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DEC(SP)/68/22

13 Mar 06

BUSINESS CASE – PROJECT VECTOR

ISSUE

1. The approval for the procurement of 62[1] VECTOR Protected Patrol Vehicles.

RECOMMENDATIONS

2. The Approving Authorities are invited to approve:

a. The provision of a minimum of 62 x VECTOR vehicles at a not-to-exceed cost of £18.786M$^{90\%}$ (EP05 outturn, VAT inc) for the manufacture phase of the project.

b. A not-to-exceed In-Service date (ISD) of Mar 07$^{90\%}$ as defined by the delivery of 24 fully supportable systems to the user.[2]

c. The procurement strategy as summarised.

d. The support strategy as summarised.

e. The KURs at Annex A.

And to note:

f. The three-point cost estimates for the manufacture phase of the project of:

Manufacture Phase	RDEL £M VAT Incl			CDEL £M VAT Incl		
	10%	50%	90%	10%	50%	90%
	0.300	0.350	0.362	17.523	17.962	18.424

g. The three-point time estimates for the manufacture phase of the project of:

ISD	10%	50%	90%
	Dec 06	Jan 07	Mar 07

h. The expected Cost of Ownership of (COO) (VAT Inc, 50% confidence) of:

	Concept	Assess	Demo	Manu	CADM Total	In Service	Disp	CADMID Total
DPA	0.350			17.920	18.270			
DLO				0.042	0.042	0.540	0.050	
FLC						4.120		
Total	0.350				18.312	4.660	0.050	23.022
Total Cost of ownership								23.022

[1] Based on an estimated max UPC of £245K (VAT Inc). If the UPC is less, then an information note will be circulated to the approving authorities showing the final numbers.
[2] HQ LAND.

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i. Any possible future requirement to meet the VECTOR TFR, of 153[3], will be subject to a Review Note. Any procurement above this will be determined by a capability audit and subject to a Balance of Investment conducted by DEC(GM).

j. This is an EP procurement but is being tracked and processed as a UOR due to urgent operational needs but is at NIL cost to the Treasury as authorised[4] by PJHQ, D Jt Cap and DCRS.

TIMING

3. **Urgent.** Approval is requested by 10 Mar 06 in order to allow contracts to be let by 29 Apr 06 in order to met ISD[90%] of Mar 07.

CAPABILITY REQUIREMENT

4. Operational experience in Bosnia[5], Kosovo, Macedonia[6], Afghanistan (AFG) and Iraq[7] has highlighted capability gaps in protected mobility for troops operating in Peace Support and post-conflict/CT situations. A number of SNATCH vehicles were reallocated from NI for operations in Iraq and Afghanistan, with UOR action to adapt them for the new environment; the requirement for light protected mobility is expected to grow in future. In recognition of this trend, the Defence Management Board in Feb 04 endorsed an EP04 enhancement measure[8] to bring forward funding for light protected vehicles into 04/05 and 05/06. A further option was submitted and approved in Apr 05 which brought more money forward and increased the funds available. 358 x SNATCH 1.5 were procured as a UOR for Op TELIC before production of SNATCH 2 commenced. 365[9] of 624 x SNATCH 2 have now been produced. During the initial scoping studies for VECTOR, an increased capacity SNATCH was considered. This was not successful and was not considered further as a suitable platform for VECTOR.

4. The current Protected Patrol Vehicle (PPV), SNATCH (all variants) is capable of conducting operations where the threat is limited to long range shoots. The vehicle is also capable of protecting the occupants from the effects of a the current IED charge, detonated at a distance of

5. In higher threat areas a greater level of protection is required. This is currently provided by TAVERN in NI. This vehicle meets the protection levels but offers mobility far below that which is required. It also offers low internal volume and weight capacity as the armour has been specifically designed for the TAVERN would require an increase in the Gross Vehicle Weight (GVW) to cope with the increasing demands placed on the vehicle due to the provision of Electronic Counter Measures (ECM) communications, BOWMAN, and the increased equipment scales required on operations. TAVERN offers LOW mobility due to its size, weight and drive-train which would render it unsuitable for expeditionary operations. Climatic chamber tests have concluded that the size and weight of any air-conditioning unit would render the

[3] See Table at Para 9.
[4] The issue of a UOR number proves this authority.
[5] The death of Detachment, Bosnia.
[6] The death of Op BESSEMER.
[7] Deaths of EOD and RMP personnel.
[8] EP04SP205A.
[9] 77 x SNATCH 2, 109 x SNATCH 2A and 179 x SNATCH 2B.

vehicle ineffective. TAVERN is therefore unsuitable for deployment on expeditionary operations.

