

**A&E AMBULANCE
REPLACEMENT PROJECT
2008/09

BUSINESS CASE**

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1 EXECUTIVE SUMMARY

1.1 Introduction

1.1.1 The purpose of this Combined Business Case (CBC) is for internal London Ambulance Service (LAS) use where combining the Outline and Full Business case requirements can save time and effort, and the overall cost is within the LAS financial approval authority. This business case draws upon both the LAS Strategy Plan 2006/7 to 2012/13 and the Fleet update presented to the Trust Board in March 2008. It refers to recent independent research on fleet size and an urgent requirement to address an ageing fleet of front line ambulances. This CBC draws the conclusion that the Trust should replace 100 of the oldest ambulances with new ones because:

- The need to replace old and worn out vehicles remains strong
- Costs to repair vehicles will become higher as the age of vehicles increases

The preferred option arising from this analysis of costs and benefits is that 100 new ambulances should be purchased to replace older vehicles. The final decision on how these vehicles are financed will be made following a subsequent comparison of lease and purchase options. This business case is based on the option that vehicles are purchased, partially using existing capital resource limit (CRL) for the 08/09 and 09/10 financial years.

1.1.2 This CBC also confirms that the Trust has the capability to manage the project as evidenced by recent projects, the introduction of the PTS range of vehicles since 2002 covering some 140 different specification vehicles, and more recently 148 RRUs during 2006 and 2007/8. Other members of the project team were involved in previous deliveries of the 260 Mercedes AEU's since 2004/5.

1.2 Strategic Case

1.2.1 The Trust has an ageing fleet because of under-investment in the 1990s. The age profile of the fleet is improving, but as at March 2008, 35% of the fleet is greater than 6 years old and 20% of the fleet is more than 9 years old. Older ambulances are costly to maintain, increase overall vehicle downtime and reduce the capacity to achieve performance targets, with a consequent impact on patient care.

1.2.2 A number of drivers for the replacement of ambulances have been identified including meeting Government performance targets, improving staff health and safety, reducing vehicle downtime due to defects and repairs and reducing running costs.

1.2.3 This business case proposes that 100 of the latest LAS specification, CEN compliant, A&E ambulances are procured to replace the 100 oldest vehicles in the fleet. The ambulances will be Mercedes diesel vehicles with a removable box body and tail lift. This will be the fifth batch of this vehicle type that the Trust has procured

1.2.4 The Trust's fleet replacement strategy specifies that ambulances should be replaced after 6 years. The Trust is procuring vehicles in batches of 100 to achieve a more even spread in the age profile of ambulances to avoid too many vehicles needing to

be replaced at one time in the future. However, the requirement for a sensible age spread needs to be balanced against the risks posed by the ageing fleet.

- 1.2.5 For this reason, this Combined Business Case has been prepared for Trust Board approval in November 2008 in order to allow 100 replacement ambulances to be procured and put into service by July 2009.

1.3 Economic Case

- 1.3.1 There are five investment objectives and targets for this business case:

- Provide 100 CEN Compliance ambulance vehicles designed to the latest LAS Specification ready for deployment commencing January 2009.
- To improve the availability of A&E ambulances by reducing instances of off-the-road downtime caused by aged, unreliable and/or high maintenance issues.
- To reduce the annual fuel running costs by going from 9 miles per gallon to 16.5 miles per gallon, through adopting diesel powered engines.
- Meet Health & Safety requirements to reduce back injuries caused by manual trolley bed vehicle loading; by up to 50% like for like by installing mechanical tail-lifts
- To meet the aims of the Strategic Plan 2006/7 to 2012/13 by responding to our patient's needs with the appropriate service.

- 1.3.2 This business case has considered two options open to the LAS - Do Nothing and a capital purchase of 100 vehicles, 35 in the 2008/09 financial year and 65 at the beginning of the 2009/10 financial year. It has been found that the preferred option is the capital purchase largely due to the Weighted Benefit Score applied to both these options.

1.4 Financial Case

- 1.4.1 The financial case uses figures consistent with the economic case but with VAT and non-cash elements (such as depreciation) included.
- 1.4.2 The financial case shows that there is a net cost in all years of the project, starting at £0.6 million in year 1, rising to £2.5 million in year 2 as a result of equipment and full-year depreciation costs, reducing to approximately £1.5 million in each year of the remaining life of the project. An overall Trust surplus position is maintained however, throughout the period of investment.
- 1.4.3 Once the approval to replace the assets has been received, an economic comparison between leasing and purchasing will be undertaken and the affordability of the lease option tested if appropriate.
- 1.4.4 This business case has been shown to be affordable and is within the Trust's delegated limits, thus commissioner support has not been sought.

1.5 Commercial Case

- 1.5.1 During 2003/04, the LAS replaced 130 frontline A&E ambulances with new Mercedes ambulances with aluminium modular box bodies. The Trust subsequently

replaced two batches of 60 replacement vehicles in 2004/5 and 2005/6. A number of this later batch of vehicles included trial innovations such as carbon fibre bodies, new tail lifts and solar panels to assist with power management. These trials offered operating benefits, in particular the carbon fibre bodies, since these offered a lower operating mass resulting in lower fuel consumption. When the trial vehicles were introduced, however, the vehicle was loaded with other equipment and the expected benefits were not realised. In addition, carbon fibre is reputedly simpler and quicker to repair than aluminium, offering potential reductions in vehicle repair times. Moulded carbon fibre interiors could also improve infection control through reducing dirt trapping joints and seams.

- 1.5.2 The contract for build of ambulance bodies has been tendered via the newly awarded PASA NHS framework agreement. A formal tender evaluation group was formed and reviewed each supplier's submitted tender response using criteria such as price, quality, compliance to the specification, ability to meet the vehicle delivery schedule.
- 1.5.3 The tender evaluation has been completed for the build of ambulance bodies therefore, this business case has been drafted using the prices from the tender, and current costs the LAS incurs. Approval for this business case is sought on the basis that final prices are within reasonable proximity of the quoted prices in the financial analysis of this document.

1.6 Management Case

- 1.6.1 This project will be managed by the Operational Support Fleet Project Manager using the PRINCE 2 methodology. This model is the NHS standard and has been used by the LAS for many successful procurement projects since 2002.
- 1.6.2 The stakeholders' expectations are that vehicles commence operational deployment starting from December 2008 and that all vehicles are in service by the end of July 2009. This is an ambitious and challenging schedule to achieve. However, these timeframes cannot be confirmed until contracts are placed with the individual equipment suppliers and their production schedules are known.
- 1.6.3 Staff involvement is of course critical to the success of this project, the ambulance being the key resource of the Trust. The design of the new ambulance has had the direct involvement of staff through the A&E Vehicle and Equipment Working Group. Equally importantly, all staff have had the opportunity to make direct suggestions for changes to the vehicle design. Where practicable, these have been incorporated into the specification for these vehicles.

2 STRATEGIC CASE

2.1 LAS Organisational Overview

2.1.1 Summary of LAS Organisation

2.1.1.1 The London Ambulance Service NHS Trust provides ambulance-related services to the public in the Greater London area. The service is provided to some 7.5 million residents, which are increased by approximately 700,000 per day when commuters and visitors are taken into account. The London Ambulance Service is the largest ambulance service in the world and by far the busiest.

2.1.1.2 The 31 Primary Care Trusts commission the A&E services on behalf of the residents of London.

2.1.1.3 The main functions of the Trust are to:

- Receive and process 999 calls from the public and dispatch A&E vehicles to the patients based upon their priority.
- Convey patients, declared by a clinician to be urgent, on a scheduled basis to hospital and/or between hospitals.
- Provide both emergency planning and responses to major incidents, e.g. bombings, train crashes, and to plan and provide services for events such as Notting Hill carnival, anti globalisation marches, etc.
- Provide the Emergency Bed Service.
- Provide transportation services to and from hospitals for non-urgent patients.

2.1.1.4 The Trust works from 77 locations around the London area. It has its main control facilities at its Waterloo HQ with fallback facilities in East London. There are 71 stations across the Metropolis from which paramedics and technician crew staff are dispatched to calls processed through its control centre.

2.1.2 Business Goals

2.1.2.1 The primary National target is to reach 75% of Category "A" (life-threatening) calls within eight minutes of the call being connected to the LAS EOC. Other targets include reaching Category B (not immediately life-threatening) calls within 19 minutes,

2.1.2.2 The business goals for the LAS are set out in its Strategic Plan to 2013. This plan was approved by the Trust Board and has the support of both commissioners and London Strategic Health Authority. These goals encompass National Performance targets, stakeholder requirements, LAS improvement and efficiency goals.

