order
Number of Vehicles	42 x GB Kite Electroliners
Price per Vehicle	S43(2) - Prejudice to Commercial Interes
Specification	According to specification document 'AY864-884 version 4' published 10th April 2026
Optional Extras & Price	Guidewheels to be fitted on 17 buses S43(2) - Prejudice to Commercial Interests
Total Price	S43(2) - Prejudice to Commercial Interests
Specification Freeze Date	27th March 2026
Warranty Terms	S43(2) - Prejudice to Commercial Interests
Scheduled Bus Completion Dates	September - October 2026
Onward Delivery Dates	January – March 2027
Special Tools & Diagnostic Equipment	According to the Master Agreement
Training	According to the Master Agreement
Payment terms	According to the Master Agreement

Signed by…… Signed by……

Title ……..

Date ……..

Duly authorised for an on behalf of

WEST YORKSHIRE COMBINED AUTHORITY

Title ……..

Date ……..

Duly authorised for and on behalf of

BAMFORD BUS COMPANY LIMITED

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Lot Number and Order Number	Lot 2 - Order 1 Purchase Order to be shared within 7 days of task order
Number of Vehicles	59 x StreetDeck Electroliners
Price per Vehicle	S43(2) - Prejudice to Commercial In
Specification	According to specification document attached 'AY698-756 version 1' published 1st April 2026
Optional Extras & Price	Guidewheels to be fitted on 20 buses S43(2) - Prejudice to Commercial Interests
Total Price	S43(2) - Prejudice to Commercial Interests
Specification Freeze Date	27th March 2026
Warranty Terms	S43(2) - Prejudice to Commercial Interests
Scheduled Bus Completion Dates	September - October 2026
Onward Delivery Dates	January – March 2027
Special Tools & Diagnostic Equipment	According to the Master Agreement
Training	According to the Master Agreement
Payment terms	According to the Master Agreement

Signed by……

Title ……

Date ……

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Date ……

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Task Order

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Lot Number and Order Number	Lot 2 - Order 2 Purchase Order to be shared within 7 days of task order
Number of Vehicles	91x StreetDeck Electroliners
Price per Vehicle	S43(2) - Prejudice to Commercial Interests
Specification	According to specification document attached 'AY698-756 version 5' published 9th April 2026
Optional Extras & Price	Guidewheels to be fitted on 12 buses S43(2) - Prejudice to Commercial Interests
Total Price	S43(2) - Prejudice to Commercial Interests
Specification Freeze Date	10th April 2026
Warranty Terms	S43(2) - Prejudice to Commercial Interests
Scheduled Bus Completion Dates	September - October 2026
Onward Delivery Dates	January – March 2027
Special Tools & Diagnostic Equipment	According to the Master Agreement
Training	According to the Master Agreement
Payment terms	According to the Master Agreement

Signed by..... Signed by.....

Title ……..

Date ……..

Duly authorised for an on behalf of

WEST YORKSHIRE COMBINED AUTHORITY

Title ……..

Date ……..

Duly authorised for and on behalf of

BAMFORD BUS COMPANY LIMITED

West Yorkshire Combined Authority | Tracy Brabin Mayor of West Yorkshire

CONFIDENTIAL

Depot Strategy

Exempt Appendix due to Commercial Sensitivity

Bus Reform Programme

S40(2) Personal data / 30 January 2025

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Background

Not in scope

Not in scope

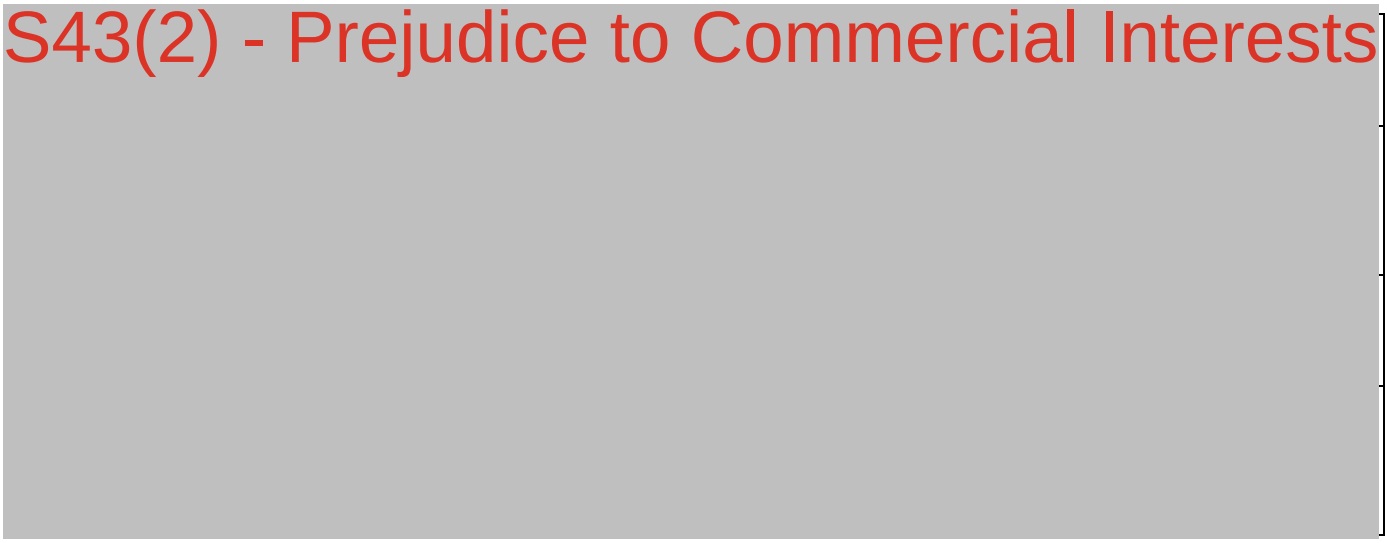
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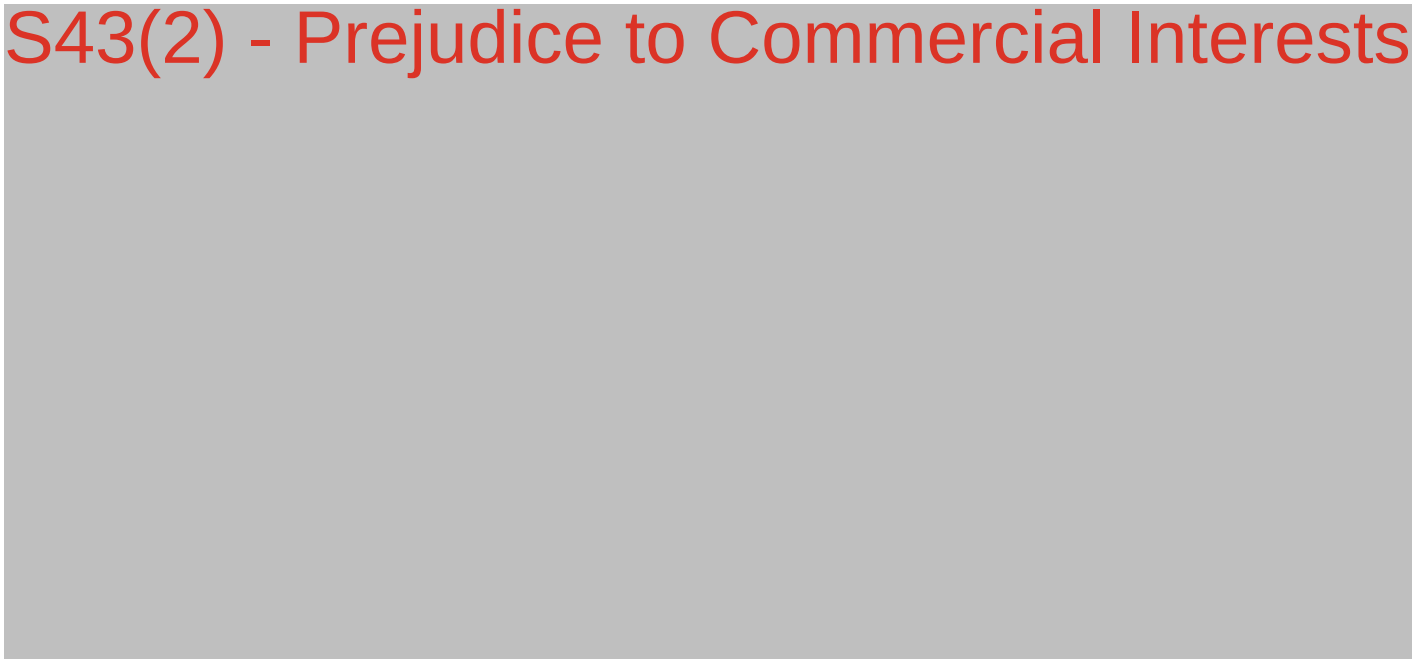
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S43(2) - Prejudice to Commercial Interests



S43(2) - Prejudice to Commercial Interests

Approach to depots

Not in scope

Not in scope

Not in scope

Not in scope

The 10 strategic depots need to be capable of providing zero-emission bus fuelling/charging depending on whether the buses operating from that depot will be powered by hydrogen or electric, in line with the target of a zero-emission fleet by 2036 included within the Bus Service Improvement Plan and the Combined Authority's 2038 net-zero region ambition Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

S43(2) - Prejudice to Commercial Interests

S43(2) - Prejudice to Commercial Interests

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Strategic Assessment of depots

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Strategic objective alignment

Not in scope

Not in scope

Not in scope

Not in scope S43(2) - Prejudice to Commercial Interests

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Not in scope

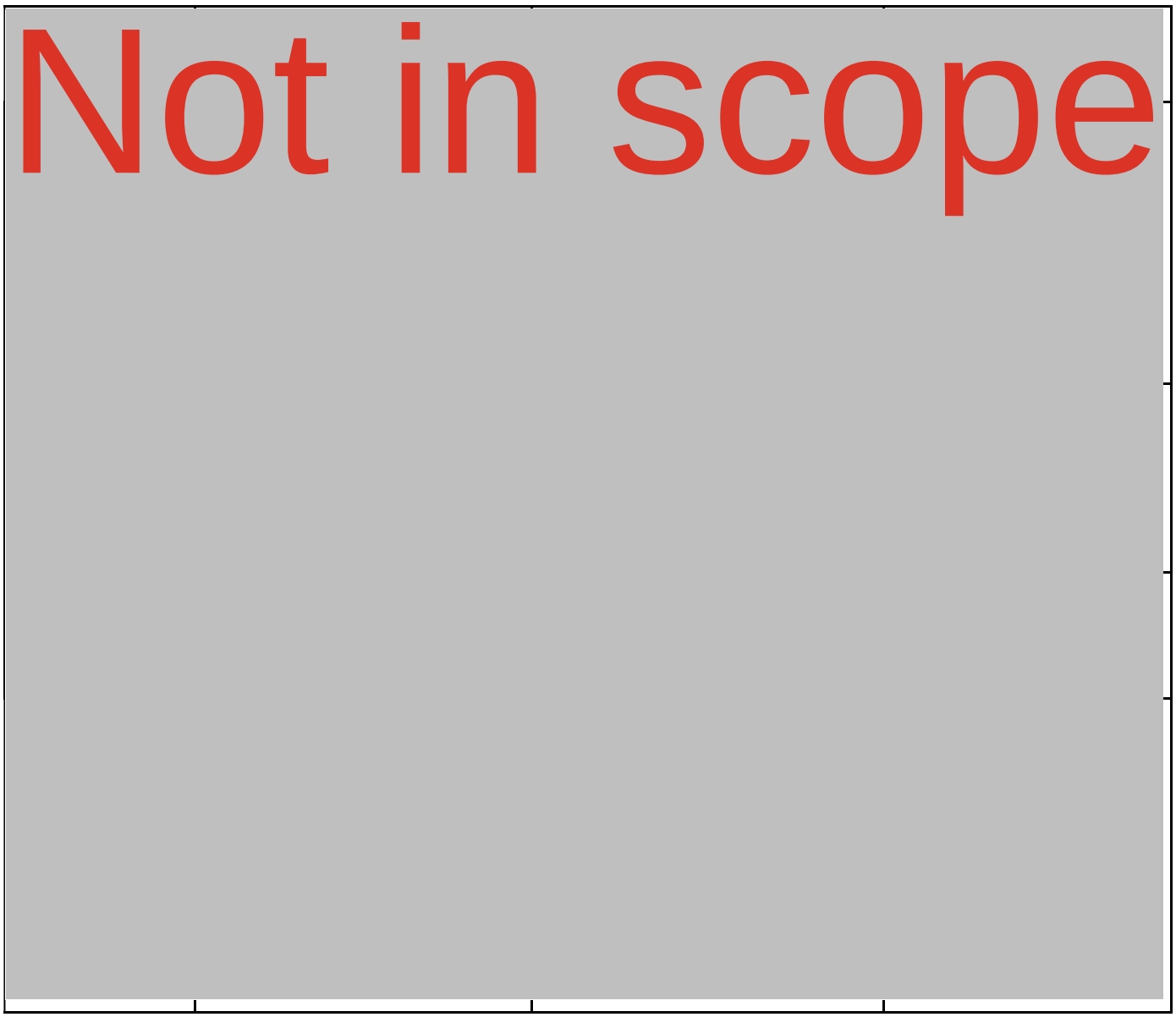
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The table below sets out the objectives for bus franchising across two areas; the whole journey, and an improved travel experience for citizens, and considers how the depot strategy could help to achieve these aims.

