

Contents

1.	Executive Summary	5
1.1	Overview	5
1.2	Project Summary	5
1.3	Financial Risk	6
1.4	Summary of Long-Term viability	8
2.	Project Summary	9
2.1	Cost Profile	9
2.2	Proposed funding streams	9
2.3	Funding Agreements	10
2.4	Breakdown of Whole Life Costs	10
2.5	Infrastructure and Bus Costs	12
2.6	Justification for future proofing depot power supply	13
2.7	Evidence.....	14
2.8	Support from Stakeholders and Customers	15
2.9	Summary of Long-Term Affordability	15
3.	Changes since the EOI	16
3.1	The Changes	16
3.2	The Rationale for the Change.....	16
3.3	The Impact of the Changes	16
3.4	Infrastructure.....	17
4.	Funding Profile	18
4.1	Expected Whole-life Costs	18
4.2	Risk Allowance	18
4.3	Funding Sources	18
4.4	Financial Responsibility Statement.....	19
4.5	Other Funding Sources	19
4.6	Budgetary Considerations for the LTA.	19
5.	Viability and Wider Benefits.....	20
5.1	Long-term Viability of the Scheme.....	20
5.2	Delivering benefits beyond the Scheme.....	20

5.3	Cost Estimation and Control	22
5.4	Summary of Running Costs:	22
5.5	Long-term commitments	25
6.	Financial Risk	29
6.1	Assessment of financial risk	29
7.	Legal Requirements	31
7.1	State Aid	31
7.2	Subsidy Control	31
Appendix 1: Funding Profile		32

1. Executive Summary

1.1 Overview

- 1.1.1 This project is one of the key enablers for both Hampshire County Council (HCC) and Portsmouth City Council (PCC) Bus Services Improvement Plans (BSIPs). This project will replace 34 diesel buses operating across the Gosport – Fareham – Portsmouth area, which contains high levels of deprivation and poor air quality. They will be new – modern - accessible battery electric Zero Emission Buses (ZEBs), charged using Renewable Energy Guarantees of Origin (REGO) Certified 'green' energy, providing immediate air quality improvement.
- 1.1.2 Simultaneously, HCC and PCC will be implementing their complementary BSIPs which will ensure faster and more reliable journey times for these buses, improved connectivity between bus routes and other modes of transport and improved lower cost simpler ticketing whilst encouraging a modal shift from car to bus. The bus routes chosen will provide the 25% of households without a car greater and more affordable access to healthcare, jobs and education.
- 1.1.3 The proposal is based on replacing the existing 34 Euro 6 single deck diesel buses operating by First Hampshire and Dorset on Route 1, 3, 9/9A with 34 single deck Battery Electric Buses (BEVs) with a life of 17 years along with the associated charging infrastructure supplied with 'green' energy.
- 1.1.4 The purchase of the buses and charging infrastructure with ZEBRA funding will be done by First Hampshire and Dorset for installation and delivery ready for operations in 2024.
- 1.1.5 The total cost of the scheme is [£14,545,005] and the ZEBRA funding requirement is [£6,599,254]

1.2 Project Summary

- 1.2.1 The purpose of the financial case is to demonstrate affordability and long-term sustainability alongside securing the support of stakeholders and customers.

Vehicles

- 1.2.2 The capital cost of the vehicles for this project is [£12,580,000]. This will be for the acquisition of 34 battery electric vehicles at a cost of [£370,000] each.
- 1.2.3 The cost of the diesel equivalent vehicles has been supplied by FirstGroup plc. At £169,000 per unit, it is lower than the standard DfT assumption of £180,000 contained in the Greener Buses Model. The price reduction reflects the outcome of a procurement process undertaken by FirstBus, and the saving reflects the buying power achieved by bulk purchases by a national operator.

Infrastructure

1.2.4 The infrastructure cost of the bid is [£1,965,005], which works out at [£57,794] per vehicle. The cost includes:

- the supply of [19 x 150Kw] fixed chargers and 2 x 40 Kw mobile chargers for installation at FirstBus' Hoeford depot in Fareham, Hampshire [£705,952]
- The installation of wiring for the charging points and associated civil engineering works [£1,011,763]
- Connection to the National Grid [£91,199]
- Fees and consents [£156,091]

1.2.5 The application for grant funding is [£1,473,754], which represents 75% of the capital cost for the infrastructure works and equipment. The balance of [£491,251] will be funded by the Authorities' private sector partner FirstBus.