2.1.2.3 At the time of writing and in terms of the LAS' primary performance measure set by the DH, as at 14th October 2008 the LAS are tracking at 73.03% of all Category A calls reached within 8 minutes in 2008/09. The timely delivery of this resource is considered a key contributor to the Trust's ability to achieve the 75% target for the year.

2.2 Investment Overview

2.2.1 Current Facilities

- 2.2.1.1 The core front line ambulance fleet comprises 397 vehicles, up to 14 of which are used by the training department on an ad-hoc basis.
- 2.2.1.2 A report from a recent independent consultancy study has confirmed that to maintain its current vehicle availability the current fleet size of 395 should be maintained.
- 2.2.1.3 The Wells Inquiry established in 1992/93 by Sir William Wells details the importance of annual investment to replace vehicles. He identified that for a number of years, funding for the LAS and in particular, ambulance replacement was either withheld or reduced by stakeholders resulting in a fleet of unreliable vehicles. This led to poor performance, low morale in all parts of the service and both high running and maintenance costs.
- 2.2.1.4 As directed by the Wells report, the LAS is to implement an annual replacement programme to maintain the age of the LDV/UVG built A&E vehicle fleet at or under 6 years of age in line with the national standard. This is also in compliance with the consultants reports which recommend the LAS requires 100% availability of all its rostered A&E vehicles and an efficient, effective and reliable A&E vehicle fleet is vital to meet this requirement.
- 2.2.1.5 The higher than normal maintenance costs associated with maintaining a disproportionately aged fleet is of concern to the Trust. These costs are currently unavoidable and detract from other areas of the service.
- 2.2.1.6 During 2003, the LAS commenced a replacement programme of 121 of its frontline A&E ambulances with 130 new vehicles, however these are now 5 years old and the Trust is still heavily reliant upon the 142 older LDV vehicles to maintain its performance. Table 1 illustrates the current age distribution of frontline ambulances. As the new vehicles are introduced and changes into the deployment of resources it is planned, the A&E ambulance fleet will remain at 397 vehicles that the Trust uses and deploys in response to 999 calls, doctors urgent calls and non-urgent calls initiated within the NHS.
- 2.2.1.7 To meet the changing response criteria and increasing demands on the service, alternative operating models and fleet sizes have been proposed by ORH, (external consultants). Over the past few years the funding stream was directed to procure greater numbers of RRUs one of the preferred operating models proposed by ORH, this has proved to have several deficiencies. In addition, more recently the Urgent Care operations have increased and these have absorbed any spare AEU capacity, thus putting additional demands on the existing fleet. Variants of the ORH models have been adopted with the Training fleet being incorporated into the daily deployment. Table 1 demonstrates that in 1997 to 1999 and in 2002 to 2006 the Trust undertook an effective replacement programme. The Trust must therefore resume the replacement programme to prevent falling into the situation as described in 2.2.1.3 and being exposed to external probity.

Table 1

Vehicle Age	10-11	9-10	8-9	7-8	6-7	5-6	4-5	3-4	2-3	1-2	<1	
Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Year	Year	
Year in service	(97/98)	(98/99)	(99/00)	(00/01)	(01/02)	(02/03)	(03/04)	(04/05)	(05/06)	(06/07)	(07/08)	
Sectors												Totals
South	14	15	0	26	0	5	47	24	25	0	0	156
East	8	17	0	13	0	0	30	21	12	0	0	101
West	9	18	0	22	0	3	44	20	23	1	0	140
Totals	31	50	0	61	0	8	121	65	60	1	0	397

2.2.1.8 The older vehicles, some of which are over 10 years of age are becoming increasingly unreliable. This inevitably leads to lower response and vehicle availability performance, lower morale for those having to use these vehicles but also higher running and maintenance costs.

2.2.1.9 The Trust knows that vehicle reliability/availability is a large factor in providing the level of patient care required of it and that this naturally deteriorates as vehicle age profiles increase further. The older LDVs are recorded as those with the highest VOR, are repeatedly faulted and putting greater pressures on the workshops. Many parts are becoming difficult to obtain and costs continually increasing due to the low number of suppliers.

2.2.1.10 The LAS adopted CEN as the standard, known as BS EN 1789:2007 – for its A&E Vehicles and their equipment. CEN is a voluntary standard; however, due to the importance of the requirements for ensuring the safety of both patients and crew staff, the LAS view this as a purchasing requirement for new ambulances.

2.2.1.11 The major justification for updating vehicles to CEN includes:

- One specific standard to choose for an industry benchmark.
- Ambulance crews will have a safer working environment.
- Patients are transported in vehicles proven to be as safe and comfortable a vehicle as possible.
- Provides a level of protection to the Trust against legal action, during vehicle accident inquests.

2.2.2 Proposed Facilities

2.2.2.1 In 2001, the LAS researched and designed the next generation of A&E ambulances to replace the existing fleet. This constituted 14 months worth of work before the specification/designs were finalised. Since deployment of these vehicles in 2003, the LAS, through the Vehicle and Equipment Working Group, has evaluated the build design and performance of the vehicle. Whilst minor changes to the specification have been made, (which is a natural part of a product's lifecycle) this vehicle is the core design for all new LAS ambulances.

2.2.2.2 This Business Case sets out the argument for replacing 100 of the oldest LDV

vehicles with new CEN compliant vehicles built to the latest LAS Specification dated June 2008, this has been up-dated from the original 2003 designed vehicles encompassing minor changes to reflect enhancements in medical treatment. The vehicles shown in Table 1, which are in years 9-11, will be the target for replacements. These years make up 81 vehicles and the Fleet Size Review and Control Group will provide the project with a list of 100 vehicles within that period for replacement

- 2.2.2.3 This case also seeks to demonstrate that the need for this investment enables the Trust to better balance the age of the fleet by resuming the practice of replacing a sixth of the vehicle fleet each year. It is only through annual replacements that the Trust can ensure reliable, cost effective, appropriate and efficient vehicles are available to patients and staff. If the Trust operates aged and inappropriate vehicles then it cannot expect to achieve its performance targets and expected levels of patient treatment and care.
- 2.2.2.4 In 2003/04, 130 vehicles were replaced which represents almost a third of the fleet. This was done purely out of necessity to replace the same percentage of vehicles that were reaching an unacceptable 10 years old. The Trust seeks to achieve a continuation of vehicle replacements each year for it is good practice and allows more opportunities to review the current specification and make improvements to each vehicle build. This also reduces the disruption caused to operations when vehicle replacements take place.
- 2.2.2.5 A characteristic of this investment is the treatment of the vehicle as one investment item, with both Capital and Revenue cost implications.
- 2.2.2.6 Automatic tail-lifts will be fitted to the vehicles as part of the standard ambulance build. They are designed to improve crew and patient safety when loading on and off the vehicle. Since their introduction the LAS health & safety department report a back injury reduction of 20% year on year.
- 2.2.2.7 The Trust will always seek to be as cost-efficient as possible. A significant benefit of the new ambulances is the reduced fuel costs achieved. The reduction in fuel costs through use of a cheaper fuel alternative with greater economic consumption is achieved by using diesel. Evidence from the latest vehicles has shown that they provide us with improved miles per gallon rate of 16.5mpg verses 9mpg.

2.3 Investment Objectives and Targets

- 2.3.1 Five investment objectives and targets have been identified for this business case:
- To provide 100 CEN compliant ambulance vehicles designed to the latest LAS specification ready for deployment commencing January 2009.
 - To improve the availability of A&E Ambulances by reducing instances of off-the-road downtime (VOR) caused by aged, unreliable and/or high maintenance issues.
 - To reduce the annual fuel running costs by going from 9 miles per gallon to 16.5 miles per gallon, through adopting diesel powered engines.
 - To reduce back injuries caused by trolley bed vehicle loading by up to

50% like for like through installing mechanical tail-lifts

- To meet the Strategic Plan 2006/7 to 2012/13 in responding to our patients' needs with the appropriate service.

2.4 Scope of Investment

2.4.1 The scope of this project includes the investment in 100 vehicles to replace the oldest and/or most unreliable vehicles in the current fleet.