1: The whole journey, enhancing the contribution of the bus system towards the Combined Authority's Transport Strategy 2040 and wider policies.			
Objective		**Impact of depot strategy**	**Links to wider programme**
Not in scope	Not in scope		
Environment	Establishing a transport network that helps to reduce the overall impact of transport on carbon emissions and air quality, and increases our resilience against climate change, including via zero-emission buses.	Ownership over strategic depots will allow for leadership over the transition to zero emission buses and the wider decarbonisation strategy, bringing additional benefits to fleet specification and delivering greater customer consistency in respect of fleet provision.	Greater ability to influence fleet strategy and achieve zero-emission ambitions in wider organisational policy.
Not in scope	Not in scope		

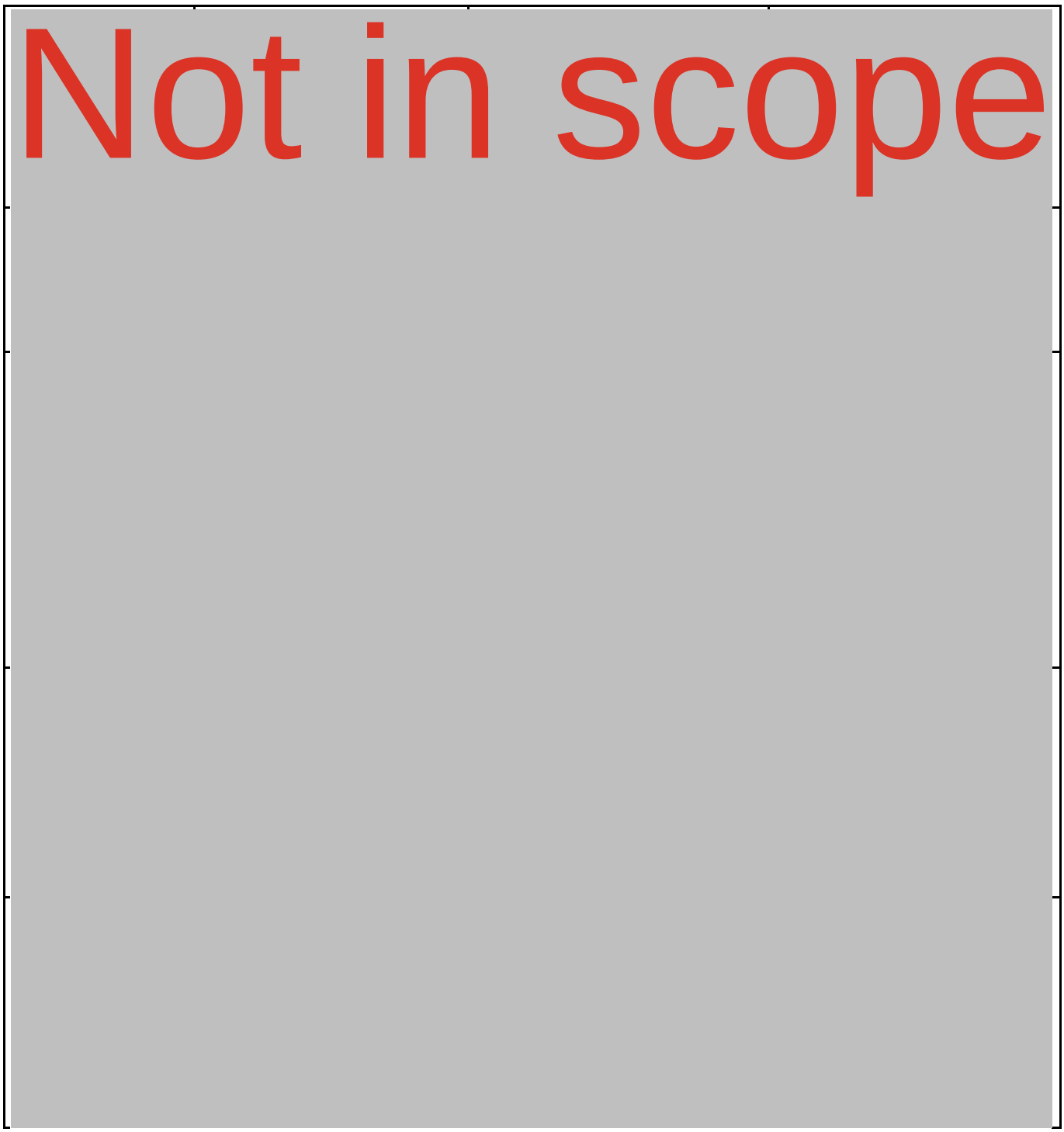
Not in scope



Not in scope

Not in scope





Benefits and risks

Through assessing the alignment of strategic objectives and the Commercial Success Factors across the Assessment the suggested approach can deliver benefits and improvements compared to the reference case in the delivery of depots. These benefits can be summarised as:

- Not in scope
- Not in scope
- Environmental benefit – the control offered by depot ownership allows the Combined Authority to have greater oversight and planning over the transition to a zero-emission

bus fleet, gives the Combined Authority greater power over the fleet investment plan and puts control of the emissions from the depot facilities with the Combined Authority.

- Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

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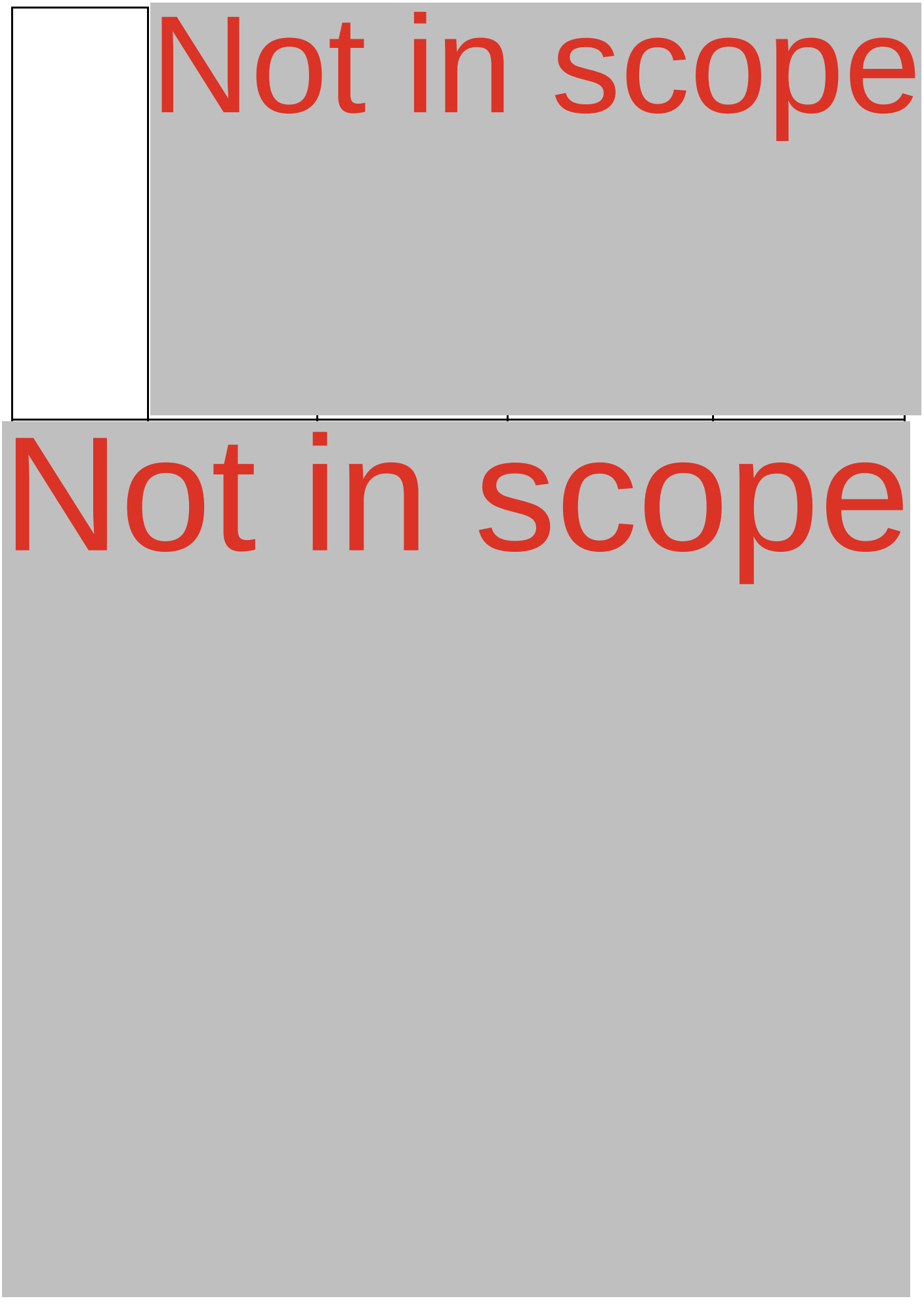
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Not in scope

Not in scope to S43(2) - Prejudice Not in scope

Heavy Woollen

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Options Appraisal

Not in scope

S43(2) - Prejudi Not in scope

S43(2) - Prejudice to Commercial Interests .

S43(2) - Prejudice to Commercial Interests

Not in scope

Suitability for ZEB

Both the Dewsbury and Heckmondwike depots are in an area that is suitable for either hydrogen or electric buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is enough capacity in the supply to the area to enable electric vehicle charging.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that either depot would be suitable for hydrogen. The proximity to these types of buildings would prevent hydrogen being stored on site due to the impact if it was to explode.

Not in scope

S43(2) - Prejudice Not in scope

Kirklees

Not in scope

S43(2) - Prejudice Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Header

Not in scope

Options Appraisal

Not in scope

S43(2) - Prejudice Not in scope

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Not in scope

he S43(2) - Prejudi Not in scope .

Not in scope

Not in scope

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Suitability for ZEB
The Huddersfield depot is an area that is suitable for either hydrogen or electric buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is enough capacity in the supply to the area to enable electric vehicle charging.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this depot would be suitable for hydrogen.

Not in scope

Leeds 3

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Options Appraisal

Current Depot or Alternative Location

Not in scope .

As the current depot has been upgraded with EV chargers it would need the minimum amount of investment in electricity infrastructure. Not in scope nt

Not in scope. There could be some legal complications with EV charger leasing arrangements with third parties which would need to be considered in more detail, however this could also generate additional revenue for both the franchisee and the Combined Authority.

Not in scope

Capacity

Not in scope

S43(2) - Prejudi Not in scope

Not in scope It is likely the site can be redesigned to accommodate more buses and EV chargers through the demolition of some of the unused buildings.

Not in scope

Suitability for ZEB

The Leeds 3 (Bramley) depot is an area that is suitable for either hydrogen or electric buses.

Bramley depot benefits from a major power grid upgrade delivered as part of the operator's ZEBRA project in 2023. A complex civil engineering project was undertaken by NPG and First Bus's contractors to bring an additional 5,000kVA through underground high voltage cables to the site from a sub-station over 2km away. First Bus delivered 79 ZEBs through ZEBRA (around half of Bramley's fleet) but wanted to future proof the site for EV fleet expansion, so this additional capacity is enough for the depot to accommodate 100% EV in its current layout.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this depot would be suitable for hydrogen.

However, as this depot has recently been upgraded as part of the ZEBRA funding with 37 EV chargers, 79 EV buses and the power capacity for more, it is proposed this depot would continue to be EV. There is further work that can be done to scale up the depot, excluding the power grid upgrade saving time and money, so it can exclusively run EV buses.

Not in scope

Not in scope

S43(2) - Prejudi Not in scope

Five Towns

Not in scope



Not in scope



Not in scope

Options Appraisal

Current Depot or Alternative Location

Not in scope

The current depot is also not suitable for ZEB infrastructure, and so it would need to be replaced before 2036 in line with the net-zero ambitions of the Combined Authority for buses.

Not in scope

Not in scope

[redacted]

Not in scope

[redacted]

Suitability for ZEB

The Five Towns (Castleford) depot is in an area that is not suitable for either hydrogen or electric buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is enough capacity in the supply to the area to enable electric vehicle charging, however it is in a flood zone which the incumbent operator has stated would make it unsuitable for EV charging. This is because the operator undertook an assessment of the depot sites they owned before submitting a ZEBRA bid.

As this site is in the ARGC and there is residential allocations to the East of the site the flood risk may have changed and/or been mitigated by works done upstream. It is therefore recommended there is a flood risk assessment carried out before this is discounted.

There is a primary school immediately to the West. This is a close building that houses vulnerable people (such as schools, care homes, hospitals etc), which indicate that this would not be suitable for hydrogen.

Not in scope

[redacted]

Not in scope

Not in scope

Not in scope

Leeds 1

Not in scope

Not in scope

S43(2) - Prejudice to Commercial Interests

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Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

S43(2) - Prejudice to Commercial Interests

Not in scope

Not in scope

Not in scope

Existing site plan

Not in scope

S43(2) - Prejudice to Commercial Interests

Not in scope

Not in scope

Not in scope

Options Appraisal

Current Depot or Alternative Location

S43(2) - Prejudice to Commercial Interests

Not in scope

Not in scope .

Not in scope

S43(2) - Prejudi Not in scope

Suitability for ZEB

The Hunslet depot and alternative location are both in an area that is suitable for either hydrogen or electric buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is enough capacity in the supply to the area to enable additional electric vehicle charging. The incumbent operator has installed 14 EV chargers and has upgraded the power supply to enable 100% EV capacity at the site.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this would be suitable for hydrogen.