1.2.6 Total scheme cost and funding source for cost are shown in Table 1-1 below.

Table 1-1: Scheme Cost and Funding Sources

Scheme	Total Cost	Source (1)	Cost	Source (2)	Cost
ZEB	£12,580,000	ZEBRA	£5,125,000	Operator (First Hampshire and Dorset)	£7,455,000
Infrastructure	£1,965,005	ZEBRA	£1,473,754	Operator (First Hampshire and Dorset)	£491,251
Warranty Costs	Included in price	ZEBRA	Included in price	Operator (First Hampshire and Dorset)	Included in price
Battery Replacement Cost	Included in price	ZEBRA	Included in price	Operator (First Hampshire and Dorset)	Included in price
Diesel Bus Cost (used in grant calculation)	£169,000				
Totals	£14,545,005	ZEBRA	£6,599,254	Operator (First Hampshire and Dorset)	£7,945,751

1.3 Financial Risk

1.3.1 The assessment of the Financial Risk is shown in Table 2 below.

1.3.2 Overall the risk post mitigation is low.

Table 1-2: Assessment of Financial Risk

Risk Name	Last Date Reviewed	Description	Ownership / Management of Risk	Likelihood	Impact	Score	Mitigation Plan	Post Mitigation Resultant Score
FirstBus viability	05/11/2021	FirstBus become financially unviable to pay for this scheme	PCC	1	5	5	If FirstBus run into financial difficulties before funds are released, then DfT can stop the grants FirstBus agreed to meet any increased costs with no impact on scheme or requirement to request funding from the authorities and/or DfT	1
Bus Price	05/11/2021	Price of the buses increases	FirstBus	3	5	15		1
Electricity Price	05/11/2021	Price of electricity increases	FirstBus	5	5	25		1
EV Chargers Price	05/11/2021	Price of the chargers increases		3	5	15		1
Civil Works Cost	05/11/2021	Cost of civil works increases above contingency	FirstBus	4	5	20		1
Power Upgrade Costs	05/11/2021	Power upgrade costs increase	FirstBus	4	5	20		1
Project Management Cost	05/11/2021	Cost of managing the project increases	FirstBus	4	5	20		1

1.4 Summary of Long-Term viability

1.4.1 The long-term viability of the project has been assessed across three categories:

- Operator
- Manufacturer
- Local Authority Partners

The Operator

1.4.2 FirstBus is part of FirstGroup plc and has committed to the project for a minimum of 5 years. FirstBus is one of the largest bus operators in UK with c5,000 buses operating from 54 depots across England and Scotland with a turnover of £699m in FY21¹ and has the financial and management capability to do so.

Manufacturer

1.4.3 The manufacturer **Portsmouth City Council (PCC) and Hampshire County Council (HCC)**

1.4.4 The Local Authorities are fully behind this project as part of their wider plans to decarbonise and reduce environmental impact, enable growth and level up and improve transport for the user. This is evidenced in their Bus Service Improvement Plans (BSIPs), Portsmouth Clean Air Zone, Levelling Up and Growth activities, and Local Transport Plans (No4) – all covered in detail in the Strategic Case.

¹ [firstgroup-ara-2021.pdf \(firstgroupplc.com\)](#)

2. Project Summary

2.1 Cost Profile

- 2.1.1 The length of the ZEBRA project is a minimum of 5 years with the stated life of the ZEB being 17 years. The intention of FirstBus is to utilise these buses on the route for their full life but reserve the right to move them to an alternative route/location based on the commercial situation.
- 2.1.2 The profile of the proposed costs throughout the life of the ZEBRA project is documented in Appendix 1 and the data has been extracted into the tables and is analysed in the Chapters and Sections below.

2.2 Proposed funding streams

- 2.2.1 The summary of the grant ask is shown in Table 2-1 below.

Table 2-1: Summary of Grant Request

Item	Units	Description	Year to 31 March		TOTAL
			2023	2024	
New Electric Buses	Number:	Single	20	14	34
	Number:	Double	0	0	0
	Bus Cost (£m)	@ £0.370m each	7.40	5.18	12.58
	ZEBRA Grant (£m)		3.015	2.111	5.126
Infrastructure	Cost of Infrastructure (£m)		1.965	0	1.965
	ZEBRA Grant (£m)		1.474	0	1.474
TOTAL PROJECT COST (£m)			9.365	5.18	14.545
TOTAL ZEBRA GRANT ASK (£m)			4.488	2.111	6.599
FIRSTBUS CONTRIBUTION (£m)			4.877	3.069	7.946

- 2.2.2 A full breakdown of the grant calculation is shown at Table 2-2 below.