2.4.2 The high-level scope of this project includes the chassis, saloon, communications and clinical equipment.

2.4.3 A thorough review and agreement of the vehicle specification has already taken place and made available to the tender process. This was a significant milestone as it was identified as the first critical path activity on the plan.

2.4.4 The critical success factors of this investment centre on:

- Successful & timely approval of the business case.
- Successful tender process leading to identification of a suitable vehicle constructor.
- Keeping change requests to a minimum (avoid scope creep).
- The ability to minimise the delay between CTS communications installations & Fleet PDI activities.
- Timely availability of LAS personnel to support the controlling (implementation) phase of the project.

2.4.5 The success of this investment will be shown by:

- Reduction in annual fuel costs.
- Reduction in maintenance costs
- Reduction in instances of staff sick leave caused by back injuries when loading or unloading trolleys on vehicles.
- Improved patient care through improved vehicle availability and on-board medical facilities.
- Staff satisfaction with the new vehicle.

2.5 Constraints and Dependencies

2.5.1 Constraints

Constraints identified for this investment include:

- Adherence to the final specification.
- The constructor's capacity to deliver to the agreed schedule.
- Availability and input of project stakeholders and work package managers, in particular IM&T with manpower availability and utilising obsolete technology and Purchasing with tender support.

2.5.2 Dependencies

2.5.2.1 The major dependencies identified for this project are:

- Approval of the business case.
- Controlling the scope of the project to avoid scope creep and delays.
- Successful tender evaluation and satisfactory supplier performance.
- This investment places a significant amount of work/risk with the prime contractor and is dependent upon their professional engineering and management ability to deliver vehicles to the schedule at the agreed level of quality.

3 ECONOMIC CASE

3.1 Objectives

3.1.1 The investment objectives set out in paragraph 1.3.1 are repeated here:

- Provide 100 CEN compliant ambulance vehicles designed to the latest LAS specification ready for deployment commencing January 2009.
- To improve the availability of A&E ambulances by reducing instances of off-the-road downtime by caused by aged, unreliable and/or high maintenance issues by November 2009.
- To reduce the annual fuel running costs by going from 9 miles per gallon to 16.5 miles per gallon, through adopting diesel powered engines.
- To reduce back injuries caused by trolley bed vehicle loading by up to 50% like for like through installing mechanical tail-lifts
- To meet the Strategic Plan 2006/07 to 2012/13 in responding to our patient's needs with the appropriate service.

3.2 Benefits

3.2.1 From the investment objectives, a list of benefits has been developed and categorised into financial, non-financial and non-quantifiable groups as follows:

Financial Benefits

- Less overtime costs through cover of back injuries
- Achieving a better fuel consumption thus reducing running costs
- Reduced maintenance costs due to parts for newer vehicles being cheaper, and the expectation that less maintenance will be required due to vehicles being younger.
- Enhanced operational capability with a reduction in unscheduled breakdowns of vehicles.
- Fitment of Incident Data recorders with overall benefit to reduce accident rate and therefore repair costs, benefit realisation dependent upon other projects.
- Non-Financial Benefits
- Reduced workload on Fleet department
- Improved trolley bed equipment, (intention that it will be more durable – less prone to breakdown) coupled with a greater tail-lift capacity would give a Bariatric capability
- Improved patient care through increased vehicle reliability/availability
- Greater number of CEN compliant ambulances
- Reduced CO2 emissions in line with the Kyoto agreement
- Non-Quantifiable Benefits

- Corporate kudos for being environmentally responsible
- Improved public image
- Improved staff morale

3.2.2 A more detailed explanation of the benefits can be found in Appendix A.

3.2.3 The non-financial benefits listed above have been grouped into benefit criteria, which are listed in Table 2 below in rank order:

Table 2

Benefit Criteria
a) Improved Patient Care
b) Improved Vehicle Availability
c) Improved Staff Safety
d) Improved Trolley Bed Equipment
e) Environmental Responsibility
f) Meeting Operational Objectives

3.3 Generating Options

3.3.1 Long List and Short List of Options

For this business case, there are only two viable options - to replace the vehicles or to extend the life of the existing vehicles.

As there are only two options, the long list and the short list are the same:

- **Do Minimum** - No replacement vehicles would be purchased for another three years with repairs being carried out and vehicle equipment being replaced only in the event of failure, accidents or breakages. Disadvantages of this option include high vehicle maintenance costs, vehicle downtime and high fuel costs due to petrol rather than diesel engines. The potential lack of availability and poor reliability of vehicles carries a higher risk of lower staff morale, under-performance against targets and a lower quality of patient care.
- **Procure 100 new A&E ambulances (Option 1)** - Procure 100 Mercedes chassis and 100 bodies of similar type to the Mercedes vehicles currently on lease. This option assumes 100 Mercedes chassis will be procured along with 100 bodies of similar type to the 2005/06 procurement. A new trolley bed will be included. New MDT and communications equipment may be included as part of the work to be completed by the LAS on receipt of approved vehicles from the converter.

3.3.2 Option Ranking

The benefit criteria, derived from the objectives, which had been ranked, were then given percentage weights through the pairing comparison techniques. The options were ranked as per Table 3 below:

Table 3

Benefit Criteria	Rank	Pairings					Raw Weights	% Weights
		1 st	2 nd	3 rd	4 th	5 th		
a) Improved Patient Care	1	100					100	27.14
b) Improved Vehicle Availability	2	85	100				85	23.07
c) Improved Staff Safety	3		80	100			68	18.46
d) Improved Trolley Bed Equipment	4			75	100		51	13.84
e) Environmental Responsibility	5				73	100	37	10.11
f) Meeting Operational Objectives	6					73	27	7.38
							368	100.00

3.3.3 Each option was then scored out of 10 as to how close it came to achieving the benefits. The results are shown in Table 4 below; the reasoning for each score is given in Appendix B.

Table 4

Benefit Criteria	Weight (w) %	Options			
		Do Minimum		Purchase Vehicles	
		Score (s)	Weighted Score (w) x (s)	Score (s)	Weighted Score (w) x (s)
a) Improved Patient Care	27.14	0	0.0000	7	190.0068
b) Improved Vehicle Availability	23.07	0	0.0000	9	207.6503
c) Improved Staff Safety	18.46	0	0.0000	9	166.1202
d) Improved Trolley Bed Equipment	13.84	0	0.0000	8	110.7468
e) Environmental Responsibility	10.11	0	0.0000	8	80.8452
c) Improved Staff Safety	7.38	1	7.3771	7	51.6399
Total	100.00		7.3771		807.0091
Order of options		2nd		1st	

3.3.4 As can be seen in table 4, Option 1 (purchase of vehicles) clearly offers the greatest benefit.

3.4 Identification and Quantification of Option Costs

3.4.1 Opportunity Costs

There are no opportunity costs identified against either of the options.

3.4.2 Residual Identified Value Costs

The current book value of the existing ambulances (LDVs) is zero. There is no expected income from the disposal of these assets, in fact, it is likely that a disposal cost will be incurred.

3.4.3 Capital Costs

There are no capital costs associated with the 'Do Minimum' option. The capital costs associated with Option 1 are set out in Table 5.

Table 5

Option 1 - Purchase 100 vehicles	Number of Units = 100				
	Unit Cost			Cost for GEM	Total Cost
	Net Cost	VAT	Gross		
Initial Capital Costs					
Saloon Build	56,995	9,974	66,969	5,699,500	6,696,913
Lifecycle Costs					
Purchase of chassis	26,583	4,652	31,235	2,658,300	3,123,503
Purchase of trolley bed	8,805	1,541	10,346	880,500	1,034,588
Technology fit (MDT and radio)	6,598	1,155	7,753	659,800	775,265
Totals	98,981	17,322	116,303	9,898,100	11,630,268

3.4.3.1 The costs shown in Table 5 have been derived using the following information:

- **Saloon Build** – Costs have been provided by Operational Support and are based on a recent tender exercise.
- **Purchase of Chassis** – Costs have been based on a quotation received from Mercedes on 15/08/08.
- **Purchase of Trolley Bed** – This cost is from the tender application received from Supplier A in July 2008 for the supply of a trolley bed and the associated CEN compliant fixings. Supplier B trolley beds are cheaper to purchase but are likely to incur higher maintenance costs. For prudence, the trolley bed cost from Supplier A has been included in this analysis until the outcome of the tender exercise is known.
- **Technology Fit (MDT and Radio)** – MDT and the service radio equipment may be transferred from old LDVs into the new Ambulances, at this time it is uncertain as to whether this will be the best approach, as such costs used are based on previous purchases of MDTs & Radios for the 2007/08 RRU project with estimated installation costs.