6. SNATCH 2 has been deployed on Op HERRICK but due to its limited mobility and the extreme terrain it has been restricted to urban patrols. This drives the requirement to procure a vehicle that offers the increased capacity, increased cross country manoeuvrability and durability and provides sufficient protection to the crew.

7. VECTOR offers a substantial increase in the performance to that of SNATCH 2 in terms of protection, mobility and capacity.

a. VECTOR will be protected to withstand an attack utilising against the opaque armour. The transparent armour will have a lower level of protection of 7.62mm x 39 Ball rounds at 10m. The protection offered by SNATCH 2 is It can be seen that VECTOR can be used in a more hostile environment than SNATCH as is anticipated on Op HERRICK once full operations are undertaken. VECTOR will be

DSTL have recommended that a spall liner be fitted to VECTOR to reduce the behind armour effects. It is to be produced from

b. VECTOR will offer improved medium mobility and will combine this with increased durability as opposed to improved low mobility offered by SNATCH 2. This increase will be essential on Op HERRICK due to the lack of hardened roads. The main routes frequently ford rivers, follow existing cart tracks and are seen as the toughest roads in world to negotiate. Mobility is seen as a key aspect in the forthcoming deployment.

c. VECTOR will offer the capacity to carry of equipment and people. SNATCH 2 offers a capacity of which is in line with the OA studies. The inclusion of a spall liner will reduce the payload by The required capacity of included growth and the available payload[90%] is now Since these studies have been completed there has been the additional requirement to deploy another ECM suite which has increased the payload requirement. In addition patrols on Op HERRICK will deploy for longer than on Op TELIC due to the difficulties posed by the lack of suitable roads.

d. VECTOR is a significantly more capable vehicle than any of our existing capabilities which will be able to cope with the demands placed on it by Op HERRICK. SNATCH 2 has a place on this operation and the two complementary varieties of PPV will offer the commander the ability to force package his patrols according to threat, duration and conditions likely to be encountered.

8. Op HERRICK is due to expand in July 06. PJHQ have accepted that VECTOR will not be available for this deployment. The required ISD is March 07 based on the third roulement of troops. VECTOR is currently CinC(LAND)'s highest priority. In addition ACGS is paying a keen interest in this procurement.

9. D Jt Cap[10] has stated the requirement for 1030 PPVs to undertake the FP roles above on a global and enduring basis. The break down of vehicles is 877 x SNATCH 2 and 153 x VECTOR vehicles. DEC(GM) will conduct a capability investigation and a Balance of Investment before procuring numbers above the present VECTOR TFR. They are aware of the financial limitations which currently restrain the numbers to 624 x SNATCH 2 and 62 x VECTOR. The vehicle requirements are shown below:

Ser (a)	Revised TFR Element (b)	PPV SNATCH 2 (c)	PPV VECTOR (d)	Remarks (e)
1	MS Enduring	303	0	In line with DPD attribution tables and FAS work. Based on the generic NRF ORBAT and modified in light of Op TELIC experience and Op HERRICK ORBATs.
2	SS Enduring	72	0	Based on the Very High Readiness reserve we have at the moment, and which is in use on Op TELIC. DJC and PJHQ aspire to maintain this Operational/Strategic reserve.
3	SS Non-enduring	0	132	In line with DPD attribution tables and FAS work. Based on SS ORBAT as amended by HQ LAND. PPV VECTOR attributed to this activity due to likelihood of increased threat levels.
4	PCF (Northern Ireland MT2.2)	370	0	iaw HQNI current projected figures for 2006 onwards.
5		13	0	iaw with endorsed requirement.
6	PCF (Balkans)	4	0	iaw with endorsed requirement.
7	PCF (Gibraltar)	2	0	iaw with endorsed requirement.
8	PCF (SLE)	24	0	Based on the Lessons Identified from deployments in 2004 (Ops MERCIAN and PHILLIS) and 2005 (e.g. Op CALICLE). DJC and PJHQ aspire to maintain this capability.
9	Training	42	8	HQ LAND envisaged requirement dropping from 70 to 50 in mid-2006. We have taken the 50 as the enduring training requirement.
10	Sustain (10% less NI)	47	13	To date unresourced, but a "must" for the future.
11	Vehicle Type Total	877	153	
12	Revised Total Fleet Requirement	1030		