Table 2-2: Itemised Calculation of Grant Request

Item	Cost each (£m)	Number of Units	Total (£m)
Battery Electric Buses			
Single Deck	£0.370m	34	12.58
Double Deck	-	0	0
Total Electric Bus Cost			
New ICE Buses			
Single Deck	£0.169m	34	5.75
Double Deck	-	-	0
Total ICS Bus Cost	-		5.75
Difference Between BEV and ICE			6.83
Grant Request for Electric Fleet (75% of difference)			5.13
Infrastructure			
EV Charging Units			0.706
Civil Engineering Works ⁽¹⁾			1.012
Power Supply Upgrade			0.912
Fees and Consents			0.156
Infrastructure Total			1.965
Grant Request for Infrastructure (75%)			1.474
TOTAL ZEBRA GRANT ASK			6.599
Note ⁽¹⁾ : includes 0.167 for contingency on material cost			

2.3 Funding Agreements

- 2.3.1 ZEBRA project funds will be held by PCC and released to the operator to pay supplier invoices subject to the satisfactory achievement of the project milestones covered in the Management Case. PCC will report progress to the DfT.

2.4 Breakdown of Whole Life Costs

- 2.4.1 The summary breakdown of the whole life cost is shown in Table 2-3 below.

Table 2-3: Summary Breakdown of Whole Life Costs

Item	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
ZEB Depreciation	468,667	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733	796,733
ZEB Maintenance	191,609	315,992	323,146	381,456	402,806	436,559	470,801	2,222,152	1,687,952	459,348	474,061	615,935	589,321	514,0780	533,740
Net Electric (inc BSOG)	- 120,463	- 204,786	- 204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786	-204,786
Total	539,813	907,939	915,093	973,402	994,752	1,028,506	1,062,748	2,841,099	2,279,899	1,051,295	1,066,008	1,207,882	1,181,268	1,106,017	1,125,687

Note: These are vehicle costs only, they are based on First Bus experience of Electric and Diesel vehicle maintenance and operation, they show the expected maintenance costs (based on existing Electric Vehicles and a proportion of the Engineering labour costs, Diesel vehicle costs are based on our aggregated data of current ICE maintenance) as well as the fuel costs. The fuel cost is based on a current electricity price less the 22ppkm BSOG allowance for electric vehicles (using distances for the ZEBRA routes), for Diesel the current pence per litre price less (0.3457 per **litre** PLUS 6ppKM) BSOG allowance.

2.5 Infrastructure and Bus Costs

Infrastructure

- 2.5.1 The infrastructure cost of the bid is [£1,965,005], which works out at [£57,794] per vehicle. The cost includes:
- the supply of [19 x 150kW] fixed chargers (two for engineering) and 2 x 40 kW mobile chargers for installation at FirstBus' Hoeford depot in Fareham, Hampshire [£705,952]
 - The installation of wiring for the charging points and associated civil engineering works [£1,011,763]
 - Connection to the National Grid [£91,199]
 - Fees and consents [£156,091]
- 2.5.2 The application for grant funding is [£1,473,754], which represents 75% of the capital cost for the infrastructure works and equipment. The balance of [£491,251] will be funded by the Authorities' private sector partner, FirstBus.
- 2.5.3 The civil engineering works will be carried out by Scottish and Southern Electricity Networks (SSEN), who will undertake the power supply upgrade works and provide the power needed to charge the bus batteries. Their capability and the price of the works is evidenced in the Economic Case.
- 2.5.4 The 19 high-speed 150 kW chargers and two 40 kW mobile chargers will be supplied by Heliox, the global market leader in charging infrastructure for electric buses, with over 30 years of professional power conversion experience. FirstBus and Heliox are proposing a supply, maintenance and service level agreement which will cover the life of the vehicles, so minimising ongoing maintenance charges and guaranteeing against obsolescence in this rapidly developing product area. The confirmation of this price and capability is evidenced in the Economic Case.
- 2.5.5 The works are designed to ensure that the full fleet (84), running out of Hoeford depot, can in future be operated by electrically powered buses without the need for further infrastructure upgrades. This only applies to the power supply; further chargers will be required. FirstBus have committed to only buying ZEBs from 2022 and to be fully electric by 2035 so making sure the depot has the power to do so, ensures it can be done without the need for the disruption and the cost associated with further civil works.
- 2.5.6 Justification for future proofing the site for the full 84 buses is shown below.