3.4.4 Revenue Costs

3.4.4.1 The DH guidance requires that all relevant costs are included in the economic analysis. For the purposes of this business case, the costs associated with running the vehicles have been included but crew, dispatch costs and other general costs have not as they remain the same irrespective of which vehicles are used.

3.4.4.2 The costs for the ‘Do Minimum’ option reflect the costs built into existing (2008/09) forecasts for retaining 100 vehicles and estimates for maintaining 100 vehicles for a further period. These costs are shown in Table 6.

Table 6

Do Minimum - Retain Existing Vehicles (for 3 yrs)							
	Unit Cost	Cost Driver	Cost Driver Units	Annual Cost per Vehicle	Cost for GEM	VAT (or other taxes)	Total Cost per annum
Existing Recurrent							
Fuel	0.4721	per mile	19,500	9,207	920,653	161,114	1,081,767
Vehicle maintenance (including labour)				4,944	494,389	86,518	580,907
Trolley bed maintenance - Ferno				1,126	112,600	19,705	132,305
				15,276	1,527,642	267,337	1,794,979

3.4.4.3 In developing the 'Existing Recurrent Costs' shown in Table 6 the following assumptions have been made:

- **Fuel** – The existing LDV based vehicles operate at just over 9 mpg. The price paid by the Trust, during September 2008, for Cleaner Unleaded petrol was 112.06 pence per litre (incl. VAT). On average, the vehicles are expected to cover 19,500 miles per annum.
- **Vehicle Maintenance** – The costs of maintaining the existing vehicles is calculated with reference to existing fleet records and the professional judgement of fleet managers.
- **Trolley Bed Maintenance** – The costs of maintaining the current trolley bed have been calculated with reference to existing fleet records and the professional judgement of fleet managers and finance.

3.4.4.4 The revenue costs of Option 1 are shown in Table 7.

Table 7

Option 1 - Purchase 100 vehicles							
	Unit Cost	Cost Driver	Cost Driver Units	Annual Cost per Vehicle	Cost for GEM	VAT (or other taxes)	Total Cost per annum
Non Recurrent (Year 0 Costs)							
Initial Clinical Equipment					826,082	144,564	970,646
Trolley Bed Extra Batteries				120	12,000	2,100	14,100
Commissioning costs of vehicles				528	52,800	9,240	62,040
				648	890,882	155,904	1,046,786
Recurrent							
Fuel	0.2867	per mile	19,500	5,591	559,065	97,836	656,902
Vehicle maintenance (including labour)				3,048	304,814	53,342	358,156
Trolley bed maintenance - Stryker				925	92,500	16,188	108,688
Taillift Maintenance				337	33,700	5,898	39,598
				9,901	990,079	173,264	1,163,343

3.4.4.5 The forecast revenue costs of Option 1, shown in Table 7 have been derived using the following assumptions:

- **Fuel** – The current Mercedes ambulances operate at 16.5 mpg. The price paid by the Trust, during September 2008, for diesel was 123.52 pence per litre (Incl. VAT). On average, the vehicles are expected to cover 19,500 miles per annum.

- **Vehicle Maintenance** – The costs of maintaining the proposed vehicles is calculated with reference to existing fleet records for Mercedes ambulances and the professional judgement of fleet managers.

The maintenance cost shown is the average cost over the 6-year life of the vehicle. These costs do not fall evenly over the life of the chassis. Table 8 below sets out an analysis of the vehicle maintenance costs over the life of the vehicle's.

Table 8

Option 1 - Purchase New Vehicles	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
One off costs (not covered by warranty) - Major Repairs	0.0	15.0	18.3	82.2	118.3	140.0	166.7
General Service Maintenance Costs							
Air conditioning				2.5			
General Maintenance (Parts only)	0.0	37.2	37.2	37.2	37.2	37.2	37.2
Labour costs	0.0	55.8	57.5	59.2	61.0	62.8	107.9
Brakes	0.0	54.2	54.2	54.2	54.2	54.2	54.2
Battery	0.0	32.5	32.5	32.5	32.5	32.5	32.5
Minor one off repairs	0.0	2.0	2.0	2.0	2.0	2.0	2.0
General Service Costs including labour	0.0	181.7	183.3	187.5	186.8	188.7	233.7
TOTAL - PURCHASE NEW VEHICLES	431.5	196.7	201.7	269.7	305.2	328.7	400.4

- **Trolley Bed Maintenance** – The costs of maintaining the new Supplier A trolley bed have been calculated with reference to the existing tender document held by LAS and assumptions on repair needs.
- **Tail Lift Maintenance** – The costs of maintaining the tail lifts have been calculated with reference to existing fleet records and the professional judgement of fleet managers. The estimates include the cost of annual certification of the tail lift equipment.

3.4.5 Transitional Costs

There are no transitional costs associated with the 'Do Minimum' option. Option 1 incurs transitional costs associated with decommissioning the old vehicles (estimated at £2,484 each, excl VAT) and storing them before disposal (estimated at £1,000 each, excl VAT), also the new Vehicles will need to be disposed of at the end of their expected life (estimated at £2,484 each, excl VAT).

3.4.6 External Costs

There are no external costs associated with any of the options.

3.5 Discounted Cashflow Analysis of Options

- 3.5.1 The costs identified in section 3.4 have been entered into the DH's Generic Economic Model (GEM), applying the HM Treasury discount rate of 3.5%. HM Treasury guidance requires the use of the Equivalent Annual Cost (EAC) where the appraisal periods for each option are not of the same duration. Appraisal is based on all 100 ambulances being in use by the end of July 2009.

Table 9

SUMMARY	Appraisal Period	EAC
OBC Do Minimum Retain Existing Vehicles (for 3 yrs)	4 Years	£'000 1,208.4
OPTION 1 Purchase 100 vehicles	7 Years	2,597.7

3.5.2 Table 9 above indicates that the 'Do Minimum' option provides the lower EAC.

3.6 Option Cost Benefit Analysis

3.6.1 Cash Releasing Benefits

The costs and the calculated EAC include an element of cash releasing efficiency savings. These include:

- **Fuel** - The change of engine type and the consequent increase in miles per gallon of the diesel engine is estimated to save £361,588 (ex VAT) per annum.
- **Vehicle Maintenance** - The change of engine type and body type is estimated to save £214,936 (ex VAT) per annum.
- **Trolley Bed Maintenance** – The change from the current supplied trolley beds to Supplier A trolley beds and the younger age of the trolley beds would save approximately £20,100 (ex VAT) per annum.

3.6.2 Non-Cash Releasing Benefits

There are many Non-Cash Releasing Benefits associated with Option 1; these have been addressed in section 3.2 above.

3.6.3 Quantifiable Benefits

The non-financial quantifiable benefits are shown in Table 4.

3.6.4 Non-Quantifiable Benefits

Option 1 has the added non-quantifiable benefit of improving staff morale as they see the Trust continuing its vehicle replacement programme. This is not measurable and, therefore, has not been included in the cost benefit analysis.

3.6.5 Summary of Option Cost Benefit Analysis

At this point in the analysis, the EACs shown in Table 9 are divided by the benefit scores from Table 4 to result in a value of EAC per weighted benefit score. This is

shown in the table below:

Table 10

SUMMARY	Appraisal Period	EAC	Weighted Benefit Score	EAC per Weighted Benefit Score
		£'000		£'000
OBC Do Minimum Retain Existing Vehicles (for 3 yrs)	4 Years	1,208.4	7	163.80
OPTION 1 Purchase 100 vehicles	7 Years	2,597.7	807	3.22

The calculations above show that Option 1 has a lower cost per weighted benefit score and is therefore the preferred option.

3.7 Assessing Risk

3.7.1 Risk Identification

The Capital Investment Manual requires the Preferred Option to be subjected to a risk assessment. The tables overleaf summarise the assessment of risk for the short listed options. Assessment of risk is a continual process and is managed by the Project Manager. Risk Reviews will be carried out by the Project Board and may involve other LAS staff if their expertise is required. Risk severity is measured using the Safety & Risk Department; risk log and its associated scoring matrix.