However, if the decision is taken to utilise the Hunslet depot then as this depot has been upgraded with EV chargers and EV buses, it is proposed this depot would continue to be EV and further EV chargers installed. There is further work that can be done to scale up the depot, excluding the power grid upgrade saving time and money, so it can exclusively run EV buses.

Not in scope

S43(2) - Prejudi Not in scope

Not in scope

Strategic alignment

Not in scope .

In addition the Hunslet depot has existing connection for installation of electric chargers. S43(2) - Prejudice to Commerc

S43(2) - Prejudice to Commercial Interests

Not in scope

Not in scope

S43(2) - Prejudice Not in scope

Wakefield

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Options Appraisal

Current Depot or Alternative Location

Not in scope

There is likely to be a high remediation cost to the current site due to the riverbank piling work, demolition and ground decontamination. The site may also require flood defences developing

as it is within a flood zone and next to a river. This will be crucial if the site is to include charging infrastructure and EV buses. Not in scope

Not in scope

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S43(2) - Prejudice to Commercial Interests

Suitability for ZEB
The Wakefield depot site was previously identified XXX.

The Wakefield depot is an area that is suitable for either hydrogen or electric buses.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this would be suitable for hydrogen.

Given the previous ZEBRA funding progression it is likely that this site would be more suitable for EV rather than hydrogen.

Not in scope

Strategic alignment
The existing Wakefield depot needs particular consideration to the strategic objective around the Environment noting issues relating to flooding and therefore impacting climate resilience. Positively, the existing depot site would allow for installation of electric vehicles allowing greater influence on fleet strategy and the ability to achieve our ambition of a zero-emission fleet by 2036.

Not in scope

Not in scope

Recommendation

S43(2) - Prejudice to Commercial Interests

S43(2) - Prejudice to Commercial Interests Not in scope

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Not in scope

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The new build depot should be designed to be fully EV in line with previous aspirations through the ZEBRA fund and Wakefield Council.

Round 3

Not in scope

S43(2) - Prejudice Not in scope

Bradford

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

S43(2) - Prej Not in scope

Suitability for ZEB

The Bradford depot is an area that is suitable for either hydrogen or electric buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is not enough capacity in the supply to the area to enable electric vehicle charging, and so reinforcement and/or upgrade works would need to take place. This is however possible.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this would be suitable for hydrogen.

It should also be noted that there is a plan to build a green hydrogen production facility on Bowling Back Lane which is in close proximity to both the current and proposed depot. The hydrogen production facility is being promoted by Bradford Council, who believe that hydrogen fuelled ZEBs are the most suitable for routes in Bradford owing to their typically longer range than EV. However, there are other potential users of this hydrogen from the manufacturing sector. There have also been issues with hydrogen buses used in other areas and there would need to be significant refurbishment requirements to enable the depot to be converted for the maintenance of hydrogen buses.

Not in scope

Strategic alignment

Using the existing depot site would enable the Combined Authority to invest in electric, noting the point around the need for reinforcement/upgrade works from Northern Power Grid, or hydrogen buses which would help to achieve our ambitions to deliver a zero-emission bus fleet by 2036. Not in scope

Calderdale

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

S43(2) - Prejudi Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Suitability for ZEB

The Halifax depot is an area that is suitable only for electric zero emission buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is enough capacity in the supply to the area to enable electric vehicle charging.

There is a nearby school and the Shay stadium which means that there are buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc) in close proximity. These mean that hydrogen would not be suitable.

Not in scope

Not in scope

Keighley

Not in scope



Not in scope

Not in scope

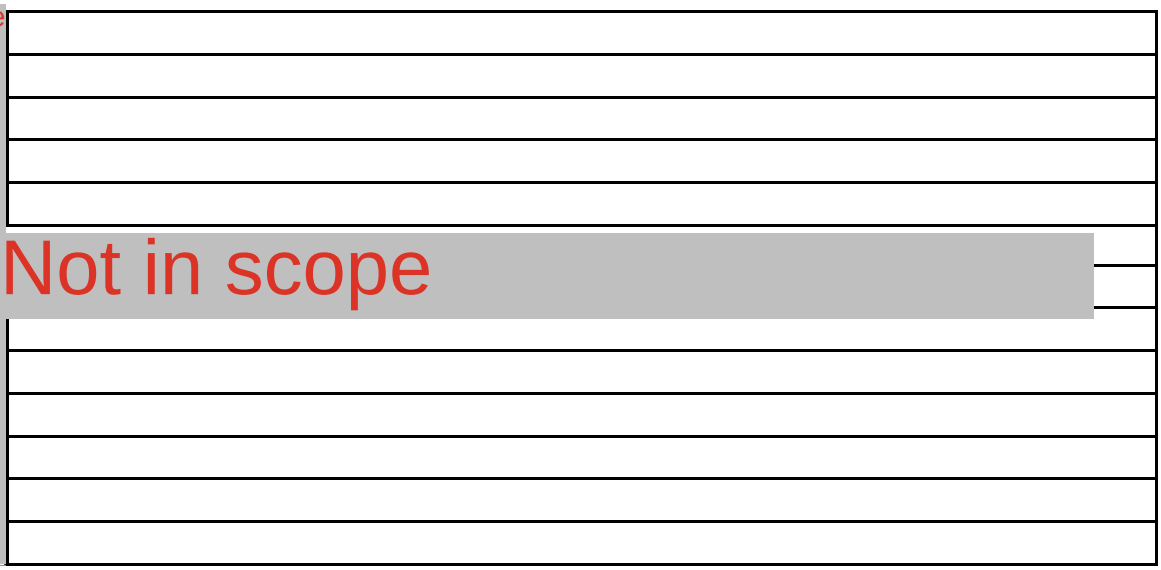
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Not in scope

Not in scope

S43(2) - Prejudice to Not in scope

Suitability for ZEB

The Keighley depot is an area that is suitable for either hydrogen or electric buses.

Initial conversations with Northern Power Grid (NPG) indicate that there is enough capacity in the supply to the area to enable further electric vehicle charging.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this would be suitable for hydrogen.

However, as this depot has recently been upgraded as part of the ZEBRA funding with EV chargers and EV buses, it is proposed this depot would continue to be EV. The depot has

already been updated to include 9 dual headed EV chargers, to charge up to 18 EV buses. The power supply has been upgraded and there is a substation on site.

Not in scope

S43(2) - Prejudice to Comm

Not in scope

Not in scope

Not in scope

S43(2) - Prejudice to Commercial Inte Not in scope

Leeds 2

Not in scope



Not in scope

Hunslet depot has 14 EV chargers and so it has only partial EV capability. The site is suitable for upgrade to deliver full EV charging infrastructure, however it is within a designated flood zone and so any EV charging needs to be carefully managed. Due to flood defence upgrades in the area and the proximity to the river it would be worth carrying out a new flood risk assessment.

Not in scope



Not in scope

Options Appraisal

Current Depot or Alternative Location

Not in scope

The current depot has partial EV charging, so it currently runs and maintains both diesel and electric buses. Hunslet also runs the majority of the Leeds park and ride bus services (some of which are electric buses), although some need to be charged at alternative depots due to the number of chargers at Hunslet. It would therefore be worth investing further in EV chargers, depending on where the park and ride services are run from, especially considering the power supply has already been sufficiently upgraded.

Not in scope

Not in scope

Not in scope

S43(2) - Prejudi Not in scope .

Suitability for ZEB

The Hunslet depot is an area that is suitable for either hydrogen or electric buses.

The bus depot has an upgraded electricity supply to enable the depot to have 100% EV buses.

There are no close buildings that house vulnerable people (such as schools, care homes, hospitals etc) or a large number of people (such as stadiums etc), which indicate that this would be suitable for hydrogen.

However, as this depot has been upgraded with EV chargers and EV buses, it is proposed this depot would continue to be EV.

Not in scope

Depot Information Summary

Not in scope

Strategic Zone	Not in scope	**Zero Emission**	Not in scope

Heavy Woollen	Not in scope	Suitable for hydrogen / EV	Not in scope
Leeds 3		Partial EV chargers and buses through ZEBRA funding	
Kirklees		Suitable for hydrogen / EV	
Five Towns		Currently unsuitable due to flood risk and proximity of school	
Not in scope		Not in scope	
Wakefield		Suitable for EV	
Bradford		Suitable for hydrogen / EV	
Calderdale		Suitable for EV only due to proximity of school and stadium	
Leeds 2		Partial EV chargers and buses	
Keighley		Partial EV chargers and buses through ZEBRA funding	

Not in scope

	S43(2) - Prejudice to Commercial Interests	Not in scope	

Not in scope

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S43(2) - Prejudice to Commercial Interests

Not in scope



Not in scope

Not in scope

Not in scope

Not in scope

S43(2) - Prejudice to Commercial Interests

S43(2) - Prejudice to Commercial Interests

Not in scope

Not in scope

Not in scope

Not in scope


Not in scope

Additional Requirements

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope

Zero Emission Bus Infrastructure

Zero Emission bus infrastructure comprises the chargers and substations required for EV charging, or the fuelling section and blast walls required for hydrogen fuelling. There may also be associated upgrades required in the depot, such as a platform for maintaining single decker electric buses as there would need to be roof access available. Hydrogen depots would require a detection and venting system in the event of a hydrogen leak, and bonding and grounding of all electrical equipment to prevent sparks and electrostatic discharges. Due to the requirement to include blast walls and the specific safety management of any hydrogen stored on site, these are not currently recommended for sites near to vulnerable populations or areas where large concentrations of people may gather. There can be planning permission challenges particularly around the granting of a hazardous substances consent.

Where electrical charging infrastructure is required the district network operator (DNO) will need to be liaised with to ensure there is grid capacity in the network and any upgrades to the network are carried out. For all sites in West Yorkshire this is NPG. This can be a lengthy process depending on the capacity and level of network upgrades required, and therefore the appropriate time should be built in to the programme and managed in conjunction with the fleet strategy to ensure there are sufficient chargers for the EV buses as they are delivered.

Not in scope

Not in scope

Not in scope

Not in scope

Not in scope


Not in scope

Find out more

westyorks-ca.gov.uk

West Yorkshire Combined Authority

Wellington House
40-50 Wellington Street
Leeds
LS1 2DE

All information correct at time of writing

West Yorkshire Combined Authority | Tracy Brabin Mayor of West Yorkshire

Statement of Requirements/Vehicle Specification for wheelchair accessible buses

Background

The Vehicle(s) are to carry a combination of wheelchairs and seated passengers.

The vehicles will be operated by the West Yorkshire Combined Authority AccessBus service, to be utilised by the elderly and those with disabilities and this has a significant influence on the vehicle requirements. Vehicles will be operated for this service under the following conditions:

- Door to door transport with frequent stops
- Operation of a registered local bus service
- Access to residential streets and premises' car parks
- Vehicles in service up to 10 hours per day – seven days per week
- Estimated annual mileage of 30,000 miles (50,000 km)
- The vehicles must be sufficiently robust to cope with the hilly terrain within West Yorkshire

As part of the CAs environmental commitments a mixed fleet comprising Ultra Low Emission diesel powered buses and a number of Electric powered vehicles are to be procured to operate the service.

Statutory obligations

This document does not supersede any statutory requirements and any element of the specification that conflicts shall be notified to the Combined Authority. In any case, the Supplier of the vehicle or equipment shall always comply with all applicable legal requirements.

The tender requirement will be spilt into two lots which are detailed below:

Lot 1 Vehicle Requirements – Diesel

Description	Wheelchair Accessible Bus
Quantity required	**30 (Thirty)**
Delivery date	Supplier to advise Customer on Tender submission – suppliers are asked to hold pricing for 180 days following their tender submission

	Minimum vs Maximum	Description
Vehicle Base Colour	TBC	
Driver Position	Right hand drive	
Occupancy	Driver **Saloon area variable but to include as a minimum:** Minimum 15 fixed seats with headrests plus space for 2 occupied wheelchairs. Wheelchair spaces should allow for 1300mm x 700mm for each wheelchair from a side entrance. Wheelchair spaces are to be rear facing with appropriate backrest and seatbelt for wheelchair user or one rear and one forward facing wheelchair space will be accepted. Vehicle equipped with approved wheelchair restraint systems to secure wheelchairs in a forward-facing wheelchair space. Appropriate luggage space as detailed in the Interior section of the specification.	
Floor Level	Low floor vehicle is required; the step height will be no greater than 250mm with the vehicle on level ground and with the suspension lowered.	
Fuel Type	N/A	Diesel
CO2 g/km	Less than 210 g/km	Euro 6
Transmission	Automatic	
Destination Display	Front/side/rear	White LED displays
CCTV	4 external 3 internal	
Window Film	Anti-scratch/mark protective window film to be installed	
Ticket Machine	Wired to accept ticket machine and suitable ticket machine base plate	
Internal Dimensions (load Length)	Min	App 4700mm
External Dimensions	Max	Maximum overall dimensions are specified to ensure the vehicle is able to complete the routes required Max overall length 8.1m Max overall width 2.35m

Near Side Door Access	Near side entrance to be a power operated door, the door controls should be operated from the driver's cab and automatically lock when the vehicle is in motion. The vehicle will be fitted with a manual wheelchair ramp at the near side entrance. Ramp SWL of 300kgs minimum. There is no requirement for rear access to the vehicle.
Interior	All seats to be: ➢ High backed comfort seats, non-reclining ➢ Trimmed in a combination of moquette and vinyl to WYCA's approval. ➢ Fitted with lap and diagonal (3-point) seat belts with all age adjuster (Please state the type of seat to be included in the Further Competition response.) including 3-point seatbelt for driver's seat which is to be trimmed in moquette only. • Gangway grab handles in a colour to WYCA's approval. • Slip resistant floor covering to conform with relevant standards to WYCA's approval. • Saloon lights in all vehicles shall be operable by a switch from the driver's seat. The entrance door light shall operate by the door opening or closing. • Saloon heating to be controlled from the driver's seat. • Luggage space to be provided, sufficient for the storage of shopping bags and other small items of luggage. This should be a two-tier storage area located to either the nearside or offside of the vehicle. Minimum volume to be1m^3. • Vehicle fitted with waist rail tracking in wheelchair spaces for the securing of shopping trolleys, walking aids and other equipment. • Any forward-facing wheelchair space to include floor rail tracking.