Vehicles

- 2.5.7 The c
- 2.5.8 The vehicles have an expected life of [17] years, and the vehicle price includes a warranty against battery life for the anticipated full vehicle life, so there will be no additional battery replacement costs.
- 2.5.9 [Warranty costs
- 2.5.10 The
- 2.5.11 The breakdown of these figures is shown in Table 2- below.

Table 2-4: Breakdown of Proposed Funding and Sources

Note: As the price of the bus includes the extended battery warranty the ZEBRA funding covers this.

- 2.5.12 The cost of the diesel equivalent vehicles has been supplied by FirstGroup plc and is evidenced in the economic Case.
- 2.5.13 The letter also details the average age of the existing diesel-powered fleet deployed on the routes, which is seven years.
- 2.5.14 The vehicles will be deployed on high-frequency urban bus routes in Portsmouth, Fareham and Gosport. FirstGroup advises that the scheduled total distance run for the routes is [2,435,198] per annum. The annual distance covered by each vehicle is therefore 70,860 km.

2.6 Justification for future proofing depot power supply

- 2.6.1 This plan includes the future proofing of the depot power supply for 84 buses to remove the duplication of future excavation works which is most of the costs associated with Grid Connections.
- 2.6.2 If lower capacity capability was installed it would mean when we add vehicles to increase capacity the substation would not meet the High Voltage requirement and they would have to install a new one at that time and replace the Low Voltage Cables with High Voltage Cables.

- 2.6.3 The future proofing does mean that FirstBus have to pay for the electricity capacity that is provided to the site but not used. This excess cost will be borne by FirstBus to the relevant DNO annually. Capacity costs vary by DNO but on average the cost is £15k per MVA. Doing this shows FirstBus' commitment to have a zero-emission fleet nationally by 2035.
- 2.6.4 The future proofing of sites is a prudent measure to secure future opportunity and also a direct lesson learned from previous EV roll outs. FirstBus have undertaken two power upgrades and are working on a third at another operating location. Each time this adds cost to both private funding and where applicable public grants. This cost can be minimised or avoided through our current approach of securing supply whilst carrying out the initial upgrade.

2.7 Evidence

- 2.7.1 The evidence of the costs is provided in letters and quotations contained in Appendices A to G of the Economic Case for this bid.
- 2.7.2 For ease of reference these are tabulated in Table 2-5 below:

Table 2-5: Summary of Evidence for Costs

Item	Cost	Evidence	Remarks
ZEB ()		Appendix A to Economic Case	
ZEB (Plan B)		Appendix C to Economic Case	Quote is higher than £0.36m but FirstBus is underwriting the figure
Heliox Chargers		Appendix D to Economic Case	
SSE (Upgrade, Civils and Instal)		Appendices E and F to Economic Case	Included £0.167m contingency to cover material cost inflation between now are expected delivery
Cost of ICE		Appendix B to Economic Case	From ADL
Cost of Fees and Consents		Appendix H to Economic Case	

2.8 Support from Stakeholders and Customers

2.8.1 Stakeholders:

- a) HCC,
- b) FBC,
- c) GBC,
- d) FirstBus,
- e) ,

2.8.2 Customers:

- a) Solent Local Enterprise Partnership,
- b) Hampshire Chamber of Commerce, (see EOI).
- c) Hospital
- d) Solent Transport
- e) Transport for the South East

2.9 Summary of Long-Term Affordability

2.9.1 PCC and HCC have jointly assessed the Long-Term Affordability of this scheme and are satisfied that it is affordable as:

- a) The financial risks are low.
- b) FirstBus is a robust operator with substantial financial strength.
- c) The costs have been fully evidenced.
- d) The scheme has significant support from Stakeholders and Customers.
- e) The cost of operating the BEV is less than that of a diesel bus over its life.

3. Changes since the EOI

3.1 The Changes

- 3.1.1 **Annual Kilometres Run:** the annual km per bus was adjusted from 71,329km in the EOI to 70,860km in this case.
- 3.1.2 **Electricity Consumed:** the kWh of electricity consumed per km was changed from 1.35 to 1.0 to reflect the value in the Greener Buses Model.
- 3.1.3 **The Cost of the Infrastructure:** this has been updated since the EOI, this includes costs for charging units, civils costs, power supply fees offset by inflation costs being removed. The total has risen from £1.737m to £1.965m.