Business level risks identified during document completion are logged in the risk register found within the PID. The Safety and Risk Department will carry out a detailed operational risk assessment during the project lifecycle as appropriate.

3.7.2 Risk Transfer

There is just one risk that can be transferred (by default) to the supplier for the purchasing option. This is the risk of vehicle and/or equipment loss associated with the point of storage and transit to LAS.

3.7.3 Optimism Bias

Most of the costs used in the option appraisal are based on tendered prices or actual costs already incurred by the Trust. Consequently, there is no justification for including an optimism bias in the comparison of options.

3.7.4 Assessing the Impact of Risk on Option Ranking

The table below summarises the assessment of risk for the do minimum option

Table 11

Risk	Prob (%)	Effect (Cost £)	Quantified Risk (Probability * Cost)	Management
The business case is not approved.	5%	Fleet ages and becomes less reliable. Maintenance Costs and potential legal liabilities of up to £1,000,000	£50,000	Close liaison with stakeholders to ensure the business case is clear, concise and falls within the guidelines for approval.
Maintenance costs are higher than expected	10%	The service incurs higher than expected maintenance costs increasing the running costs of the vehicles at £450 per vehicle. (£45,000)	£4,500	Assign a financial threshold on vehicle maintenance costs before making a decision on the vehicles operating viability.
Spare parts become increasingly scarce for old vehicles, suppliers charge premium.	70%	More vehicles are off the road due to parts shortage and the service has higher parts costs; increasing costs by £350 per vehicle. (£35,000)	£24,500	Close liaison with suppliers, and create strategy to stock up on parts known to be low or earmarked for deletion from supply.

The table below summarises the assessment of risk for Option 1.

Table 12

Risk	Prob (%)	Effect (Cost £)	Quantified Risk (Probability * Cost)	Management
The business case is not approved.	5%	Fleet ages and becomes less reliable. Maintenance Costs and potential legal liabilities of up to £1,000,000	£50,000	Close liaison with stakeholders to ensure the business case is clear, concise and falls within the guidelines for approval.
New contractor may have lack of LAS specific knowledge which may result in Project schedule over-runs	30%	Delayed start (2 months) meaning old vehicles requiring longer life and extra maintenance at £250 per vehicle (£25,000)	£7,500	Assign high priority. Pressure supplier to perform
Maintenance costs are higher than expected	10%	The service incurs higher than expected maintenance costs increasing the running costs of the vehicles at £100 per scheduled maintenance period. (£90,000 pa)	£9,000	Assign a financial threshold on vehicle maintenance costs before making a decision on the vehicles operating viability.

The risks set out above have been quantified for each option and discounted to produce an EAC. The impact of the risk analysis on the discounted cashflow is shown below.

Table 13

SUMMARY	Appraisal Period	EAC	Weighted Benefit Score	EAC per Weighted Benefit Score	Risk Adjustment	Risk Adjusted EAC	Risk Adjusted EAC per Weighted Benefit Score
		£'000		£'000	£'000	£'000	£'000
OBC Do Minimum Retain Existing Vehicles (for 3 yrs)	4 Years	1,208.4	7	163.80	34.5	1,242.9	168.48
OPTION 1 Purchase 100 vehicles	7 Years	2,597.7	807	3.22	16.7	2,614.3	3.24

3.8 Preferred Option Analysis

Table 13 calculates a risk-adjusted EAC per Weighted Benefit Score for each option. This again demonstrates that Option 1 provides the better value for money and as such, is the preferred option.

3.8.1 Funding Route Option

The preferred option (Option 1) can be funded either using NHS Capital, or by investigating leasing options. This business case addresses the capital purchase only. Once approved, a lease versus buy analysis will be carried out to determine the most appropriate funding method.

3.9 Sensitivity Analysis

A sensitivity analysis has been carried out to identify the robustness of the preferred option.

A number of scenarios have been considered which are listed below with the findings of each. These are summarised in Table 14.

Table 14

SENSITIVITY ANALYSIS	Appraisal Period	EAC	Weighted Benefit Score	EAC per Weighted Benefit Score	Risk Adjustment	Risk Adjusted EAC	Risk Adjusted EAC per Weighted Benefit Score
		£'000		£'000	£'000	£'000	£'000
OBC Do Minimum Retain Existing Vehicles (for 3 yrs)	4 Years	1,208.4	7	163.80	34.5	1,242.9	168.48
OPTION 1 - No Changes Purchase 100 vehicles	7 Years	2,597.7	807	3.22	16.7	2,614.4	3.24
OPTION 1 - Only Half Fuel Saving Purchase 100 vehicles	7 Years	2,740.7	807	3.40	16.7	2,757.4	3.42
OPTION 1 - No Vehicle Maintenance Savings Purchase 100 vehicles	7 Years	2,795.5	807	3.46	16.7	2,812.2	3.48

- **Option 1 (Only Half Fuel Savings Achieved)** – This test assumes that the fuel savings achieved will only be half the £361,588 assumed in the base case. The risk-adjusted EAC would increase by £143k to £2,757.4k giving a risk-adjusted EAC per weighted benefit score of 3.42. This is still substantially lower than the ‘Do Minimum’ option.
- **Option 1 (Maintenance Savings Not Achieved)** – This test assumes that the vehicle maintenance savings estimated in the base case will not be achieved. In this scenario, the risk-adjusted EAC would increase to £2,812.2k giving a Risk Adjusted EAC per Weighted Benefit Score of 3.48. Again, this is still substantially lower than the ‘Do Minimum’ option.

3.10 Summary of the Economic Case

In summary, the above analysis has shown that replacing the vehicles results in the most cost-effective option, due to the significant non-financial benefits expected to be achieved through replacing the ambulances.

4 FINANCIAL CASE

4.1 Financial Position

4.1.1 The LAS has a track record of meeting all of its statutory financial duties each year. It is expected that this position will be maintained in the current year. The proposed investment will partly be funded from the savings generated from reduced fuel, trolley bed maintenance and vehicle maintenance costs. The investment will proceed on the basis that it will have no material impact on the Trust's financial standing.

4.2 Impact on Income and Expenditure Account

4.2.1 The table below sets out the net impact of the proposed investment on the Trust's Income & Expenditure (I&E) Account. This demonstrates that there is a net cost in all years of the project, starting at £0.6 million in year 1, rising to £2.5 million in year 2 as a result of equipment and full-year depreciation costs, reducing to approximately £1.5 million in each year of the remaining life of the project. An overall Trust surplus position is maintained however, throughout the period of investment.

Table 15

**2008/09 Financial Projections
Income & Expenditure Account**

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
	£m	£m	£m	£m	£m	£m	£m
A&E Income	247.2	236.1	240.7	246.2	251.9	257.7	263.6
PTS Income	10.0	8.5	8.5	8.5	8.5	8.5	8.5
Other Income	3.2	14.2	21.1	21.6	22.1	22.6	23.1
Total Income	260.4	258.8	270.3	276.3	282.5	288.8	295.2
Baseline Pay	(191.2)	(195.5)	(206.3)	(210.4)	(214.6)	(218.9)	(223.3)
Baseline Non-Pay (Drug Costs)	(0.4)	(0.5)	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)
Baseline Non-Pay (Other Costs)	(56.6)	(48.4)	(47.6)	(50.0)	(51.5)	(53.5)	(55.5)
AMB 08/09 - Non-Pay Costs	(0.5)	(0.9)	0.0	0.0	0.0	0.0	(0.3)
AMB 08/09 - Non-Pay Savings	0.0	0.8	0.8	0.7	0.7	0.7	0.7
Total Costs	(248.7)	(244.6)	(253.7)	(260.3)	(266.0)	(272.3)	(279.0)
EBITDA	11.7	14.3	16.6	16.0	16.4	16.5	16.2
<i>EBITDA Margin</i>	4.51%	5.51%	6.15%	5.79%	5.82%	5.70%	5.49%
Profit/Loss on Asset Disposals	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fixed Asset Impairments	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation & Amortization	(7.6)	(7.8)	(7.8)	(7.8)	(7.8)	(7.8)	(7.8)
Interest receivable/(payable)	0.7	0.3	0.3	0.3	0.3	0.3	0.3
Loan Interest Payable	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PDC Dividend	(4.4)	(4.4)	(4.4)	(4.4)	(4.4)	(4.4)	(4.4)
AMB 08/09 - Depreciation	0.0	(2.1)	(2.1)	(2.1)	(1.8)	(1.8)	(1.8)
AMB 08/09 - PDC dividend	(0.1)	(0.2)	(0.3)	(0.2)	(0.2)	(0.1)	(0.0)
Retained Surplus/(Deficit) for the Year	0.4	(0.0)	2.3	1.8	2.5	2.6	2.4
<i>I&E Surplus Margin</i>	0.15%	-0.01%	0.86%	0.64%	0.90%	0.91%	0.83%

4.3 Affordability Gap

4.3.1 Additional CIP savings of £300k will need to be achieved in the 09/10 financial year to assist with ensuring the project is affordable

- 4.3.2 Due to CIP savings there is no affordability gap and therefore commissioner support has not been sought.
- 4.3.3 A conservative estimate of savings from the investment have been made and included in both the economic case and the income and expenditure statement above.
- 4.3.4 Given the current control total requirements and the impact of the investment on the overall Trust surplus, it would be prudent to identify further cost improvements or savings to restore the surplus back to its planned levels.