Internal Signage	• 1 x No Smoking/Vaping sign located at or near the entrance to the vehicle in a visible position • Seatbelt pictograms for each row of seats fitted with seatbelts including driver's seat • 1 x Maximum passenger capacity • 1 x Emergency Exit sign located on each Emergency Exit • 2 x Front and rear door emergency opening instructions, located on the door(s) • 1 x First Aid Kit (indicating the position of the kit) • 1 x Vehicle dimensions including unladen vehicle weight • 1 x side ramp operating instructions (located adjacent to the side door) and ramp Max Safe Working Load • 2 x Fire extinguisher location • 4 x A4 Poster Frames fitted to O/S saloon window behind the driver
External Signage	• 1 x Unladen Vehicle Weight located on the nearside bodywork rear of the front entrance and forward of the rear wheelarch • 1 x DERV only mounted externally by fuel filler, if petrol/diesel and not electric • 1 x Front, side and rear emergency door opening instructions • 1 x AdBlue only to be fitted to AdBlue filler flap • Branding as determined by WYCA • Plus, any other necessary warning, cautionary and safety stickers
Additional Requirements	• Audible reverse warning • PSV First Aid Kit • 2 x Fire Extinguisher • Minimum 1 x 12v socket outlet and USB connection point within easy reach of the driving position. • 3 x break glass hammers will be mounted in the saloon, two with seatbelt cutters fitted centrally • Two sets of keys per vehicle to be supplied (if key start)

	• Radio with 4 saloon speakers and drivers' speaker • Driver telematics system • Wheelchair and equipment restraints provided for use with floor and waist rail tracking system

Lot 2 Vehicle Requirements – Electric

Description	Wheelchair Accessible Bus	
Quantity required	**3**	
Delivery date	Supplier to advise Customer on Tender submission – suppliers are asked to hold pricing for 180 days following their tender submission	
	Minimum vs Maximum	**Description**
Vehicle Base Colour	TBC	
Driver Position	Right hand drive	
Occupancy	Driver **Saloon area variable but to include as a minimum:** Minimum 15 fixed seats with headrests plus space for 1 occupied wheelchair. Wheelchair spaces should allow for 1300mm x 700mm for each wheelchair from a side entrance. Wheelchair spaces are to be rear facing with appropriate backrest and seatbelt for wheelchair user. Vehicle equipped with approved wheelchair restraint systems to secure wheelchairs if a forward-facing wheelchair space, however rear facing is the preferred option. Appropriate luggage space as detailed in the Interior section of the specification.	
Floor Level	Low floor vehicle is required; the step height will be no greater than 250mm with the vehicle on level ground and with the suspension lowered.	
Fuel Type	N/A	Electric

Range	150 miles	Must be able to achieve range shown under normal operating conditions as a minimum.
Transmission	Automatic	
Destination Display	Front/side/rear	White LED displays
CCTV	4 external 3 internal	
Next Stop AV System	Next Stop and Passenger AV system to be provided to meet PSVAR.	
Window Film	Anti-scratch/mark protective window film to be installed	
Ticket Machine	Wired to accept ticket machine and suitable ticket machine base plate	
Internal Dimensions (load Length)	Min	App 4700mm
External Dimensions	Max	Maximum overall dimensions are specified to ensure the vehicle is able to complete the routes required Max overall length 8.5m Max overall width 2.35m
Near Side Door Access	Near side entrance to be a power operated door, the door controls should be operated from the driver's cab and automatically lock when the vehicle is in motion. The vehicle will be fitted with a manual wheelchair ramp at the near side entrance. Ramp SWL of 300kgs minimum There is no requirement for rear access to the vehicle.	

Interior	All seats to be: ➢ High backed comfort seats, non-reclining ➢ Trimmed in a combination of moquette and vinyl to WYCA's approval. ➢ Fitted with lap and diagonal (3-point) seat belts with all age adjuster (Please state the type of seat to be included in the Further Competition response.) including 3-point seatbelt for driver's seat, which is to be trimmed in moquette only. • Gangway grab handles in a colour to WYCA's approval. • Slip resistant floor covering to conform with relevant standards to WYCA's approval. • Saloon lights in all vehicles shall be operable by a switch from the driver's seat. The entrance door light shall operate by the door opening or closing. • Saloon heating to be controlled from the driver's seat. • Luggage space to be provided, sufficient for the storage of shopping bags and other small items of luggage. This should be a two-tier storage area located to either the nearside or offside of the vehicle. Minimum volume to be $1m^3$. • Vehicle fitted with waist rail tracking in wheelchair spaces for the securing of shopping trolleys, walking aids and other equipment. • Any forward-facing wheelchair space to include floor rail tracking.

Internal Signage	• 1 x No Smoking/Vaping sign located at or near the entrance to the vehicle in a visible position • Seatbelt pictograms for each row of seats fitted with seatbelts including driver's seat • 1 x Maximum passenger capacity • 1 x Emergency Exit sign located on each Emergency Exit • 2 x Front and rear door emergency opening instructions, located on the door(s) • 1 x First Aid Kit (indicating the position of the kit) • 1 x Vehicle dimensions including unladen vehicle weight • 1 x side ramp operating instructions (located adjacent to the side door) and ramp max Safe Working Load • 2 x Fire extinguisher location • 4 x A4 Poster Frames fitted to O/S saloon window behind the driver
External Signage	• 1 x Unladen Vehicle Weight located on the nearside bodywork rear of the front entrance and forward of the rear wheelarch • 1 x DERV only (Mounted externally by fuel filler, if petrol/diesel and not electric) • 1 x Front, side and rear emergency door opening instructions • 1 x AdBlue only to be fitted to AdBlue filler flap • Branding as determined by WYCA • Plus, any other necessary warning, cautionary and safety stickers
Additional Requirements	• Audible reverse warning • PSV First Aid Kit • 2 x Fire Extinguisher • Minimum 1 x 12v socket outlet and USB connection point within easy reach of the driving position • 3 x break glass hammers will be mounted in the saloon, two with seatbelt cutters fitted centrally • Two sets of keys per vehicle to be supplied (if key start)

	• Radio with 4 saloon speakers and drivers' speaker • Driver telematics system • Wheelchair and equipment restraints provided for use with floor and waist rail tracking system

West Yorkshire Combined Authority | Tracy Brabin Mayor of West Yorkshire

Technical Specifications for Lot A Fleet Acquisition New ZEB and Diesel Buses

July 2025

1. Introduction & General Requirements

1.1 Scope

This specification will determine the technical characteristics required for Lot A Fleet Acquisition of New ZEB, Diesel, and Used Buses.

This applies to all buses intended for service under contract by WYCA that are passenger vehicles with a maximum mass exceeding 5 tonnes and a capacity exceeding 22 passengers.

The passenger vehicles will be capable of carrying seated but unrestrained occupants and standing occupants. Such vehicles are categorised the Consolidated Resolution on the Construction of Vehicles (R.E.3) as M3; Class I.

1.2 Background

1.2.1 West Yorkshire Combined Authority

The Combined Authority is the driving force behind local partners' collective efforts to make West Yorkshire known globally as a place where everyone can combine economic success with an outstanding quality of life.

Made up of Bradford, Calderdale, Kirklees, Leeds and Wakefield councils, the Combined Authority is having a significant impact on economic development, social inclusion and transportation.

The appointment of our Mayor in 2021 signified our commitment and was a turning point in our collective efforts to address the challenges and seize the opportunities within the region.

The Mayor's leadership continues to serve as a driving force behind the realisation of the West Yorkshire Plan, ensuring that our communities thrive, businesses flourish, and our region becomes a model of innovation and collaboration. Further details about the work the Mayor and colleagues within the Combined Authority deliver can be found in our Corporate Plan.

The West Yorkshire Plan represents the culmination of extensive research, engagement with stakeholders, and a shared commitment to building a brighter future. This comprehensive blueprint outlines our strategic objectives, focusing on key areas such as transportation, economic development, social inclusion, environmental sustainability, and more. The Plan is a result of collective efforts, reflecting the aspirations and priorities of the people of West Yorkshire.

1.2.2 Bus Franchising

Since 1986, most bus services in England have been deregulated, except in London (and Manchester as of September 2023), meaning that private operators mainly run buses.

As the Passenger Transport Executive for the County of West Yorkshire, the Combined Authority has a duty to make suitable arrangements for socially necessary services. Currently, the Combined Authority supports buses in the region by spending approximately £21m per year for such services. These services, approximately 15% of all bus journeys in West Yorkshire, would otherwise not be provided by bus operators.

In March 2024, following compliance with the statutory process set out in the Transport Act 2000 (as amended), the Mayor of West Yorkshire made the decision to bring buses under local control through the introduction of a franchising scheme. Under franchising, the Combined Authority will set the routes, frequency, fares and overall standards of buses in our region. The existing commercially led market will be

replaced, with private bus operators no longer being able to run most services independently. Most bus services will instead be operated under franchise contracts, with potential bus operators wishing to run services required to bid for these as part of a competitive procurement process managed by the Combined Authority.

Bus franchising along with other initiatives such as Mass Transit contribute towards the mayoral commitment to making public transport work better for everyone in West Yorkshire. Concentrating on an integrated multimodal network connecting more people with job, training and education opportunities, all whilst working towards tackling the climate emergency.

Further detail and background information on franchising in West Yorkshire and the bus reform consultation can be found at Bus Reform | Your Voice (westyorks-ca.gov.uk). Documentation on the Your Voice page was created and shared prior to March 2024, therefore for the most up to date information please refer to this statement of requirements.

1.2.3 Franchising Objectives

Following the statutory process, the Combined Authority's objectives for franchising build on our existing transport and non-transport policies and strategies, including our Bus Service Improvement Plan (BSIP) and Transport Strategy 2040. There are two overarching objectives, one framed on Combined Authority wide polices (the whole journey) and one on bus specific policies (improved experience for citizens). Listed below are the two overarching objectives with sub-objectives (individual elements that contribute to the headline objective):

- The Whole Journey – Enhancing the contribution of the bus system towards the Combined Authority's Transport Strategy 2040 and wider policies such as Net Zero.
- Economy: supporting an integrated transport system which provides reliable and improved connectivity to the places where customers need to travel to for work, education, leisure and access to services.
- Environment: establishing a transport network that helps to reduce the overall impact of transport on carbon emissions and air quality, and increases our resilience against climate change, including via zero emission buses.
- People and Place: enabling a transport system that increases access in a safe, inclusive way that encourages use of bus as part of a multi-modal network.
- Improved experience for citizens – Maximising deliverability of the Combined Authority's Bus Service Improvement Plan by 2030.
- Network: taking people where they need to go, when they need to go, and catering for the complexity of modern travel patterns.
- Fares and Ticketing: making paying for bus travel more affordable, easier, convenient and flexible.
- Customer Service and Information: providing passengers with the right tools to travel with confidence and help should their journey not go to plan.
- Bus Priority: journeying by bus is quicker, and a viable alternative to the private car.
- Green and Better Vehicles: improving the onboard experience and making bus a sustainable choice for travel in West Yorkshire.
- Safe, accessible and welcoming stations, stops and public spaces: that provide a high-quality environment for passengers waiting for their services. (this objective has been added from the expanded BSIP following the publication of the bus franchising assessment to focus on customer service and information).

All these policy-led objectives will be balanced against the need for the bus system to be affordable, deliverable, and to offer good value for money.

1.3 Terminology & Definitions

The following key terms are used throughout this Specification:

The language used in this specification is typical of standard documents and shall be interpreted as follows:

Mandatory requirements are indicated by phrases such as ‘Must’, ‘Shall’ or ‘Required’.

Where requirements are indicated by the word ‘should’ they are strongly recommended, and applicants shall present strong evidence to justify why their vehicle remains acceptable if these recommendations are not followed.

Where requirements are indicated by the word ‘may’ they are optional, and deviation is acceptable without presenting additional justification.1.4 Document Structure

This document is structured as follows:

- Regulatory Compliance & Certification
- Vehicle Dimensions, Weights and Capacity
- Safety Systems
- Environmental Performance & Powertrain
- Operational Efficiency
- Accessibility
- Occupant Experience
- Aesthetics and Image

All requirements are mandatory and represent the minimum requirements. Certain elements of the specification include additional options; these options are split into two categories:

- Mandatory options – these options indicate a set of options that must be available for selection by the Combined Authority. These options indicate an instance where the Combined Authority is certain to select one of the available options, but that exact specification is still to be decided.
- Desirable options – The options indicate a want, rather and a ‘must-have’ feature. OEMs can additionally put forward alternative solutions. The Combined Authority may or may not elect to include these options in the final specification.

1.5 Approval Process

Approvals, changes and dispensations to this specification can only be approved by a nominated officer from WYCA in writing or through a formal contract award letter.