3.2 The Rationale for the Change

- 3.2.1 **Annual Kilometres Run:** The EOI number for annual km was updated to reflect more accurately the expected annual km post EOI submission. This has a non-material impact on CO₂, PM_{2.5} and NO_x savings.
- 3.2.2 **Electricity Consumed:** the change to reflect the Greener Buses Model.
- 3.2.3 **The Cost of the Infrastructure:** Costs have changed as more has become known of the scheme and lessons learnt from complementary schemes. See Table 3-2 for detail.

3.3 The Impact of the Changes

- 3.3.1 Table 3-1 below summarises the changes that have taken place in the capital costs and grant requests since the EOI submission.

Table 3-1: Project Cost Changes since EOI

Item	EOI Figures	This Bid
34 x 12 metre Battery Electric Buses		
Cost of diesel equivalent vehicles		
Extra cost of electric vehicles		
Infrastructure Costs		
Project Totals		
Grant request from DfT		
Project Cost % increase since EOI		
Grant Request % increase since EOI		

- 3.3.2 Inputting the original figures from the EOI into the Greener Buses Model suggests that the BCR at the time of that submission was 1.27 with a cost effectiveness indicator of 206.5.
- 3.3.3 **Annual Kilometres Run:** *Ceteris paribus*, the small reduction depresses the BCR by approximately 0.02.
- 3.3.4 **Electricity Consumed:** This had a material impact on CO₂ saving with an improvement of 200 tonnes per annum, thus improving the BCR by 0.21.
- 3.3.5 **The Cost of the Infrastructure:** The changes are itemised and an explanation given for each in Table 3-2 below. Their effect on the BCR was to reduce the figure by 0.05.

3.4 Infrastructure

- 3.4.1 The infrastructure costs have been reworked following further investigations and evaluation and added to them, missing from the EOI, the project management costs. As a result, the changes are summarised and explained in Table 3-2 below.

Table 3-2: Changes in Infrastructure Costs since EOI

Factor	EOI	This Submission	Reason
EV Charging Units			
Civil Engineering Costs			
Power Supply Upgrade			
Fees and Consents			
5% to cover inflation			

4. Funding Profile

4.1 Expected Whole-life Costs

4.1.1 The expected whole life costs and funding lines by financial year are shown in Funding Profile at Appendix 1.

4.2 Risk Allowance

Description of any risk allowance built into any of the lines

- 4.2.1 No risk allowance has been built into any of the lines as the costs are firm from suppliers (less for the contingency on the Civil Works). Further, the operator accepts they will be required to fund any cost overruns outside these numbers.
- 4.2.2 Contingency has been built into the Civil Works line to cater for unknown ground conditions when civils commence and also to cover any inflation between now and the start date of the works. The Contingency amount is 10% (based on previous experience and current inflation pressures this is the advised amount from) of the quoted value

4.3 Funding Sources

Description of the funding source for each line.

- 4.3.1 ZEB: FirstBus and ZEBRA funding.
- 4.3.2 Infrastructure:
- a) Civil Works: FirstBus and ZEBRA funding.
 - b) Chargers: FirstBus and ZEBRA funding.
 - c) Fees and Consents: FirstBus and ZEBRA funding.
 - d) Power Upgrade: FirstBus and ZEBRA funding.
- 4.3.3 Warranty: FirstBus and ZEBRA (included in ZEB price).
- 4.3.4 Battery Replacement Cost: FirstBus and ZEBRA (included in ZEB price).

Table 4-1: Funding Sources for each line

Scheme	Total Cost	Source (1)	Cost	Source (2)	Cost
ZEB					
Infrastructure					
Warranty Costs					
Battery Replacement Cost					
Totals					

4.4 Financial Responsibility Statement

- 4.4.1 A statement noting that the operator accepts financial responsibility for the project going forward and accepts that cost increase will not be met by increased further grant.
- 4.4.1 FirstBus can confirm that the new Hoeford buses will be brought into service by February 2024 at the latest and that any increase in costs of either the buses or infrastructure above those within the 2nd stage Zebra bid will be funded by First.

4.5 Other Funding Sources

Background on sources of other funding being provided by the LTA or a third party. With written statements.

- 4.5.1 No other funding is being provided by the LTA.

4.6 Budgetary Considerations for the LTA.

- 4.6.1 There are no budgetary considerations for the LTA for this scheme.