4.4 Balance Sheet

Table 16

**2008/09 Financial Projections
Balance Sheet**

Notes	2008/09 £m	2009/10 £m	2010/11 £m	2011/12 £m	2012/13 £m	2013/14 £m	2014/15 £m
FIXED ASSETS							
Tangible and Intangible Fixed Assets	134.5	134.5	134.4	134.4	134.4	134.4	134.4
AMB 08/09 - Tangible Fixed Assets (at cost)	4.1	11.6	11.6	11.6	11.6	11.6	11.6
AMB 08/09 - Tangible Fixed Assets (depreciation)	0.0	(2.1)	(4.1)	(6.2)	(8.0)	(9.8)	(11.6)
Total Fixed Assets	138.5	144.0	141.9	139.8	138.0	136.2	134.4
CURRENT ASSETS							
Stocks & Work in Progress	1.9	1.9	1.9	1.9	1.9	1.9	1.9
NHS Trade Debtors	2.0	1.9	2.2	2.5	3.0	2.8	3.0
Non NHS Trade Debtors	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Debtors	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Accrued Income	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Prepayments	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Cash at bank and in hand	11.3	1.0	1.2	7.1	13.2	19.5	25.6
Total Current Assets	17.7	7.3	7.8	14.0	20.6	26.7	33.0
CURRENT LIABILITIES (amounts due in less than one year)							
Trade Creditors	(11.9)	(7.7)	(5.8)	(8.4)	(10.5)	(12.6)	(14.7)
Other Creditors	(7.8)	(8.3)	(8.6)	(9.0)	(9.6)	(9.6)	(9.9)
PDC dividend creditor	0.1	0.5	1.0	1.6	2.1	2.5	2.8
Capital Creditors	(1.8)	(1.0)	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)
Interest payable creditor	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Payments on Account	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accruals	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)
Deferred Income	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Total Current Liabilities	(22.1)	(17.2)	(15.0)	(17.4)	(19.6)	(21.2)	(23.3)
NET CURRENT ASSETS/(LIABILITIES)	(4.4)	(9.9)	(7.2)	(3.4)	1.0	5.4	9.7
Long Term Debtors	9.9	9.9	9.9	9.9	9.9	9.9	9.9
TOTAL ASSETS LESS CURRENT LIABILITIES	144.0	144.0	144.6	146.3	148.9	151.5	153.9
Finance Leases	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Provision for Liabilities and Charges	(18.3)	(18.3)	(16.6)	(16.6)	(16.6)	(16.6)	(16.6)
Loans	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Assets Employed	125.7	125.7	128.0	129.8	132.3	134.9	137.4
Financed by Taxpayers Equity:							
Public Dividend Capital	56.5	56.5	56.5	56.5	56.5	56.5	56.5
Income and Expenditure Reserve (Prev Yr)	13.0	13.4	13.4	15.7	17.5	20.0	22.6
Effect on Reserves Current Year	0.4	(0.0)	2.3	1.8	2.5	2.6	2.4
Revaluation Reserve	56.2	56.2	56.2	56.2	56.2	56.2	56.2
Donated Asset Reserve	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Reserves (Government Grant Reserve etc)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Total Taxpayers Equity	125.7	125.7	128.0	129.8	132.3	134.9	137.4

- 4.4.1 The table above sets out the net impact of the proposed investment on the Trust's Balance Sheet. This demonstrates that there is a zero impact on total assets employed due to the assumption that assets are purchased and paid for within the same financial year.

Table 17

Return on Assets	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
ROA Before Investment	4.34%	5.29%	6.25%	5.72%	5.88%	5.72%	5.61%
ROA After Investment	3.87%	3.67%	5.50%	4.94%	5.37%	5.29%	5.01%

4.4.2 Return on Assets (ROA) is projected to improve over the life of the investment due to depreciation on the asset value and continued projected income and expenditure surpluses. ROA is lower than before the investment due to equipment costs in the first two years, depreciation charges in all years and disposal costs in the final year.

4.5 Cashflow Statement

Table 18

**2008/09 FBC Financial Projections
Cash Flow**

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
	£m	£m	£m	£m	£m	£m	£m
EBITDA	11.7	14.3	16.6	16.0	16.4	16.5	16.2
Excluding Non cash I&E items	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Movement in working capital:							
Stocks & Work in Progress	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NHS Trade Debtors	(0.4)	0.2	(0.3)	(0.3)	(0.5)	0.2	(0.2)
Non NHS Trade Debtors	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Debtors	4.1	0.0	0.0	0.0	0.0	0.0	0.0
Accrued Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prepayments	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Trade Creditors	0.3	(4.2)	(1.9)	2.6	2.1	2.1	2.1
Other Creditors	6.0	0.5	0.3	0.4	0.6	(0.1)	0.3
Payments on Account	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accruals	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Provisions & Liabilities	(0.3)	0.0	(1.8)	0.0	0.0	0.0	0.0
CF from Operations	24.8	10.7	13.0	18.7	18.7	18.7	18.4
Capital Expenditure							
Capex Spend	(15.8)	(8.6)	(7.9)	(7.8)	(7.8)	(7.8)	(7.8)
AMB 08/09 - Capex Spend	(4.1)	(7.6)	0.0	0.0	0.0	0.0	0.0
Cash receipt from asset sales	1.5	0.0	0.0	0.0	0.0	0.0	0.0
CF before Financing	6.4	(5.5)	5.1	10.9	10.9	10.9	10.6
Movement in LT debtors	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Movement in LT Creditors	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest (paid)/ received on cash balance	0.5	0.3	0.3	0.3	0.3	0.3	0.3
Public Dividend Capital received	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Dividend Capital repaid	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Movement in Other grants/Capital received	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PDC Dividends paid	(4.5)	(4.8)	(5.0)	(5.0)	(4.9)	(4.8)	(4.7)
AMB 08/09 - PDC Dividend paid	(0.1)	(0.2)	(0.3)	(0.2)	(0.2)	(0.1)	(0.0)
Net cash inflow/(outflow)	2.3	(10.2)	0.2	5.9	6.1	6.3	6.1
Bank Opening Balance	9.0	11.3	1.0	1.2	7.1	13.2	19.5
Net Cash Change in Year	2.3	(10.2)	0.2	5.9	6.1	6.3	6.1
Bank Closing Balance at YE	11.3	1.0	1.2	7.1	13.2	19.5	25.6

- 4.5.1 The table above sets out the net impact of the proposed investment on the Trust's Cashflow Statement. The project will reduce the projected Cash Position due to the project being funded through existing cash holdings. The overall impact however will be that the LAS will remain in a surplus cash position.

5 COMMERCIAL CASE

5.1 Assessment of the Market

5.1.1 In the 2003/04 financial year, the LAS acquired (via a lease option) 130 A&E ambulances. At the time and due to both the CEN and tail-lift requirements, only one company was suitable (UVM) and this gave them a significant market advantage over their competitors.

5.1.2 The market has since matured and there are now four companies that are both CEN compliant and on the PASA framework. These are:

- S. MacNeillie Fully certified and authorised to supply
- UV Modular Fully certified and authorised to supply
- VAS Gmbh Fully certified and authorised to supply
- Wilker Fully certified and authorised to supply

5.1.3 This business case will follow PASA recommendations for evaluating company tender submissions.

5.1.4 As seen in the above list, the industry has sufficient expertise and authority to complete these works since the specification requires a CEN compliant vehicle.