10. The shortfall of vehicles due to financial restraints will be the subject of a further EP07 option which will aim to provide the full TFR as stated above. The risk will be managed by the PPV management committee who will assign platforms based on the current operational status. Initially all of the procured vehicles will be deployed on Op HERRICK due to the improved mobility that VECTOR offers over SNATCH 2A. Op HERRICK has an endorsed requirement for 166[11] PPV. This will initially be met through the deployment of SNATCH 2A but 62 of these will be withdrawn and replaced by VECTOR during rollout. These SNATCH 2A will be redeployed to reduce risk taken on

[10] D Jt Cap/J5/PPV dated 21 Feb 05.
[11] Minutes of PPV Management Committee dated 16 Nov 05.

expeditionary operations[12].

OPERATIONAL ANALYSIS (OA)

11. OA has been conducted in support of VECTOR by DSTL. The OA concluded:

a. **Protection.** Three[13] threat papers have stated that the current small arms threat is from 7.62mm, 12.7mm and 14.5mm rounds. Although AP is available for these rounds it is not likely to be encountered on a routine basis. It is therefore appropriate to armour this vehicle to a ballistic equivalent of FLCV and therefore it should be armoured to The mine threat is reduced in the areas where this vehicle is operating. It will be operating on used tracks and therefore it should be protected against those mines which may wash onto tracks. It is therefore appropriate to The EFP threat was not considered during the OA studies as it had not been deployed at that time. Studies against the shell stated that at a range of , outside the ECM bubble that there would be a change of a fatality. In order to reduce this to zero the armour would reduce the capacity to the extent of rendering the vehicle non-effective.

b. **Mobility.** Reporting from theatre has stated that vehicles that are deploying to the remote areas must have mobility similar to the current un-armoured Land Rover, ie. Improved Medium Mobility[14] (IMMLC). 19 Mech Bde reported that a width of the vehicle should be similar to SNATCH in order to transit through streets but also to deploy along the narrow tracks which exist in theatre.

c. **Payload.** A loading trial was been conducted by Infantry Trials and Development Unit utilising 95% men. It stated that the capacity must be a minimum of when deployed with all mission and personnel equipment. Current doctrine states that a crew of 2+4 must be carried.

12. A fleet size study has not been conducted by DSTL due to time constraints. As part of future procurements, above the VECTOR TFR, this should be conducted. D Jt Cap are currently leading a study which will provide an indication of the fleet size.

INVESTMENT APPRAISAL

13. The investment appraisal has been approved by BA LM.

14. The original intention was to enhance SNATCH 2 with additional armour and an increase in the Gross Vehicle Weight (GVW). This was discounted at an early stage due to a complete inability to meet the payload KUR. The following options were considered in order to meet the capability requirement:

a. **Option A – Do Nothing.** Many Peace Keeping (PK) roles undertaken on a

[12] This is expected to be Op TELIC. The PPV management committee will make a decision once force levels have settled in both Op TELIC and Op HERRICK or any other emerging tasks.
[13] FIST,FRES and Future Ground Manoeuvre Capability.
[14] This is reinforced by the mobility restraints of SNATCH 2 that have been highlighted by current operations in Afghanistan. The extreme terrain encountered led to all 6 x SNATCH 2 being declared vehicle of the road.

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regular basis require the adoption of a 'non-aggressive' presence to promote a return to relative normality. This is difficult to achieve with legacy platforms designed for High Intensity Conflict (HIC) Warrior/Saxon, where their high profile makes them unsuitable. Lighter, non-armoured platforms, Land Rover/Pinzgauer may achieve the right appearance but do not provide the necessary force protection against the generic threat. Future Command and Liaison Vehicle (FCLV) offers the correct profile, additional protection but does not offer the capacity required. Affordability and production rates also discount this option. The 'Do Nothing' option is discounted as it would lead to a capability gap.

b. **Option B – COTs/MOTs.** There are a number of manufacturers who produce armoured vehicles which would fulfil the requirements for Project VECTOR and some of these vehicles are in-service with other armed forces. Support of a new range of vehicles would be severely limited and would hamper their availability. The selection of a COTS/MOTS product should therefore be limited to one that has a large commonality with an in-service vehicle and is available with the required time-scales. This option is considered further.

c. **Option C – Develop Bespoke Solution.** Due to the short time frames imposed on this project, there is insufficient time to develop a bespoke solution for project VECTOR. This option is therefore discounted.

d. **Option D – PPP/PFI.** This specialist vehicle will be deployed on expeditionary operations for the majority of its life. It would be unrealistic to expect full contractor support for this vehicle and it has little utility outside this specialist role. PPP offers a substantial increase in the time taken to bring this capability into service. This option is discounted.