2. Regulatory Compliance & Certification

2.1 General Compliance

All vehicles must comply with all legislation applicable for buses driving in WYCA. If there is any conflict between any requirement in this specification and any legislative requirement then the legislative requirement shall take precedence.

All WYCA buses must be registered for road use in the UK. Registration requires that the vehicle must be approved via one of the following approval routes:

- EC Whole Vehicle Type Approval (ECWVTA)
- Small Series Approval (ECSSTA or NSSTA)
- Individual Vehicle Approval (IVA)

WYCA must be provided with a valid certificate of conformity for every vehicle supplied for use on the WYCA bus fleet. WYCA must be notified of any changes to the vehicle design that would breach conformity of production of the vehicle type as approved by the relevant certification body (i.e. VCA if approved in the UK). Any vehicle found to not conform to the approved type shall be notified to WYCA and appropriate actions will be determined following an investigation. Vehicles approved to ECWVTA do not need to be fully certified to any additional regulations.

Vehicles approved to National Small Series Type Approval or IVA shall in addition demonstrate that they, or the relevant components they are fitted with, also comply with the following regulations:

- UNECE Regulation 118-03 (Revision 02, Amendment 01), as amended, on the burning behaviour of materials used in the construction of motor vehicles.
- UNECE Regulation 107, as amended, with respect to the fitment and technical standards of fire suppression systems in engine compartments of buses.
- All windows and glazing shall comply with UNECE Regulation 43 All status and indicator lamps, even those for systems not required by type approval (e.g. pedal confusion indicator lights) comply with the relevant requirements of UNECE Regulation 121.
- The brake system, including all required interlocks and control systems that interact with the brakes, complies with the requirements of UNECE regulation 13
- Engine emissions shall comply with the latest legal Euro requirements for ECWVTA at time of bus certification.

All vehicles, regardless of approval type shall comply with the Public Service Vehicle Accessibility Regulations 2000 (PSVAR2000) as amended in respect of the fitment and technical standards for accessible equipment, systems and designs.

Compliance with any given regulation, or specific sections of such regulations, shall be demonstrated to WYCA either by providing copies of all relevant certificates of conformity or by providing a formal written declaration that the vehicle is in compliance with the Regulation or the required parts of the Regulation.

Buses shall not be modified between registration and entry into service. If any modifications are made that affect the ability of the vehicle to carry the plated load, or the brake or steering systems or their mode of operation, then the OEM shall submit a Notifiable Alteration to DVSA and obtain approval for the modification.

All buses must comply with all relevant current legislation and take account of any intended legislative discussions that are considered imminent within the first 6 months of the bus's operational life. For clarity, this means within 6 months of the first delivery made as part of each specific order for new buses. It does not relate to when that model of bus first entered service.

WYCA reserves the right to audit any buses entering or already entered into service, costs associated by this, as well as exploratory testing or trials will be borne by WYCA.

All costs associated with development and certification of vehicles by OEMs shall be borne by them unless expressly agreed with WYCA.

2.2 Testing Process

On behalf of WYCA, a third-party organisation will carry out testing on the bus vehicles that OEMs have developed to comply with the franchise agreement. OEMs/Operators must share relevant certification, warranty (period and terms), warranty claim process and other useful documentation and information to support the testing process. Details on the Warranty Requirements are set out in the Statement of Requirements.

Details of the testing process will be confirmed by WYCA. Separately, all new bus types per depot will be required to follow a testing and assurance process in advance of route launch, The details are set out in the Statement of Requirements document.

3. Vehicle Dimensions, Weights & Capacity

3.1 General Dimensions

OEMs must have general dimensions, seating and layout arrangement drawings agreed by WYCA. These individual manufacturers' drawings should comply with the detail below.

General dimensions and capacities of vehicles are shown below:

	Single Deck up to 8.0m		Single Deck up to between 10.1m and 12.0m		Double Deck up 12.0m (low-height)		Double Deck up to 12.0m (normal height)	
Vehicle Dimensions:	Min	Max	Min	Max	Min	Max	Min	Max
Overall Length (metres)	7.80	8.50*	11.00	12.00*	10.10	12.00*	10.10	12.00*
Overall Width (metres)	2.00	2.55	2.45	2.55	2.45	2.55	2.45	2.55
Overall Height (non-Zero Emission) (metres)	2.40	3.10	2.85	3.10	3.8	4.00	4.20	4.42
Overall Height (Zero Emission) (metres)	2.40	3.40	2.85	3.40	3.8	4.00	4.20	4.42
Passenger Capacity:								
Total (seated and standing)	36		60		80		84	
Low Floor Seated: Priority	4		4		4		4	
Low Floor Seated: Preferential	2		2		2		2	
Total Seated Lower Deck	16				20		25	
Total Seated Upper Deck	N/A		N/A		40		41	
Number of Wheelchair Spaces	1		1		1		1	

* subject to being able to traverse the specified route and serve all stops safely.

Any amendments to any of these layout drawings will require the approval of WYCA before a bus constructed with the revised layout can be used in service in WYCA region.

All buses should comply with the general dimensions and capacities defined in the table above and a layout drawing identifying the actual dimensions and capacities for the bus shall be provided to WYCA. Any configurations that do not fit the table should be discussed with WYCA.

The wing mirrors are not included in either the width or length of the bus.

3.2 Weights

A laden and kerb / un-laden weight chart by axle and total against GVW shall be provided for the completed bus Body Layout Option. This must be approved by WYCA. Any significant changes to this standard must be notified to WYCA.

Unladen weight has a relationship to fuel economy and buses should be designed to maximise their fuel economy.

4. Safety Systems

Summary

The following table summarise safety requirements for new buses.

Item	Single Deck - Diesel	Single Deck - Electric	Double Deck - Diesel	Double Deck - Electric
Fire Safety				
Fire Suppression System	Mandatory	Mandatory	Mandatory	Mandatory
Smoke Detectors	Mandatory	Mandatory	Mandatory	Mandatory
Security				
Driver Partition Screen	Mandatory	Mandatory	Mandatory	Mandatory
Pickpocket prevention	Mandatory	Mandatory	Mandatory	Mandatory
Driver Assist Systems				
Acceleration Performance and Rate Compliance.	Mandatory	Mandatory	Mandatory	Mandatory
Advanced Emergency Braking (AEB)	Mandatory	Mandatory	Mandatory	Mandatory
Intelligent Speed Assistance (ISA)	Mandatory	Mandatory	Mandatory	Mandatory
Direct & Indirect Vision	Mandatory	Mandatory	Mandatory	Mandatory
Camera Monitoring System - Reversing	Mandatory	Mandatory	Mandatory	Mandatory
Camera Monitoring System – Mirror Replacement	Mandatory	Mandatory	Mandatory	Mandatory

Front & Nearside Blind Spot Warnings	Mandatory	Mandatory	Mandatory	Mandatory
Halt Brake	Mandatory	Mandatory	Mandatory	Mandatory
Tyre Pressure Monitoring Systems (TPMS)	Mandatory	Mandatory	Mandatory	Mandatory
Road Partner Assist				
Acoustic Conspicuity: Acoustic Vehicle Alerting System	N/A	Mandatory	N/A	Mandatory
Visual Conspicuity (mirror head colour).	Mandatory	Mandatory	Mandatory	Mandatory
Vulnerable Road Users	Mandatory	Mandatory	Mandatory	Mandatory
VRU Frontal Crashworthiness	Mandatory	Mandatory	Mandatory	Mandatory
VRU Frontal Crashworthiness Energy Absorption	Mandatory	Mandatory	Mandatory	Mandatory
Occupant Protection				
Staircase Design	N/A	N/A	Mandatory	Mandatory
Seats	Mandatory	Mandatory	Mandatory	Mandatory
Handrail/Stanchion Construction & Installation	Mandatory	Mandatory	Mandatory	Mandatory
Guards for Exposed Seats	Mandatory	Mandatory	Mandatory	Mandatory
Flooring and Slip Prevention	Mandatory	Mandatory	Mandatory	Mandatory
Door Safety	Mandatory	Mandatory	Mandatory	Mandatory
Miscellaneous Safety Features				
Tyre Blow Out Protection Liners.	Mandatory	Mandatory	Mandatory	Mandatory
Nearside Front Tree Guard (Double Deck)	N/A	N/A	Mandatory	Mandatory
Rescue Sheet (RS) & Emergency Rescue Guide (ERG)	Mandatory	Mandatory	Mandatory	Mandatory

4.1 Fire Safety

Fire Suppression System

Engine and combustion heater compartments shall be equipped with a fully automatic fire suppression system compliant with UNECE Regulation 107 (As Amended). It shall be capable of rapid deployment to extinguish a fire before passenger safety is compromised or serious bus damage is sustained. All vehicles shall have a Regulation 107 compliant system, regardless of powertrain, including zero emission vehicles.

OEMs shall complete a full fire risk assessment for each type of bus covering as a minimum the engine bay and combustion heater compartment. This should be undertaken in conjunction with the Fire Suppression System (FSS) manufacturer, where this is not the bus OEM, and Bus operators who have the necessary expertise.

All identified potential sources of fire in the engine bay shall be protected by an effective FSS.

Smoke Detectors

All bus types shall be equipped with concealed smoke detectors.

Double-deck buses shall be equipped with 2 concealed smoke detectors.

- 1 detectors on the upper deck
- 1 detector shall be located on the lower deck at the rear of the seated area

Single deck buses shall be equipped with 1 concealed smoke detector at the rear of the seated area

The legally required manual engine emergency shut down device must be accessible without the need to open the main engine bay cover. It must also be of a type that allows the engine to be restarted from the driver's cab, provided the main rear engine bay cover is closed. The main engine bay cover must be kept locked when the bus is in service.

For vehicle types that have a high voltage system, shutdown shall mean shutting down and isolation of the high voltage system.

Mandatory option – double deck buses shall be equipped with 2 smoke detectors in the upper saloon.

4.2 Security

Driver Partition Screen

All buses shall be fitted with a partition screen separating passengers and the driver.

The driver partition screen shall not include speech holes. The design must allow adequate two-way driver/passenger communication that is accessible to all customer groups. This can be achieved with or without additional communication devices, such as passive or electronic two-way communication systems.

The driver's cab signalling window shall be resistant to assault or protected by a device resistant to assault.

The screen shall not restrict or distort driver view to passenger entrance, interior and exterior mirrors or forward exterior view. The screen shall be made of transparent materials with a transmittance value

of >70 %.

Pickpocket prevention

Passenger seats shall be suitably designed to restrict the potential of pickpockets to operate whilst utilising the seating immediately rearward.

4.3 Driver Assist Systems

Acceleration Performance and Rate Compliance.

The combined engine and transmission acceleration controls shall limit the bus to a rate that provides the driver with adequate driving acceleration in the fully laden condition, whilst not subjecting the passengers to

excessive forces that potentially cause the passengers to become unstable. The maximum rate of acceleration shall be less than 1.2m/s2 under all load conditions.

Advanced Emergency Braking (AEB)

Buses shall be fitted with AEB systems to identify a risk of imminent collision. It should be noted that AEB is intended to operate only in the last second or two before an imminent collision. The driver remains responsible for all aspects of driving, including collision avoidance, at all times.

Intelligent Speed Assistance (ISA)

Buses shall be fitted with an Intelligent Speed Assistance (ISA) system. ISA is an aid to the driver to keep within the speed limit and does not absolve the driver of responsibility for complying with speed limits or selecting the most appropriate speed for the prevailing road conditions, which may be lower than the posted speed limit.

Direct & Indirect Vision

All buses shall allow the driver to have sufficient vision of their surroundings to allow the execution of all driving tasks required in service.

All buses shall have a high standard of direct and indirect vision in areas close to the vehicle where vulnerable road users are at particular risk of collision with a bus performing low speed manoeuvres.

Camera Monitoring System (CMS)

All buses shall be equipped with a Camera Monitoring System including for Reversing and Mirror Replacement.

CMS - Reversing

All buses shall be equipped with a rear-view Camera Monitor Systems (CMS) compliant with UNECE Regulation 158 as amended, for system performance, technical quality and field of view requirements. In order to ensure optimum interaction with the driver, the CMS shall in addition meet the following criteria:

- Rear-view CMS monitor images shall only be visible to the driver when the reverse gear is engaged

The bus OEM or, where installed as a component on an existing vehicle, the CMS supplier, shall provide documentary evidence of compliance with these requirements. Supplier certification or manufacturer self-certification will be accepted.

CMS – Mirror Replacement

All buses shall use Camera-Monitor Systems (CMS) that are compliant with UNECE Regulation 46 to replace physical mirrors on the bus, at least for the Class II and IV fields of vision (FOV) defined by the same Regulation and the blind spot FOV defined by the bus vehicle specifications for blind spot mirrors. These requirements shall be evaluated based on the driver’s FOV from the ocular reference point as defined by UNECE Regulation 46 (635 mm vertically above the seating reference point specified in Annex 1 of ECE/TRANS/WP.29/78/Rev.6).

Front & Nearside Blind Spot Warnings

All buses shall provide additional information to drivers to inform them about the potential hazards presented by vulnerable road users in close proximity to [the front and nearside of] the bus, or intervene if

necessary, to support the safe execution of the low speed, close proximity, driving tasks required in service in WYCA region.

All buses shall have a system installed that informs the driver of the presence of vulnerable road users in close proximity to the front and nearside of the bus, provides a warning signal to the driver if the bus is on a collision trajectory with a vulnerable road user during nearside-turn and moving-off manoeuvres and/or intervenes if a collision is unavoidable during moving-off manoeuvres.