5.2 Alternative Procurement Methods

5.2.1 It has been demonstrated in the Economic Case that replacing the existing vehicles is the most cost-effective option. The Financial Case shows that this proposal is affordable.

5.3 Concurrent Contracts

5.3.1 There are no concurrent contracts associated with this procurement, although the prime contractor is likely to sub-contract elements of work to other parties. It will be a requirement of the contract that any known or likely sub-contracting work is declared in advance as part of the tender submission.

5.4 Procurement Options/Strategy

5.4.1 The procurement of the vehicles will not involve OJEU tenders but use the Current NHS PASA National Framework agreements for the procurement of Ambulance Chassis and saloon work. As the suppliers on this Framework have already been tested through OJEU, an OJEU notice is not required.

5.4.2 The LAS has an up to date and approved ambulance build specification based around the Mercedes 515 Sprinter chassis with Modular saloon, which will be used for this procurement.

5.5 Bid Criteria

5.5.1 The Evaluation of the received bids will be in accordance with the LAS Standing Orders (SOs). The bids will be assessed using criteria, which may include:

- Compliance to specification
- CEN compliance certification
- Financial Standing of the company

- Ability to manufacture to the defined schedule
- Cost of work
- The level of after sales support and parts supply availability
- Project Management Expertise
- References are taken up on short listed companies
- Evidence of and commitment to innovation
- Short-listed companies are asked to reconsider areas of non or partial compliance and if appropriate a meeting is held with each company
- The LAS will award the contract to the company which offers the most advantageous tender and may not necessarily be the cheapest

5.6 Evaluation Model

5.6.1 In accordance with the Standing Orders, bids are received electronically via the Bravosolution e-tendering portal. Every entry including supplier submission and buyer receipt are given an electronic time and date stamp, which cannot be altered. The technical envelope of the tender response is opened by Purchasing. Late tenders will only be admissible if technically late due to unforeseen circumstances or the Chief Executive and Director of Finance believe significant advantage would accrue to the Trust and the Bona Fides of the company are not in question.

Until the qualification and technical envelopes of the tender submission have been evaluated, the commercial envelope will remain locked. When the technical evaluation has been completed, the purchasing officer and the Trust Secretary will open the commercial envelope, and a record of the prices submitted will be recorded.

5.6.2 The Bids are opened and recorded.

5.6.3 The criteria defined in 5.6.1 above are checked to provide the shortlist.

5.6.4 The immediate tender evaluation team consists of:

- Nick Pope Project Manager
- Richard Deakins Head of Procurement
- Kitty Whitehead Contracts Manager
- Chris Vale Head of Operational Support
- Colin Jolly Head of Fleet

5.6.5 As this is a mini competition under a PASA framework, the evaluation criteria has to reflect that used in the award of the framework: Quality, Service, Price (40%), Environmental & Sustainability, Innovation & Flexibility.

5.6.6 For this business case, the group will use the last tender submission and evaluation as the basis for supplier selection but will continue to focus on areas listed in 5.6.5.

5.6.7 The full evaluation report will be created and will detail the final recommendation. The Directors will receive a short statement detailing who the successful contractor is as well as the agreed price. .

5.7 Key Principles for Contract Type

5.7.1 The contracts placed will be procurement using the PASA contractual conditions

5.7.2 The contracts are of short duration and therefore will not require any breakpoints.

5.8 Initial Assessment of the Transfer of Risk

5.8.1 The risks, which can be transferred to the vehicle suppliers, are considered minor and these are covered during normal contractual arrangements during build and post build.

5.8.2 On acceptance, each vehicle is checked to ensure it conforms to the LAS Specification and that the title of ownership is transferred to the approved Lessor through an invoice (where applicable).

5.8.3 The LAS has full control of vehicle build until ownership is transferred to the Lessor (if applicable).

5.9 Procurement Timetable

5.9.1 From approval of the Business case, procurement takes approximately 100 weeks. This includes:

- 13 weeks for start of chassis delivery
- 6 weeks for acceptance of first off vehicle
- 12-14 weeks to complete full delivery of vehicles to the LAS

5.9.2 Separate orders will be generated by the LAS for the chassis, saloon, medical equipment and trolley bed against the approved LAS vehicle and trolley bed specifications (currently under trial for an alternative to the Current product).

6 MANAGEMENT CASE

6.1 Project Management

- 6.1.1 The project will be managed by Nick Pope, Fleet Projects Manager in the Operational Support/Fleet Department and follows the structures and controls of PRINCE 2.
- 6.1.2 Chris Vale has responsibility of being Executive of the Project Board to oversee the project management arrangements.
- 6.1.3 The Project Board will also include a joint Senior Technical arrangement with Colin Jolly/Nick Pope (Fleet) and John Downard (IM&T department). The End User representative is Ian Lee.
- 6.1.4 The Project Manager will be supported by Team Managers who will control the concurrent stages of the project under the direction of the Project Manager. The Project Manager will ensure that Team Managers (Shreekant Buch, David Selwood) deliver their stages and components to the required cost, timescale and quality criteria.
- 6.1.5 Project Assurance is the responsibility of each Project Board Member, and no formal external Quality Assurance function has been nominated. However, the PID draws to each Project Board Member's attention the facility to delegate this function to an appropriate person (not the Project Manager) if necessary.
- 6.1.6 Roles and Responsibilities of the project team are detailed in the Project Initiation Document.
- 6.1.7 The project will be managed at the three levels of Project Board, Project Management and Team Management through formal assessment controls as follows:

Table 19

Management Monitoring	Responsibility	Triggering Event
Project Board Management		
Project Initiation	Project Board	Authorisation of Project by Chief Executive & Project Executive.
Project Assessments	Project Board	Planned at mid project or when an exception plan is required.
Project Closure	Project Board	All products have been delivered.
Project Management		
Highlight Reports	Project Manager	Monthly, or as determined by the Project Board.
Checkpoint meetings	Project Manager/Team Manager	Weekly or as determined by the Project Manager.
Stage Quality Management		
Quality Reviews	Quality Chairman	A product has been completed.

6.2 Resources

6.2.1 The resources for the project will be confirmed when the project is initiated.

6.3 Change Management

6.3.1 To control unplanned situations concerning the vehicle and trolley bed specification, performance, delivery of products etc., the project will be subject to configuration and exception control.

6.3.2 The PRINCE 2 change-control approach will be used to ensure that all changes are properly managed during the project. All specification changes, queries and off specifications can be raised by anyone working on the project as a Project Issue with the author indicating their priority for the query. All Project Issues are passed to the Project Manager for assessment and will be progressed through the PRINCE 2 change-control approach.

6.4 Project Plan

6.4.1 The detailed tasks of the project are defined in the Project Plan, which forms part of the Project Initiation Document.

6.4.2 The procurement timescale of the project covers an estimated 100 week period from compiling the specification, through the business case, tendering for conversion and placement of orders to delivery of the last vehicle into service.

6.4.3 The expected plan is represented in Gantt chart format, shown in Appendix C. A more detailed plan will be constructed during project phase planning, which may result in changes to the durations. The plan has been created around historical and

current information taken from suppliers, which cannot be confirmed until orders have been placed. This is also because each company has a different production capacity.

6.5 Risk Management

- 6.5.1 A Project Risk is defined as a situation, which may have a negative or positive impact on delivering the project.
- 6.5.2 Business risks will be assessed and monitored during the lifecycle of the project. An operational risk assessment will also be carried out during the tender evaluation period and vehicle build and approval phases. Once the project is initiated, any risks that are identified will be entered into the project Risk Log. The identified “project risks” are monitored and managed by the Project Manager as part of the Checkpoint Meetings. The Project Manager also monitors the other identified risks during the course of the project for changes in terms of probability. Risk assessment is an on-going process and changes are reported by means of Risk Reports. The Project Manager will take initial action on all Risk Reports and all actions are recorded in the Risk Log. At project closure, the register of remaining risks is handed over to the User Director for continued monitoring.
- 6.5.3 For the duration of the project, the Project Board will examine the Risk Log at each of its meetings to ensure risk is under control and that where necessary, appropriate actions have been taken.
- 6.5.4 The Project Board will consider if any risks could arise post-project and these will be handed over to the appropriate Senior Manager for monitoring on project closure.

6.6 Security and Confidentiality

- 6.6.1 There is no involvement with the patient during or post-project and therefore there are no security or confidentiality issues regarding Caldicott or the Data protection Act.