5. Viability and Wider Benefits

5.1 Long-term Viability of the Scheme

- 5.1.1 As detailed in the Strategic Case this project has long term viability as it is fully integrated with National and Local Policy (summarised in Para 5.5 below), which will sustain the project for the long term. Further, it has Commercial viability especially as ZEBs are cheaper to operate than ICE.
- 5.1.2 National Policy: The scheme is fully aligned to National Policy on three levels:
- Government strategic priorities
 - ZEBRA objectives
 - National Bus Strategy (NBS) via the Bus Service Improvement Plans (BSIPs)
 - Summary of how this project supports these is shown in Table 5-1 below:
- 5.1.3 Local Policy: The scheme fully aligns to:
- Local transport plans
 - Portsmouth Clean Air Zone
- 5.1.4 Commercial Viability:
- The scheme is fully funded by FirstBus with the support of the ZEBRA funding
 - The ZEB are cheaper to run over their lifetime than the existing diesel buses. See Para 5.4 below

5.2 Delivering benefits beyond the Scheme

- 5.2.1 A wide range of benefits beyond the scheme have been fully documented in the Economic Case and the relevant extracts shown in Table 5-1 below:

Table 5-1: Delivering benefits beyond the Scheme

Subject	Qualitative Assessment	Benefit	Remarks
Economic			
Transport Providers	Beneficial	Transformation of user perceptions of bus travel	Additional benefits will come from a transformation of the image of the bus, helping to make it a more genuinely viable alternative to the private car.

Subject	Qualitative Assessment	Benefit	Remarks
Electrifying all buses by 2035 and decarbonising all transport by 2040	Beneficial	This project is an enabler and catalyst to get things moving	Huge improvement in air quality/reduction in pollution
Regeneration	Beneficial	(1) Areas of deprivation (2) Town centre regeneration (3) Tourism (4) Training and Skills	(1) Improved bus services will contribute to the economic and educational opportunities available to populations in deprived areas (2) Ease of access to and from town centres will generate additional journeys and/or reduce propensity to move shopping online (3) Tourism (4) Training and skills
Wider Impacts	Beneficial	The economic consequences of ordering the bus	
Environmental			
Landscape	Neutral	None	No discernible benefit has been identified
Townscape	Slightly beneficial	Reduced pollution	Reduced air pollution will help to reduce damage to the fabric of buildings, while reduced noise and vibration levels will assist in preserving and enhancing the townscape of the historic city.
Historic Environment	Slight beneficial	Improved air quality	Reduced pollution will increase the appeal of local naval heritage sites and other attractions, helping to increase visitor numbers. Lower levels of pollution will also reduce damage to the fabric of important historic buildings throughout the city centre and the other conservation areas.
Biodiversity	Neutral	None	No discernible benefit has been identified
Water Environment	Neutral	None	No discernible benefit has been identified
Social			
Commuting and Other Users	Beneficial	Patronage increase	We expect a 4.5% increase in patronage from the introduction of the new buses.
Physical activity	Beneficial	Modal shift benefits	Even a small modal shift from car to bus leads to increased physical activity in walking to and from the bus stop.
Accidents	Beneficial	(1) Accident reduction through modal shift (2) Safer in-vehicle passenger environment	(1) A modal shift from car to bus will reduce the incidence of highway accidents, with falls in KSI incidents (2)

Subject	Qualitative Assessment	Benefit	Remarks
Security	Beneficial	Higher usage as a deterrent against anti-social behaviour	More attractive services that are better used will reduce the opportunity for anti-social behaviour on-bus and in the vicinity of stops.
Access to Services	Beneficial	The 'virtuous circle' effect	A patronage increase will help to secure future revenue. Alongside other measures set out in the TCF programme, this will lead to improvements in both the quantum and quality of supply, improving access to services in areas of deprivation.
Affordability	Beneficial	The 'virtuous circle' effect	(1) Patronage growth drives down the cost per passenger journey of bus services, so mitigating rising operating costs and keeping fares lower than they otherwise would be. (2) Helps to secure the long-term future of the jobs in First
Health	Beneficial	Improved air quality	The more BEV the less air pollution the better it is on personal health
Severance	Moderate beneficial	Enhanced standards of service provision	There is no change to the routes used by pedestrians, equestrians or cyclists. However, there will be enhanced standards of provision and service quality which would result in patronage gains.
Option and Non-Use Values	Neutral	No change	The project does not result in the provision of new public transport services.