The installed system shall have one or more of these functions:

- VRU proximity information signal
- VRU collision warning signal
- Motion inhibit

The bus OEM or, where installed as a component on an existing vehicle, the Blind Spot information, Warning and intervention system supplier, shall provide documentary evidence of compliance with these requirements.

Halt Brake

The halt brake shall be engaged whenever the bus doors are opened, the bus is kneeling, or the passenger ramp is extended and the Driver is present in the cab. The system shall be checked as part of the regular maintenance checks. If a fault occurs with the halt brake system, rendering it inoperable, then a red warning light shall activate. System checks shall be included in the regular maintenance checks.

Tyre Pressure Monitoring Systems

All buses shall be equipped with a Tyre Pressure Monitoring System (TMPS), compliant with 01 series of amendments to UNECE Regulation 141, for the approval of vehicles with regard to their TPMS.

4.4 Road Partner Assist - Vulnerable Road User (VRU) Protection

Acoustic Conspicuity – Acoustic Vehicle Alerting System (UNECE R138).

All quiet running buses of category M3 are to be fitted with a front emitting Acoustic Vehicle Alerting System (AVAS) which is fully compliant with UNECE Regulation 138. This includes electric, hybrid and other alternative powertrains that are quiet running. This is required even if the bus already meets the minimum sound requirements of Regulation 138 without the AVAS.

Visual Conspicuity

The housings for driver’s nearside and offside mirrors shall be coloured yellow in their entirety. No additional warnings or markings shall be present on the all-yellow mirror head.

Vulnerable Road Users

Bus front ends have been identified as one of the key contact points of the vehicle in collisions with vulnerable road users (VRU). Several different safety features are required to minimise the injury potential in those collisions.

VRU Frontal Crashworthiness

All bus front ends are required to have a geometric design that both improves protection for VRUs during the primary impact of a collision and reduces the risks of VRUs being subsequently run over.

Wraparound windscreen and bumper bus front end designs, where the glazed areas and bumper at the front-end edges are curved and the A-pillars are located rearward of the bus front end, are required.

VRU Frontal Crashworthiness Energy Absorption

All bus front ends, in the region of potential head contacts, are required to have a construction that absorbs energy to improve protection for VRUs during a collision and in the event of a contact at that location on the vehicle.

Windscreen wipers, and in particular the windscreen wiper bosses and spindles, that are mounted in the region of a potential VRU impact provide rigid structures that may cause greater injuries if struck. Windscreen wipers are therefore required to be positioned above the windscreen or have a construction that absorbs energy to improve protection for VRUs during an impact.

In order to avoid situations where mirrors and mirror arms collide with vulnerable road users, all buses shall be fitted with a class II CMS to replace the main mirror.

4.5 Occupant Protection

Staircase Design

Double-deck buses must have a forward ascending straight staircase with an appropriate step tread depth.

Handrails must be provided to both sides of staircase, continuous throughout its profile, with no potential hand traps.

An additional offside (body panel side) horizontal handrail on the staircase is required, to improve passengers' handhold options when using the staircase. Exposed butt ends to handrails are not permitted anywhere on the staircase or its access.

Headroom throughout the staircase should be sufficient to minimise risk without the need to provide impact protection.

Finishing edges shall be high quality moulded covers that cope with high passenger volume operation

If transparent materials are used to provide the aisle side staircase panel in the lower salon, it should be of obscured material to achieve a decency screen for staircase users.

If interior panel / corner finishing is utilised, it should be of suitable quality / standard to cope with high wear operation, and if damaged, should not present an immediate increased safety risk.

Seats

The seating arrangement of vehicles must comply with the following:

- seats shall be light weight high back with integrated headrest and grab handles
- seating shall be of a closed back design to restrict the potential of pickpockets to operate whilst utilising the seating immediately rearward
- any seat backs and pads that are moulded into body panels must provide equivalent levels of comfort to that provided by the main saloon seating
- seats shall be equipped with securely fixed, replaceable seat and back pads, which shall be double padded to provide a good quality of comfort and support for passengers
- seat covering shall be moquette/material in a single colour which is consistent with WYCA's branding
- Priority seating must be provided (see section 7.3).
- Tip up seats are not generally permitted anywhere on the bus. However, these will be considered by WYCA where they can demonstrate an improvement in safety and/or customer experience.

- Seats should be forward facing, except where the chassis design function over wheel boxes necessitates inward or rearward facing

Mandatory option – In line with the requirements above, OEMs should put forward seating options with different levels of comfort for consideration by WYCA.

Mandatory option – In line with the requirements above, OEMs shall put forward an option for a bespoke fully branded WYCA seating demarcation

Handrail/Stanchion Construction & Installation

All handrails and stanchions shall be constructed such that they meet UNECE Regulation 107 and PSVAR2000. Handrails and Stanchions should be coloured, in line with the WYCA brand guidelines.

Staircase handrails shall be of identical cross section to the main saloon handrails A longitudinal waist height handrail shall be provided, forming a continuous passenger waist height hand grip support from the front passenger door entrance / driver cab area to the beginning of the passenger seated area or staircase steps.

Door partition handrails, positioned to assist boarding and alighting, must be fitted at all entrance and exit points, excluding emergency exits.

Seat back to ceiling handrails (with bell push) are required at all forward facing seat pairs in the lower saloon. In the upper saloon, either seatback to ceiling handrails or a suitable alternative (handgrabs in highback seats etc.) are required at alternate seat pairs as a minimum. On both saloons, where bell pushes are integrated into seatbacks, there shall be a minimum of one bell push per seat pair.

All bell push buttons shall be coloured red with surrounds coloured such that they contrast with both the red bell push and the hand poles, whatever their colour.

Where horizontal handrails are fitted in standing areas, bell pushes, as described above, must be placed in a position so as to limit the risk of accidental activation by passengers leaning on them.

Horizontal rails above the wheelchair and/or standing areas to be fitted with hanging grab hand holds of the flexible type. These grab hand holds shall only be used in the low floor area and must not be placed in entrance / exit doorway areas.

Guards for Exposed Seats

Guards for exposed seats shall be fitted as per the performance requirements where any seated passenger is likely to be thrown forward into a designated wheelchair space, buggy (pram) space, or open area for standing passengers as a result of heavy braking, as specified in the 06 series of amendments for UNECE Regulation 107.

Flooring and Slip Prevention

Slip resistant flooring shall be fitted throughout the passenger saloon area. In addition:

- At the date on which a Vehicle first commences operation of the Passenger Services, all flooring material types shall provide a minimum slip resistance under wet conditions. The material will be deemed to have failed to comply with the requirements of this paragraph 2.5.2 if the mean Pendulum Test Value (PTV) is found to be less than 36.0.
- Thereafter, all flooring material types shall be assessed annually for a period of 7 years from the point of entering service. Throughout this period the material shall provide a minimum slip resistance. The material will be deemed a failure if the mean PTV is found to be less than 40.0.
- Colour contrasting step nosing shall be used on all step edges in accordance with the Public Service Vehicle Accessibility Regulations 2000 (PSVAR).

- Any joints shall be heat welded.
- Flooring design shall be in a light colour

Door Safety

All vehicles must operate a door system that complies with the following requirements:

- the system shall be inward glider type, flush fitting to the body side when closed and one-piece full depth glass in each door leaf for maximum Driver view of kerb side;
- header panels must provide adequate prevention against finger ingress to the door operation mechanism;
- door partition handrails positioned to assist boarding and alighting must be fitted, excluding emergency exits;
- Overhead illumination, of door opening area must be provided at minimum levels
- Door closing audible warning device on all exit doors, to be of beeping sound and
- not to exceed 75 dBA, when measured at 1m height from the body floor on centre line of the bus and exit door.
- the emergency door controls fitted to the door must be disabled automatically by way of an interlock when the Vehicle is travelling at speeds above 5kph; and
- The door control logic shall be such that it is not possible for the driver to open the exit door while the access ramp is either in the process of extending or retracting. It shall only be possible for the exit door to be opened when the ramp is either fully retracted or fully deployed. However, it must still be possible for an emergency door operation to over-ride the restriction.

4.6 Miscellaneous Safety Features

Tyre Blow Out Protection Liners.

All wheel arches of a Vehicle must be fitted with tyre blow out protection liners;

Nearside Front Tree Guard (Double Deck)

All double-deck Vehicles are to be fitted with a substantial near side front tree guard, which shall give additional forward protection to the front seated passengers, exterior dome and near side corner window-pillar of the Vehicle

Rescue Sheet (RS) & Emergency Rescue Guide (ERG)

To provide information to emergency services, WYCA require a Rescue Sheet and Emergency Rescue Guide (ERG) to be custom generated for each specific make and model of bus design by the Bus Manufacturer. The Rescue Sheet and ERG is combined to form one document, based on the ISO 17840-2 and ISO 17840-3. Every bus operating on the WYCA network shall carry the model specific combined Rescue Sheet and ERG on board at all times, which is to be presented by the Bus Driver to Fire and Rescue services in the event of an incident. The purpose of the rescue sheet is to use as little text as possible, it is ‘quick information’ for first responders.

4.7 Added Value Safety Features

Desirable Option - whilst not currently mandated, WYCA welcomes added value safety features from OEMs/Operators including but limited to pedal-application error, runaway bus prevention and alcohol interlock installation facilitation.

5. Environmental Performance & Powertrain

5.1 General

The combined engine and transmission acceleration controls should limit the bus to a rate that delivers an acceptable WYCA emissions performance whilst still providing the driver with adequate acceleration performance in the fully laden condition.

Full bodywork insulation shall be fitted to sides, roof, front and rear and internal bulkheads where appropriate to minimise heat loss from the heated passenger saloon to the environment in cold weather and to minimise heat intrusion from the engine into the passenger saloon, particularly in warmer conditions.

5.2 Air Quality and Emissions (Diesel/Hybrid)

The tailpipe emissions from the bus shall be to the latest legal Euro requirements at the time of certification of the Vehicle.

Vehicles at a minimum shall meet the Euro VI emission standard. Operator Supplied Fleet must be OEM certified to Euro VI emission standard (OEM certified buses below Euro VI that have had emissions reduction technology fitted shall not be accepted). This restriction applies to all Operator Supplied Fleet entering operations at the Commencement Date and during the franchise term.

The use of BS EN 590:2000 (50 ppm sulphur) compliant diesel fuel is a minimum requirement.

Exhaust System Design

Exhaust fumes should be delivered on or below the bus skirt to the rear of the bus, either at the offside portion of the rear of the bus, or on the offside of the bus, behind the rear axle. Exhaust fumes shall not be emitted at the near side of the bus.

Engine Idle Shutdown System

To prevent buses running engines or over using high voltage systems (in the case of Zero Emission Vehicles) and ancillary systems for long periods whilst stationary, an automatic ignition shutdown system shall be incorporated.

The engine or high voltage systems (in the case of Zero Emission Vehicles) and any noise generating ancillary systems shall be automatically shut down when the following 2 conditions are met:

- The bus has been stationary for 2.5 minutes

AND

- The park brake is applied.

The driver shall be provided with:

- An audible warning 1 minute prior to the shut down

AND

- Have the facility to override this back to the 2.5 minutes of stationary operation

All buses shall have this idle shutdown operation, regardless of powertrain type.

5.3 Carbon Dioxide Emissions

The OEM shall, for bus all types, provide a statement of the embedded carbon footprint of the bus covering initial manufacturing to disposal at the end of a 14 year life cycle. This calculation shall exclude consumables used during operations.

Hydraulically driven cooling fans, for any system, shall not be permitted.

5.4 Noise Emissions

The braking system should use disc brakes at each wheel station in order to minimise brake squeal.
The complete vehicle supplied for testing either by the OEM or an operator shall be fully compliant with all other aspects of this specification and be fitted with all equipment necessary for operation in WYCA region.

5.5 Infrastructure Protection

Buses shall be equipped with road friendly suspension, which is defined as a suspension system where at least 75 % of the spring effect is caused by an air spring or where the suspension is recognised as equivalent to air suspension using the definitions of Annex II of Council Directive 96/53/EC on authorised weights and dimensions.

6. Operational Efficiency

6.1 Energy Efficiency

6.1.1 Powertrain Specifics - ZEB

OEMs and Operators need to be satisfied that the battery capacity, charging regime and battery life of vehicles are suitable and appropriate for the route(s) on which they are proposed, including the heating and cooling requirements. This should be demonstrated by a robust assessment of the proposed routes and proposed vehicle models to suit such as route-wise modelling.

Charging Requirements

Each bus must be capable of DC charging via a CCS combo-2 socket and must have two sockets, one on each long side of the bus. Other type connections can be installed as an option.

The daily operating range of a BEV is primarily determined by battery capacity and vehicle efficiency on a route i.e. the amount of energy stored in the batteries (kilowatt hours = kWh) and the amount of energy used per kilometre driven (kWh/km).