6.7 Benefits Realisation Plan

- 6.7.1 The responsibility for ensuring that benefits within this business case are optimised and measured sits with the Project Board.
- 6.7.2 The Project Board will monitor the benefits as vehicles are introduced into service. The nature of the benefits listed below means a reasonable amount of time must pass before they can be accurately measured.
- 6.7.3 On Project Closure, the responsibility for monitoring and managing achievement of individual benefits will be transferred to those nominated in the Benefits Realisation table.
- 6.7.4 The benefit criteria from Table 2 have been brought forward and included in Table 20. This table illustrate the performance indicators and the person responsible for monitoring and reporting back on the benefit.

Table 20

Benefit	Performance Indicator	Responsibility
<i>Financial Benefits</i>	<i>How will we know it is achieved?</i>	<i>Who is responsible for monitoring achievement?</i>
Less back injuries & lower resulting overtime cost	A full year total or <u>moving annual total</u> (mat) ¹ comparison on back injuries and overtime costs associated with patent vehicle loading with figures obtained from Health & Safety and Management Information,	Senior Health and Safety Advisor
Achieve a better fuel consumption and reduced fuel cost	Analysis of fuel reports measured like for like as moving annual total (mat)	Head of Operational Support
Potentially reduced maintenance costs	Analysis of job card information taken from workshops	Head of Operational Support
Enhanced Operational Capability with a reduction in unscheduled breakdowns of vehicles	Reduction in breakdowns can be recorded through EOC/ fleet logistics.	Head of Operational Support
Reduced workload on fleet dept	Less maintenance hours spent on new vehicles versus old. This data can be captured from vehicle maintenance history on FleetPlan.	Head of Operational Support
Improved trolley bed equipment	Achieved by default of deploying ambulances with the new trolley bed.	Head of Operational Support
Improved patient care	Achieved by default of deploying all 100 ambulances.	Head of Operational Support
Greater proportion of the fleet will be CEN compliant	Achieved by default of deploying all 100 ambulances.	Head of Operational Support
Reduced CO2 Emissions	Recorded by reduction in fuel consumed	Management Accounts

¹ M.A.T (Moving Annual Total)= comparison of 12 months from current period versus same period last year i.e. comparing 12 months June 03-June 04.

<i>Non-Quantifiable Benefits</i>	<i>How will we know it is achieved?</i>	<i>Who is responsible for monitoring achievement?</i>
Corporate kudos for being environmentally responsible	Non-measurable, however statements on our diesel vehicles should be made where possible by Press dept. Discuss with Press number of occasions this has happened. In addition, meeting controls assurance standards by default of vehicle deployment for fleet & transport management.	Head of Operational Support
Improved public image	Anecdotal evidence or through letters.	Director of Communications
Improved staff morale	Difficult to measure without staff surveys, however A&E working group can be the forum to present staff feedback. This can be captured via a web forum similar to that used for MDT.	Director of Communications

6.7.5 A more detailed explanation of the benefits can be found in Appendix A.

6.8 Training

6.8.1 Training will be appropriate and limited to any significant new additions on the vehicle.

6.8.2 If required, staff will receive training and their training record will be updated and signed. No staff will be allowed to use the new vehicles unless their training record has been checked and approved.

6.9 Contract Management

6.9.1 The main external delivery contracts will be managed by the Project Manager who may delegate responsibility for any separately funded procurement activities to various Team Managers.

6.9.2 The Technical, User Acceptance and delivery aspects of all the products are controlled by the Project Manager who will advise the Lessor when financial payment can be made for full or part delivery of completed products (where appropriate).

6.10 Post Project Evaluation

6.10.1 During the three months following delivery of the vehicles, the Project Manager will undertake a Post-Project Evaluation Review and present the report at the Project Closure Meeting.

6.10.2 In particular, it will look at:

- What went right?
- What went wrong?
- Lessons learnt.

6.10.3 The Project Closure Meeting will also set dates for a Benefits Realisation Meeting described in Section 6.7.

6.10.4 Finally, it will be ensured that a Senior Manager is formally nominated with the responsibility for post-project reviews and continuous benefits reappraisals.

7 APPENDIX A - BENEFITS EXPLAINED

- 7.1.1 *Improved Patient Care* - This benefit focuses on the LAS' ability to serve its patients with a greater level of patient care, achieved by reducing the number of vehicles off the road at any one time and ensuring equipment is up to date and in working order.
- 7.1.2 *Increased proportion of the fleet will be CEN compliant* - This benefit will be achieved through vehicle replacement.
- 7.1.3 *Reduced Fleet workload*- This benefit focuses on the increased reliability and lower maintenance times achieved with new vehicles.
- 7.1.4 *Improved Trolley bed equipment*- This benefit highlights the improved trolley bed equipment that the new vehicles will be fitted with. At this time, options for equipment with bariatric capabilities are being explored.
- 7.1.5 *Less back injuries and lower resulting overtime costs* - This benefit highlights the evidence that automatic tail-lifts have reduced incidences of back injury and subsequent overtime costs. New Tail-lifts will also have a greater lift capacity to cater for bariatric patients.
- 7.1.6 *Achieving a better fuel consumption thus reducing running costs* - This benefit highlights that through use of diesel fuel engines on the new ambulances, the LAS can expect to reduce both fuel price and volumes.
- 7.1.7 *Potentially reduced maintenance costs* - with newer vehicles and the expectation that less maintenance will be required.
- 7.1.8 *Environmental responsibility* - This benefit addresses the impact on the environment, with vehicles producing less CO2 emissions.
- 7.1.9 *Improved staff morale* - This benefit focuses on improved morale through use of newer, smarter and more reliable vehicles, measured via annual staff survey.
- 7.1.10 *Improved public image* - This benefit focuses on the public perception of the LAS. Newer vehicles better position the LAS towards being a world class ambulance service, measured through public feedback.

8 APPENDIX B - BENEFITS SCORE REASONING

Explanation of weighted benefit analysis

The weighted benefit analysis table demonstrates support for the selection of option 1 – Purchase Vehicles.

An explanation for scores awarded is given against each benefit listed below:

Improved Patient Care

Do Minimum			Option 1		
Weight	Score	W x S	Weight	Score	W x S
27.14	0	0	27.14	7	190
A score of 0 was awarded as by keeping the status quo, no value is added to improving patient care.			A score of 7 was awarded as new ambulances are better equipped, safer and designed for more comfortable transportation of patients.		

Improved Vehicle Availability

Do Minimum			Option 1		
Weight	Score	W x S	Weight	Score	W x S
23.07	0	23	23.07	9	207
A score of 0 was awarded to this as the current vehicle availability is problematic, due to high levels of breakdowns, and staff reluctance to use older vehicles.			A high score of 9 was awarded as by default, the LAS can expect an immediate improvement in vehicle availability with newer vehicles and lower VOR.		

Improved Trolley Bed Equipment

Do Minimum			Option 1		
Weight	Score	W x S	Weight	Score	W x S
13.84	0	0	13.84	9	27
A score of 0 was awarded as the old ambulances cannot accommodate the latest style design trolley beds.			A score of 9 was awarded as new design trolley beds could offer a bariatric capability, and will give an enhanced usability through a powered lift.		

Improved Staff Safety

Do Minimum			Option 1		
Weight	Score	W x S	Weight	Score	W x S
18.46	0	0	18.46	9	147
A score of 0 was awarded as the old ambulances cannot accommodate the latest style design trolley beds.			A score of 9 was awarded since the new vehicle with automatic tail-lift will reduce back injuries to staff.		

Environmental Responsibility

Do Minimum			Option 1		
Weight	Score	W x S	Weight	Score	W x S
10.11	0	0	10.11	8	70
A score of 0 was awarded as fuel economy will further decrease with the ageing fleet, which increases cost and the level of pollution the vehicles produce.			A score of 8 was awarded as the transition to diesel powered engines meeting euro 4 compliance reduces both fuel consumption and vehicle pollution.		

Meeting Operational Objectives

Do Minimum			Option 1		
Weight	Score	W x S	Weight	Score	W x S
7.38	1	0	7.38	7	59
A score of was 1 awarded as Operational Objectives are difficult to achieve with a high number of vehicles off road. recommendations.			A score of 7 was awarded to reflect the achievement of the operational objective.		

9 APPENDIX C -PROJECT PLAN GANTT CHART