5.3 Cost Estimation and Control

5.3.1 The responsibility for estimating and controlling all project costs lies with the operator, as a result, the ZEBRA grant request will not be increased post submission

5.4 Summary of Running Costs:

5.4.1 The summary of running/maintenance costs of ZEB is shown in Table 5-1 below and can be compared with the ICE figures from Table 5-2 below.

Table 5-1: ZEB Running and Maintenance Costs

Table 5-2: Running and Maintenance Costs of Current ICE

- 5.4.2 Deduction statement from the tables: By inspection from the tables it can be seen that operating the ZEB is cheaper than the current ICE. These are the forward looking operating costs which prove the benefit of running ZEB over ICE. Given it is cheaper to operate ZEBs over current ICE for the life of the bus it provides the evidence to support that this project has long term commercial viability.
- 5.4.3 Statement from First Hampshire and Dorset: FirstBus can confirm that the new Hoeford buses, will be brought into service by February 2024 at the latest and that any increase in costs of either the buses or infrastructure above those within the 2nd stage Zebra bid will be funded by First. Thus the operator accepts financial responsibility for the project going forward and accepts that cost risk increases will not be met by increased further grant.
- 5.4.4 Cost overruns will be monitored via the monitoring and evaluation plan as detailed in the Management Case. The relevant extract regarding costs is show in Table 5-4 below:

Table 5-4: Monitoring and Evaluating the Costs

Objective	Performance Indicator	Data collection and source	Frequency of data collection
ZEBs and charging infrastructure outputs	1. Number of ZEBs purchased	FirstBus	As purchased
	2. Number of ZEBs in operation	FirstBus	Quarterly
	3. Number and type of internal combustion engine (ICE) buses replaced	FirstBus	On request
	4. Number (and capacity) of charging facilities introduced	FirstBus	On request
	5. Charging methodology e.g., depot overnight, en-route charging	FirstBus	Planned charging is all based on overnight depot charging, FirstBus will engage with LA and update if there is any change to these plans
	6. AC or DC charging	FirstBus	Currently following market assessment and business experience of AC and DC charging, DC charging is the preferred method., FirstBus will engage with LA and update if there is any change to these plans.
Scheme costs	7. Purchase cost per ZEB	All by FirstBus	

Objective	Performance Indicator	Data collection and source	Frequency of data collection
	8. Purchase cost per equivalent ICE bus		
	9. Average operational cost (incl. maintenance and infrastructure) per ZEB (£ per month)		Quarterly
	10. Average operational cost (incl. maintenance and infrastructure) per ICE (£ per month) (if ICE buses operational in fleet)		Quarterly
	11. Cost of electric or hydrogen fuelling infrastructure (upfront cost) (£)		One-off when available

5.5 Long-term commitments

5.5.1 PCC and HCC are fully committed to the long-term running of ZEBs and this is fully appraised and documented in the Strategic Case for which the Summary of the Strategic Context is shown in Figure 5-A below showing that ZEB are at the heart of:

- a) Delivering on the Government's strategic priorities
- b) Delivering on the ZEBRA objectives
- c) Delivering on National Bus Strategy (NBS) with their Bus Service Improvement Plans (BSIPs)
- d) Delivering on their Local Transport Plans
- e) Delivering on the Portsmouth Clean Air Zone.

Figure 5-A: Summary of Strategic Context



5.5.2 A summary showing the alignment of this Scheme with ZEBRA objectives is shown in Table 5-3 below and with Government Priorities in Table 5-4 below.

Table 5-3: Alignment with ZEBRA Scheme Objectives

Zebra Objectives	Project Objectives
Support the government's commitment to decarbonisation and to reduce the transport sector's contribution to CO2 emissions	To decarbonise 12% of the buses operating in the area whilst reducing CO2 emissions by 20%
Support the roll-out of the 4,000 Zero Emission Buses that the government committed to in Feb 2020	To enable First Hampshire and Dorset to procure 34 ZEBs
Support partnership working between Local Transport Authorities, bus operators, and other local stakeholders as set out in the NBS	<p>Portsmouth, Hampshire and the bus operators have a long history of working in partnership and this bid is the latest manifestation of the three working together. Most notable is the SHBOA - South Hampshire Bus Operators Association and the close work done with the LTAs.</p> <p>Our experiences and lessons learned will be shared with other bus operators and LTAs with whom we have close working relationships thus enabling others to benefit from this project</p> <p>First will allow other operators and council vehicles to utilise their charging facilities on a business-to-business basis.</p>
Support bus manufacturers in the development of zero emission bus technology	
Understand better the challenges of introducing zero emission buses and supporting infrastructure to inform future government support for ZEBs	To oversee the delivery of the ZEB into the area with a detailed M&E plan to gain maximum information to inform future projects