Battery Capacity

For each bus type, the minimum battery capacity is as follows:

- Midi (i.e. Single Deck between 7.8 to 8m in length): 236 kWh
- Single Deck (i.e. Single between 10.1m and 12.0m in length) 350 kWh
- Double Deck (all types): 400 kWh

Battery Warranty

Battery warranty must be made available to meet the following requirements:

- 8 Years
- 800,00 km
- 1,400,000 kWh

Mandatory Option

- *10 Years*
- *800,00 km*
- *1,400,000 kWh*

Battery Range

Buses must include batteries that can achieve the minimum range requirements as set out below:

- Midi: 282km
- Single: 362km
- Double: 370km

Performance Tracking Data

The following parameters shall also be logged and made available to Operator/WYCA in order to monitor vehicle and system performance in use (required units in brackets):

- Vehicle Energy Consumption (kWh/km)
- Vehicle Energy Efficiency (kWh/km)
- Charge time (minutes)
- Charge Energy Transfer (kWh)
- Regenerated Energy from Regen Brakes (kWh)
- Vehicle Total Battery State of Charge – Pre-Charge (%)
- Vehicle Total Battery State of Charge – Post-Charge (%)

6.1.2 Powertrain Specifics - Diesel/Hybrid

All new diesel vehicles must have a minimum engine specification of: Euro VI

6.2 Tyres & Guide Wheels

6.2.1 Tyres

The Operator shall comply with the provisions of the DVSA's guide "Guide to maintaining road worthiness: commercial goods and passenger carrying vehicles" (https://www.gov.uk/government/publications/guide-to-maintaining-roadworthiness) which sets out the principles for a tyre management system and also the Tyre Industry Federation's guide "Guide to tyre management on heavy vehicles" (www.fta.co.uk/files/public/road/cv-tyre-management) which sets out industry-recognised best practice regarding tyre maintenance on heavy vehicles. This guide has also been endorsed by the Traffic Commissioner.

Only new tyres or re-grooved new tyres shall be fitted to steering axles.

No tyres older than 10 years shall be used on Vehicles providing the Passenger Services.

Desirable Option - Guideway Routes and Guideway Wheels. Specific routes may require may use of guideways and thus require guideway wheels. WYCA will confirm these with the OEM/Operator.

6.3 Minimising Dwell Time

Requirement for all service doorways are as follows:

- Entrance and exit doors shall provide a minimum individual clear width of 1200 mm, utilising an equal width two door leaf closure. A reduction in the clear width is permitted as defined within UNECE Regulation 107 as amended. Where a reduction is required, the minimum individual clear width of 1030 mm must be maintained across the entire height of the door.

6.4 Fleet Management & On-Board Systems

Antenna

All buses must include provision for an antenna during build. An antenna shall be installed on the roof of the vehicle, above driver's seat. The area above the front door shall be avoided. The antenna should always be positioned on the highest point of the roof and spaced well away from any other objects or obstructions.

Antennae shall be capable of managing long-range, short-range communication along with GNSS location, this includes as a minimum:

- 4g/ /5g data comms - Voice over Internet Protocol and real-time data

- Wifi Connection (802.11i) for depot communication and for software and data upload/downloads

OEMs should refer to the ITxPT S01 specification for consideration of cable tolerances and terminals.

The antenna will support relevant onboard systems. The exact antenna requirements shall be confirmed by WYCA.

CCTV/Audio Recording

All buses must include Colour Digital CCTV which OEMs will be required to supply, fit and install.

Camera Function and Quality

Cameras should have the appropriate resolution, level of compression and number of pictures per second. This should as a minimum cover:

- The image resolution shall be 720p or better
- Each camera input shall be capable of recording at 25 frames per second at the maximum image size and highest image quality concurrently.
- All cameras must be housed in a Vandal Resistant Dome or Concealed

Storage

- Access to the system and video recordings should be controlled to prevent tampering or unauthorised viewing.
- Electronic access controls, such as passwords or encryption, should not prevent authorised access to the system or video recordings
- The system should store good quality video throughout the retention period
- The system should be capable of securing relevant video for review or export at a later date

Export

- The system should be able to quickly export video to a removable storage-medium, with time and date integral to the relevant picture
- Export should include any software needed to view or replay the video
- Video should be exported in the native file format at the same quality as stored on the system

Playback

- The playback software should:
  - have variable speed control including frame by frame, forward and reverse viewing
  - display single and multiple cameras and maintain aspect ratio i.e. the same relative height and width
  - display a single camera at full resolution
  - permit the video from each camera to be searched by time and date
  - allow printing and or saving of still images with time and date
- The time and date associated with each picture should be legible.
- The replay software must allow any agreed third-party to search the video effectively and see all the information contained and associated with it.
- It should be possible to replay exported video with no loss of quality.

Camera Locations

Camera locations for all buses (i.e. both single and double deck) are as follows:

- Entrance Platform and Passenger / Driver Interface
- Exit Platform, Wheelchair Space and Deployed Ramp Area -Viewing Wheelchair Space only on Single Door Buses under 9m

- Two cameras at rear of interior seated area looking forwards covering minimum rear five-way and last four rows of seats. Alternatively, use of single camera with a wide-angle lens.
- Between the centre door and the front of the bus which may be mounted either at the front looking rearwards or at the centre door looking forwards.
- Forward facing to road ahead of bus
- Interior Drivers Cab looking towards Drivers Signalling Window
- Footwell camera

Additional camera locations for double deck only:

- Two cameras at rear of upper saloon interior seated area looking forwards covering minimum rear five-way and last four rows of seats. Alternatively, use of a single camera with a wide-angle lens.
- Lower saloon between the centre door and the rear of the bus which may be mounted either at the rear looking forwards or at the centre door looking rearwards.
- Top of stairwell looking downwards

OEMs/Operators need to ensure provisionally wiring is in place to serve the camera locations and also allow sufficient space for a Digital Video Record (DVR) and accompanying hard drive for storing and capturing of CCTV data. The hard drive should be enclosed in a secure, lockable and vandal proof enclosure.

Mandatory Option - WYCA welcomes alternative CCTV solutions that provide a more efficient approach to camera coverage as set out above.

Automatic Vehicle Location (AVL)

WYCA will separately be procuring an AVL system, which will support network operations, and may be free-issue this to the manufacturer to install. Suitable provision with cabling and wiring should be provided with exact requirements to be confirmed by WYCA.

Telematics

All buses shall have a suitable telematics solution providing real-time data on a bus's performance. Telematic solutions must:

- Provide real-time data on a bus's performance including but not limited to location, speed, engine performance, route performance, etc
- An onboard diagnostics system detecting a malfunction and error code dashboard alert for the driver
- For EV buses, the Telematics system shall also be compatible with electric vehicle charging infrastructure and provide data on battery and charging performance (see section 6.2.1 above)
- Telematics data must be accessible by WYCA for use of staff in a clear and accessible way (front-end dashboard or similar)
- The Telematics solution will work in tandem with the FMS.

Driver Public Address (PA) System

All buses shall be fitted with a Driver operated PA system (for driver to passenger communications).
Mandatory Options – OEMs should provide options for PA systems, this could be, but is not limited to, a standalone system, a system integrated to the AVA system, an AVL integrated system.

Ticketing

WYCA will procure their own Electric Ticketing Machines (ETMs). Operators will be required to install and fit this to the buses. Provision should be made to accommodate the ticketing hardware including wiring, installation and suitable protection of the ETM equipment.

OEMs should refer to the ITxPT S01 specification for consideration of cable tolerances and terminals.

Cabling Installation and Access

Designated cable channels should be provided within the voids between the vehicle body inner and outer skins such that cables can easily be drawn between all equipment compartments and any other part of the vehicle in which equipment may need to be installed.

In particular, there shall be easy cable routes between equipment compartments and the following areas:

- Cab dashboard, header panel, offside console and coving, rear bulkhead
- Offside and nearside covings, full length of both saloons
- Header panels, both saloons
- Staircase front, rear and side bulkheads, both saloons, and under stairs area
- All power door gear compartments
- Front, nearside and rear route/destination display equipment
- Engine compartment
- Antenna location (forward roof area)
- Seat stanchions/grab poles
- Any further specific locations to be identified

It shall be possible to feed and draw cables to and between these areas without the need for extensive dismantling of the coachwork, and definitely without the need for any cutting, drilling or other invasive surgery. This shall be achieved by ensuring that all voids/channels are contiguous and can be accessed easily by the provision of appropriate access points. All voids and/or channels shall be contiguous and accessed easily by the provision of appropriate access points.

Cables shall be installed so that when being removed they do not snag existing cables or equipment. All cable routes, channels and ducts shall have access points at regular intervals, and at all junctions and changes of direction, to facilitate the insertion and removal of cables.

Where a cable is secured to a fixing point, the fixing point must be accessible such that the method used to secure the cable can be easily removed in order to free the cable.

Cables shall be installed so that when being removed they do not snag existing cables or equipment.

The upper and lower deck coving voids shall have channels on the left and right hand side so that it is possible to freely run cables the full length of the roof of the Vehicle, and access shall be provided at regular intervals to facilitate this.

The channels in the roof space in the upper and lower deck shall be connected by channels running across the Vehicle from left to right. Such cross bus channels shall be at the front and rear of the Vehicle, and access shall be provided at regular intervals to facilitate the use of these cross bus channels.

There shall be fixing points to fix the cables throughout the length of all channels in the roof space of the Vehicle. The fixing points shall be spaced at distances of approximately 200mm.

It shall be possible to run cables from the equipment enclosure to the lower deck roof space on the left and right hand side. It will be acceptable for the cables to follow the same route to the roof space and then one cable can use the cross bus channelling to access the other side. Access shall be provided at regular intervals to facilitate the use of such cross bus channelling.

It shall be possible to run cables from the equipment enclosure to the upper deck roof space on the left and right hand side. If practical, the cables may follow the same route to the roof space and then one cable can use the cross bus channelling to access the other side. Access shall be provided at regular intervals to facilitate the use of such cross bus channelling.

All access panels used to facilitate the above shall have fastenings designed for the purpose of being removed and refitted by authorised personnel. At other times the panel shall remain securely in position. All access panel fastenings shall be captive.

All access panel fastenings shall be captive, with no raised edges protruding.

In the event access is restricted in areas such as the bodywork to the side of the upper deck front screen and the stairwell, conduit should be provided.

Where conduit is required at the upper deck front screen, 2 pieces of conduit shall be provided so that one piece of conduit will branch and run towards the front screen, and the other piece of conduit will run towards the rear of the Vehicle.

Where conduit is required and the path is convoluted with tight bends, conduit shall be used in multiple straight lengths.

Where it is not possible to have intermediate access points, the minimum bend radius of the conduit shall be as advised by the supplier of the conduit.

Where it is not possible to have intermediate access points the maximum bend radius of the conduit shall be as advised by the supplier of the conduit.

All conduit used shall have a smooth internal wall allowing cables to be pushed through easily.

Where conduit is used it shall be sufficiently long to be accessible at each end to allow easy access.

The conduit used shall be a bright colour to allow it to stand out and be distinguished from the conduit used for the Vehicle systems.

If there is a restriction to the dimensions of the conduit due to, for instance the body work, then the largest dimensions possible shall be used. As a minimum this shall allow an un-terminated Ethernet cable to be drawn through when all cables using the conduit are present.

Cables for all of the Operator equipment fitted shall be separate and clearly identifiable.

Where a cable goes through a bulkhead, the cable should be secured in such a way that the integrity of the bulkhead is maintained. The method used should allow for additional cables to be fitted.

7. Accessibility

7.1 General

In line with Public Service Vehicles Accessibility Regulations (2000), vehicles must incorporate features to enable disabled people to travel safely and comfortably.

7.2 Flooring

The completed bus must be designed as a low floor.

7.3 Seating

Priority Seating

A minimum of 4 priority seats shall be provided

Preferential Seating

A minimum of a further 2 additional “preferential” passenger seats shall be provided in the low floor area for passengers who are less able to stand or who are travelling with small children

Priority or preferential seating on the low floor area shall maximise under-seat space as much as possible, for use by guide or assistance dogs. The height from the floor to the top of the seat cushion should be approximately 490 mm to achieve this

All of the seats will be fully defined on the approved seating layout as approved by WYCA.

Seating Demarcation

OEMs shall put forward demarcation solutions for Preferential and Priority Seating so that they are easily identifiable by customers. Priority and Preferential demarcation should be consistent with the overall seat branding colour for all passenger seats as set out in Section 4.5.

Mandatory Option: OEMs shall put forward an option for a bespoke fully branded WYCA priority and preferential seating demarcation

7.4 Ramps

An access ramp must be provided. The requirements are as follows:

- power operated will be acceptable;
- the Operator shall ensure that the ramp is protected from damage and remains operationally reliable;
- a powered ramp requires a deployment audible warning device at the door with a beeping sound and not to exceed 75dB(A);
- if operation of the powered ramp fails in service a permanent warning light must be displayed in the Driver‘s cab until a successful ramp operation occurs; and
- access ramps must function on all kerb heights which are reasonably likely to be encountered on streets in WYCA region

7.5 Wheelchairs

Wheelchair Area Dimensions & Appearance

All buses must make provision to carry at least one wheelchair user and their occupants.

Wheelchair spaces must fall in line with PSVAR regulation with minimum dimensions of 1,300mm x 750mm.

Buses shall be designed such that wheelchair access is via the door positioned mid wheelbase on two or more door buses or via the front door on single door buses

Wheelchair bays shall provide alternative pushchair space and standing area when not in use for wheelchair location, and suitable handrails and leaning rails must be provided for this purpose

The wheelchair interior manoeuvring area and the ramp deployment area must be monitored by CCTV and displayed on the driver’s cab monitor when doors are open.

A wheelchair logo shall be incorporated into the floor covering, readable by a person facing the off side of the vehicle. The logo shall display the rearward facing position of the wheelchair. The full wheelchair area shall be coloured blue (as close as possible to the blue used on the wheelchair notice, PMS 300) and the wheelchair logo shall be coloured white.

Flexible Space adjacent to Wheelchair Area

There should be provision for a flexible space which can provide resilience to the Wheelchair Area including for their occupants or larger electric mobility scooters above and/or buggy users beyond the minimum dimensions as set out in PSVAR.