15. **Preferred Solution.** Option B (COTs) is therefore recommended as the means to deliver this capability.

KEY USER REQUIREMENTS

16. The Key User Requirements (KUR) for VECTOR are at Annex A.

PROGRAMME DATES

17. **Key Assumptions.** A list of Key assumptions is at Annex B.

18. **Delivery Dates.** Vehicles must be delivered by Mar 07[90%] in order to coincide with future defence planning options.

19. **Key Milestones.** Key milestones are annotated below and have been agreed between the Equipment Capability Customer and the DPA. A more detailed project plan is at Annex C. The dates provide the ideal time profile that are at 50% confidence levels:

Ser (a)	Milestone (b)	Date (achieved By) (c)
1	URD Complete	Jun 05
2	BC Endorsed	Mar 06
3	SRD Complete	Mar 06

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4	ITT Issued	Mar 06
	Contract Let	Apr 06
	1st off System Delivery	Oct 06
7	System Acceptance	Oct 06
8	Logistic Support Date	Nov 06
9	In Service Date (50%)	Jan 07
10	Out Of Service	Jan 17

PROCUREMENT STRATEGY – VECTOR OPTIONS

20. **Option 1 – Lease/Hire.** PFI is not considered appropriate as the requirement is for a militarised asset which can be used as required by the MOD in a CT role, rather than a service that is capable of definition in output terms. This option is not considered further.

21. **Option 2 – Single Source/Non-Competitive.** A market survey has been conducted by both SUV IPT and DSTL against the KURs. A number of contractors were contacted as result of these studies but they were unable to deliver the requirement in terms of performance, cost and time. The majority of the products would be new vehicles to the MOD and attract significant additional support costs. Automotive Technik Limited (ATL) currently provide the MOD with a 6 x 6 non-armoured vehicle which would offer the size and profile that is provided for this vehicle. To this end, ATL have been offered preferred bidding status as suppliers of the base chassis.

22. **Option 3 – Competition of Preferred Solution.** ATL offered three options for the armour for VECTOR. These were a redesign of the existing armoured body (as supplied to the New Zealand (NZ) MOD), an up-armoured solution (sub-contract with Permali Ltd) or a new armoured body as designed and built by Stewart and Stevenson (ATL's parent company). Further assessment of time and risk meant that the third option was ruled out. Limited trails at Infantry Trials and Development Unit on the NZ variant indicated it fell well short of UK requirements and substantive modification would be required. However, it was the lowest risk solution at that time. In order to better inform the decision ATL were then tasked to de-risk the up armoured and NZ options by firming up the design for the up armoured option and demonstrating the level of floor protection they could achieve on both versions. As a result of this de-risking work the risks associated with the NZ option increased, but the risks involved with the up armoured version significantly decreased to a point where SUV IPT, DEC(GM) and D Inf have deemed them to be within acceptable boundaries.

23. **Selected Option.** The selected acquisition solution is to have single source acquisition with ATL. The base chassis will be the Pinzgauer 6 x 6 and Permali will supply the up-armoured protection. This will produce a chassis with characteristics that are known within MOD and an armour solution that meets all current requirements.

COMMERCIAL STRATEGY

24. As timescales are aggressive and design for manufacture needs to start immediately SUV IPT will release initial funds in order for the contractor to procure long lead items and progress the prototype build before final contract let.

25. In parallel to this SUV IPT have engaged Price and Forecasting Group (PFG) in order

to ensure that, when the full contract is placed, MOD receives fair and reasonable rates. The contract will be presented in such a way that the unit cost of the vehicles can be distinguished against trialling and management costs. The unit cost will then reflect the SRD and trade offs can be identified which may result in financial savings. Options for banded quantities will be included within the contract to allow for follow-on buys for a period of up to 2 years from the end of production. This ensures that if there is a need for future VECTOR vehicle procurement a baseline is in place which will allow changes in requirement to be transparent.

26. Break points will be inserted into the contract at strategic program points. If the contractor fails to meet the requirements this program will be re-evaluated and subject to a review note. It is planned to add incentives to the contract to ensure that project milestones are met.