Table 5-4: Alignment with Government Priorities

Government Priorities	Project Priorities
Grow and level up the economy	To improve availability fast and reliable buses in areas of high deprivation and low car ownership thus improving access to healthcare, jobs and education
Reduce environmental impacts / Air quality	<p>To reduce CO₂ emissions in the area by 20% and noise levels.</p> <p>To improve air quality through the removal of NO_x and PM associated with existing diesel buses</p>

Government Priorities	Project Priorities
<p>Improve transport for the user</p>	<p>To provide quieter, modern buses with higher specification (AC as well as USB, PIS etc). Note: Recent customer survey across the bus industry have identified that passengers appreciate a quieter bus so that they can chat to their friends on the bus and hear what's being said.</p> <p>To provide faster and more reliable services through implementation of BSIPs (notably bus priority).</p>

6. Financial Risk

6.1 Assessment of financial risk

6.1.1 In considering this Financial Case seven factors were considered for financial risk:

- a) Viability of FirstBus to fund their share of the scheme.
- b) Bus prices increasing.
- c) Electricity price increasing.
- d) EV charger price increasing.
- e) Civil works costs increasing.
- f) Power upgrade cost increasing.
- g) Project management costs increasing.

6.1.2 Risk management strategy: A full risk assessment, scoring and risk mitigation has been undertaken for this project and is stated below and summarised in Table 6-1:

- a) FirstBus Financial Viability: Project would not go ahead if FirstBus is unable to support it financially. This is highly unlikely given the size and robustness of FirstBus.
- b) Bus Price: If bus price increases there is no impact on the project as FirstBus have agreed to cover the difference.
- c) Electricity Price:
- d) Charger Prices: If charger price increases there is no impact on the project as FirstBus have agreed to cover the difference
- e) Civil Works Cost: If Civil Works price increase above planned contingency there is no impact on the project as FirstBus have agreed to cover the difference.
- f) Power Upgrade Cost: If power upgrade costs increase there is no impact on the project as FirstBus have agreed to cover the difference.
- g) Project Management Costs: If project management cost increases there is no impact on the project as FirstBus have agreed to cover the difference.

Table 6-1: Financial Risks and their Management

6.1.3 It is assessed that following the mitigation, the financial risk to this scheme is low.

7. Legal Requirements

7.1 State Aid

7.1.1 We do not believe that the state aid rules will apply to any grant funding to the bus operator(s) as any funding provided after 1st January 2021 is governed by the UK-EU Trade and Cooperation Agreement, and any relevant World Trade Organisation rules and Free Trade Agreements. However, if the DfT informs us that the electric buses project is a pre-agreed scheme, which falls within the EU state aid rules, further legal advice will be obtained to ensure compliance with the relevant obligations.

7.2 Subsidy Control

7.2.1 We can confirm that we have obtained legal advice on the UK's international obligations on subsidy control and also the implications of the proposal as set out in the business case. A preliminary assessment has been undertaken and advice sought the conclusion of which is as follows:

- a) The receipt of the grant by Portsmouth City Council does not constitute a subsidy within the meaning set out in the UK-EU Trade and Cooperation Agreement as it is not retaining any of the benefit of the funding.
- b) The passing of the grant to a bus operator is a transfer of a selective economic advantage to an economic actor would fall within the definition of a subsidy set out in the UK-EU Trade and Cooperation Agreement.
- c) The measure is not a prohibited subsidy.
- d) None of the exemptions set out in the UK-EU Trade and Cooperation Agreement are likely to apply.
- e) In principle, we consider that the grant to the bus operator is likely to be consistent with the principles set out in the UK-EU Trade and Cooperation Agreement, however, the assessment against the principles will need to be reviewed once the outcome of our application is known.

7.2.2 We will make reasonable endeavours to ensure that the funding awarded to the bus operator fully complies with the subsidy control rules at the time of the award. We will continually review the relevant legislation and Government guidance throughout the process to ensure its compliance with subsidy control at the time the decision to award is made.

Appendix 1: Funding Profile