Mandatory Options – OEMs shall provide options for wheelchair and flexible space in line with the following options:

- *2 wheelchair spaces*
- *2 wheelchairs spaces and a flexible space*

Wheelchair Area Handrails and Bell Pushes

The wheelchair floor to ceiling security handrail must have two bell pushes. The lower (blue button, facing forwards) to activate ramp request (as required by PSVAR2000) and a higher (red button, facing rearwards) as a standard bell push.

The wheelchair stanchion hand pole should not attach to the floor to allow for unhindered manoeuvres into and out of the wheelchair area.

The ramp request blue button push operation must activate an alternative sound from that of the standard bell push. The alternative sound must be:

- audible each time the button is pressed
- clearly audible from the wheelchair position
- easily accessible by the wheelchair occupant while in the recommended travelling position.

7.6 Bell Pushes and Handpoles

Stanchion pole design/arrangements must be such that standing passengers are not able to support themselves in the seating position.

All bell pushes are required to be marked in brail with the brail symbol for the letter S

Bell pushes at priority seating areas must be positioned such that they are within easy reach, and passengers can remain seated while operating them.

Horizontal rails above the wheelchair and/or standing areas to be fitted with hanging grab hand holds of the flexible type. These grab hand holds shall only be used in the low floor area and must not be placed in entrance / exit doorway areas.

7.7 Induction Loops

Vehicles shall be fitted with an induction loop system linked to the on-bus audio and visual announcement system and for Driver-passenger communication with T band electronic hearing device(s).

Vehicles shall be fitted with an induction loop system linked to the on-bus audio and visual announcement system and for Driver-passenger communication with T band electronic hearing device(s).

The following areas must be covered by induction loop(s):

- passenger entrance platform/cab interface;
- priority seating positions; and
- wheelchair area.

The induction loop zones must provide sufficient audio frequency levels to ensure passengers using T band electronic hearing devices can comfortably hear the Driver and on-bus audio announcements when positioned in each of the areas above [add specific reference]

The induction loop installation standards in respect of each new Vehicle should take all of the relevant design features of that Vehicle into account to ensure the induction loop system functions are at the optimised operating range (re area of coverage), and shall provide the best possible service to passengers.

A Driver's cab microphone, for communicating with passengers using T band electronic hearing devices must be:

- active at all times when the Vehicle is providing the Passenger Services; and
- positioned to the side or above the Driver partition screen;

Nationally accepted signage/notices shall be attached at each location identifying induction loop zones;

The Operator shall procure that the induction loop supplier and OEM of the Vehicles shall provide WYCA with a specification document for each Vehicle type showing:

- exact loop pad location using visible datum points and measurements for loop positioning;
- audio frequency field strength using diagrams showing coverage along the swept area, horizontal and vertical axis;
- background noise, interference does not exceed the recommended limits as defined in standards BS7594, BS6083, BS6840, BS EN 60118; and
- cable shielding measures used to ensure electromagnetic capability;

To ensure consistency in testing methods and standards; height measurements within the swept area must be specified to ensure all passenger groups including seated, wheelchair users and standing passengers have a clean audio signal free from interference;

Only testing and measuring equipment approved by the induction loop supplier must be used. Where hearing induction loops are not fitted it shall be upgraded as part of the programme for Enhanced Requirements as more particularly detailed in

7.8 Audio-Visual Information

Illuminated display signs providing passengers with information on the next stop will provided (on both decks where applicable). These shall be suitably positioned for maximum visibility to passengers. Audio and visual information displays must comply with PSVAR 2023.

The Audio-Visual requirements will cover but not be limited to the following requirements:

- TransXChange data should be used as the basis for routes and timetables in Audio-Visual systems, this should be the same version as has been submitted to the DfT. This is the currently agreed national standard, if this were to change this requirement would reflect the change
- NaPTan dataset should be used for stop names and information in AVA systems
- Ability to display WYCA branding
- The system should allow for key points of interest to be presented to customers on a stop-by-stop basis.
- The time and date should be displayed to customers visually.
- The final service destination should be displayed to customers visually.

Further to the requirements of the PSVAR 2023, a forward facing display should be included so that it is visible to rearward facing passengers.

8. Occupant Experience

8.1 Driver Cab Ergonomics

The general layout shall be suitable as a working environment and be ergonomically designed to assist and protect the driver.

A cab screen demisting system shall be provided and shall be fully controlled by the Driver and capable of independent operation to the saloon heating.

The windscreen in front of the driver shall have a tinted section at the top or a suitable sunblind

A driver operated PA system (for driver to passenger communications) will be provided

8.2 Passenger Saloon Ergonomics

All side glass windows (excluding doors and driver's signal window) of identical tinted glass, where legally permitted.

- Solar energy transmittance of not more than 65 %
- Light transmittance of not more than 80 %

Illuminated display signs providing passengers with information on the next stop will be provided (on both decks where applicable). These shall be suitably positioned for maximum visibility to passengers. Suitable mouldings and fixings for the display signs should be provided.

Interior saloon lighting shall provide the minimum levels of illumination at the locations defined below:

- Seats, 150 mm above cushion level: 150 Lux
- Aisles, at floor level on bus centreline adjacent to each and every seat: 100 lux
- Steps, at floor level at the centre of entrance and exit steps: 100 lux
- Double deck stairs, at floor level on the centre of every tread: 100 lux

The interior saloon lighting shall be automatically switched off when exterior ambient illumination levels are sufficiently high.

Turning on of the interior lighting shall remain under the driver's control.

8.3 Heating, Ventilation & Air Conditioning (HVAC)

Driver Cab HVAC

The HVAC system for the bus shall keep the driver's cab air supply and recirculation system completely separate to the passenger saloon system.

All air vents in the driver's cab shall deliver treated fresh air to meet the driver's demand. The driver shall always have full control over whether or not the fresh air is heated or cooled. All air vents shall deliver a homogenous mix of air.

The HVAC system must be able to maintain a temperature between 16 to 25 degrees Celsius at all times

Passenger Saloon HVAC

All buses shall be fitted with a fully automatic saloon HVAC system.

A blown air HVAC system shall be independently controlled and delivered to both lower and upper deck where applicable. The HVAC system shall be designed for each applicable deck such that:

- Heating shall be supplied at floor level (at a maximum vertical height of 30 cm above floor level).
- Cooling shall be supplied from ceiling level (at a maximum vertical height of 30 cm below the ceiling, where the ceiling is defined as the highest point of the interior of each applicable deck).

All direct contactable vent surfaces and air flow temperatures shall not exceed 45ºC.

The HVAC system must be able to maintain a temperature of 16 degrees Celsius at all times.

The supply of floor heating within the designated wheelchair area shall ensure that:

Any ducting/vent designs are free from obstructing wheelchair access, manoeuvrability and/or prevent the correct safe travel positioning of the wheelchair/scooter.

there shall be fully automatic thermostatic control of the heating and ventilation system. The thermostatic sensors should be positioned to reflect the interior, upper and/or lower deck temperature of the Vehicle and be in a tamper proof location. Heated or unheated air should be circulated throughout the Vehicle dependent on the interior Vehicle temperature;

Thermal Insulation

Provision for passenger saloon ventilation should be provided by opening (hopper vent) side windows.

On single deck buses such windows shall be provided at all full size bays.

All side walls and roof areas shall be fully insulated. Moreover, the floor surface should also be insulated. To reduce the coefficient of heat transmission as much as possible, suitable materials shall be used and/or suitable design measures like coated panes or insulation glass shall be taken.

To achieve sufficient comfort, the surface temperatures of the single surfaces in the bus shall deviate as little as possible from the average interior temperature.

8.4 Seating

General Seating Requirements

Operators should provide generous seat pitches throughout the bus to permit ease of movement and local stowage of hand luggage.

General arrangement drawings and capacities shall be agreed with WYCA. Individual passenger seats shall be installed at all seating positions and shall be no less than 440 mm wide, including moulded panel areas, unless otherwise identified and agreed with WYCA.

Seats shall be equipped with securely fixed, replaceable seat and back pads. These seat and back pads shall be of sufficient thickness and quality to provide a good quality of comfort and support for passengers.

Any seat backs and pads that are moulded into body panels must provide equivalent levels of comfort to that provided by the main saloon seating.

Seat Designs

Seating design will be in accordance with requirements set out in Sections 4.5 and 7.3

8.5 USB Charging Points

For all new Vehicles to be used for the provision of the Passenger Services, USB power supply and charging points shall be provided at all seating areas and the designated wheelchair area and shall be capable of charging typical mobile phones and tablet computers. Such USB power supply and charging

points should be mounted in seat backs where possible, and the ports alternate per seat pairing with a USB-A and USB-C (i.e. one seat has USB-A and the adjacent has USB-C).

Installation of USB power supplies must be such that:

- Each individual plug-in port must incorporate an inline fuse
- Each plug-in port maintains the seat back profile, and does not protrude from the panel surface panel by more than 10mm
- They have a minimum IP54 rating
- They are tamper proof
- the plug-in port is finished in a colour that would not be mistaken for a bell push;
- they are E marked;
- plug-in ports must not be located within any head impact zones; and
- the plug-in port for the designated wheelchair area must be accessible for the wheelchair occupant when in the recommended travelling position.

Mandatory Option – every seat (where possible) must have a 50:50 split of USB-A and USB-C

9. Aesthetics & Image

9.1 Flooring Appearance

The following flooring requirements must apply:

- Slip resistant flooring shall be fitted throughout the passenger saloon area.
- The slip resistance of flooring material shall be characterised under wet conditions. The material will be deemed to have failed to comply with the requirements if the mean Pendulum Test Value (PTV) is found to be less than 36.0
- Colour contrasting step nosing shall be used on all step edges in accordance with the Public Service Vehicle Accessibility Regulations 2000 (PSVAR).
- Floor coverings shall have joints minimised.
- Any joints shall be heat welded.
- Flooring design shall be in a light colour with a non-reflective surface.

9.2 Route and Destination Displays

Buses shall be equipped with power operated front, side and rear destination displays simultaneously controlled by one route / destination selection unit in the driver's cab.

The requirements are as follows:

- white LED displays on the front, side and rear of the Vehicle shall be required, with a route selection unit in the Driver's cab which simultaneously controls the front, side and rear displays;
- rear destination displays shall be 'full size' displaying route number and route text;
- destination displays shall have a minimum LED pitch of 10mm and be of a lightweight construction;
- destination displays shall be integrated with the audio and visual announcement system and associated equipment to provide additional passenger information, for example countdown to departure;
- any destination display must be capable of displaying:
  - characters of not less than 125mm in height when fitted to the front of the Vehicle and not less than 70mm in height when fitted to the side of the Vehicle; and
  - route numbers of not less than 200mm in height on the front and rear of the Vehicle and not less than 70mm in height on the side of the Vehicle;

All displays shall be in a font that is consistent with the WYCA Branding Guidelines.

9.3 Running Numbers

Running number boards (if utilised) must be positioned and displayed in a manner that cannot be misinterpreted as a route number. They should to the sides of the vehicles on the bodywork, or if in the windscreen area in a position that does not in any way obstruct the drivers' view.

- The character font must be yellow on black
- Font size shall not be greater than 200mm in height
- The display shall be of a professional appearance.
- Soft print copy taped or positioned adjacent to windows is not permitted

9.4 Other Internal and External Signs and Notices

Specific operator notices shall not be permitted, for example:

- Operator specific Welcome Aboard notices (on driver's cab door, panels, glass, or in floor covering)
- No notices, information, legal address, recruitment or any other advertising material is permitted on the interior or exterior of any window without prior permission of WYCA.

- CCTV advisory notices
- Audio advisory notices

Notices provided by operator must be fitted in the appropriate positions:-

Fleet numbers and operator identification code shall be marked on the roof. Operator codes shall include black cut out lettering of operator code over fleet number, 350mm in height, positioned on centre line of bus, transversely at rear of white roof section.

- Operator logo positions shall be as agreed in management document illustrations for each operator
- All external and internal legal notices, shall be in a single contrasting colour, cut out type if appropriate.
- All notices and signs to be in WYCA's bold or medium font unless legally required otherwise

9.5 First Responders Vehicle Propulsion Identification Symbols

Recommendations have been made by the fire service to ensure that the type of propulsion of each bus is clearly stated. Identification of propulsion systems will help to maximise the safety of staff, customers, and first responders during an incident.

- All Propulsion Identification Symbols must comply to ISO 17840-4:2018
- General recommendations in ISO 3864 shall be followed to ensure the symbol has the appropriate dimensions to be readable and clear from a distance.
- General recommendations in ISO 3864 shall be followed to ensure the symbol has the appropriate dimensions to be readable and clear from a distance.
- All Propulsion Identification Symbols shall be placed and orientated in such a way that the propulsion type can be recognised from all 5 sides of the bus.
- If the propulsion system of the bus is changed, modified, or updated, it is the responsibility of the Bus Operator to ensure the identification symbols, Rescue Guide and ERG are updated accordingly.
- No Propulsion Identification Symbols shall be obscured by any livery changes. Any livery change must ensure the symbol is still visible and obvious.

9.6 External Advertising

The Operator shall procure and install exterior advertising panels in the following areas when the Vehicle width permits:

- Off Side
- Near Side
- Rear

Advertising panel dimensions will be specified by WYCA based on individual Vehicle dimensions.

9.7 Paint, Colours and Livery

The bus paint, colours and livery shall adhere to the WYCA Bus Design.