SUPPORT STRATEGY

27. **General.** Support for VECTOR will be based upon the existing traditional support systems utilised on in-service 6x6 Pinzgauers, and comply with the Support Solutions Envelope (SSE). Level 1, 2 and 3 repairs will be carried out by the User/REME; Level 4 repairs will be carried out by the Prime Contractor or his designated agent. Technical Publications will be delivered as an amendment to the existing Pinzgauer AESP. Additional procurement above the VECTOR TFR level will investigate the options of more innovative support solutions, but this will be demonstrated as part of any new case presented.

28. **Warranty.** A parts and labour warranty will be procured for a minimum of 12 months from the date of equipment issue to the user. The terms of the warranty will include provision to hold the equipment in depot for up to one year before the warranty begins. The terms of the warranty will permit emergency repairs to be carried out by service personnel when necessary and costs claimed back at an agreed rate.

29. **Training.** Maintainer training exists at SEME for existing Pinzgauers. The ILS process will identify any additional training requirements with initial training conducted by the contractor. Steady state training will be put in place in the most appropriate manner as identified through the ILS process. Initial Driver training will be via the Contractor for Service driving instructors who will then cascade training to the User. D Inf will be required to identify and ensure sufficient drivers hold CAT C licences prior to this training.

KEY RISKS

30. **Overall Risk.** The overall risk to this project is MEDIUM. The main risks to the project are the integration aspects and these are expanded below.

31. **Not-to-Exceed.** Not-To-Exceed figures have been listed at 90% as this was a Category D BC. These percentages could be driven down but at the expense of time.

32. **Risk Management.** The risks within the project are as follows: (Annex D giving additional details)

a. **Time.** As these vehicles are urgently required for Op HERRICK, the reduction in risks that will affect time will receive the highest priority. The contractors chosen have presented their production plans and these have been verified by SUV IPT.

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The main risk to time would be from a change in requirement from the user. These requirements have been frozen and the user is aware of the implications of requirement creep. The inclusion of a spall liner will not affect the delivery timelines as the manufacturer has commenced work in this area. The other risk associated to time is that of integration (see para 31d). The risk to chassis production is LOW.

b. **Cost.** There will be a firm price contract for the cost of the vehicle with discount incentives for future increases in numbers. The risk to cost is through the growth in integration costs of both ECM and communications. This has been included in the 90% costs. The cost of the spall liner has been included in the costing. The risk therefore of cost growth is MEDIUM.

c. **Performance.** The chassis performance is known as it is in-service with UK forces. The addition of the armour will not affect this as it will remain with the GVW for the chassis. The armour is a known product that has been fitted as a UOR to the Heavy Equipment Transport by the proposed sub-contractor and meets the requirement. The risk to performance of the both the chassis and the armour is LOW.

d. **Integration.** There are 2 main areas of risk to integration:

(1) The electro-magnetic characteristics of the base chassis are known and adhere to the requirements for the integration of communications. The integration of Force Protection ECM is less well known but is currently being undertaken for the Non-Armoured Pinzgauer variants under Project
The risk is currently MEDIUM but will reduce to LOW once this integration has occurred.

(2) The power consumption of the complete communications and ECM suite together with the vehicle base load (including air conditioning) is very high. The manufacturer is investigating ways to meet the requirement. This risk is MEDIUM.

The risk remaining in the project will be managed using a risk register shared with the contractor.

FUNDING

33. **EP05 Provision.** This project is affordable within the EP provision following a successful EP05 Enhancement. Funding for this project will be found from the DUCKBOARD line which has sufficient provision to cover this conversion, procurement of SNATCH 2 and the future procurement of CITIZEN[15] vehicles. Full details are at Annex E.

34. **STP Provision.** STP provision and affordability is at Annex E showing the project is affordable.

INDUSTRIAL ISSUES

35. The vehicles will be constructed in Guildford. ATL have indicated that they will wish to produce export versions of this vehicles to fulfil a international growing market.

[15] CITIZEN is the IEDD vehicle. Project TELLAR was the fourth priority in the DUCKBOARD program and so consequently has been dropped from the program.

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PRESENTATION AND HANDLING

36. The existence of the project is releasable, as is general information concerning the platform. Protection levels achieved will remain sensitive. Positive press lines will be drawn up in conjunction with DCRS and DGMC once the project is sufficiently mature to expose to the public.

SO2 Operate (Collective)
For DEC(SP)

RM 2
For SUV IPTL

Annexes:

A. Project VECTOR - Key User Requirements
B. Project VECTOR - Key Assumptions.
C. Project VECTOR - Milestones.
D. Project VECTOR - Key Risks Table.
E. Project VECTOR - Affordability Tables.

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ANNEX A TO
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DATED 03 MAR 06

PROJECT VECTOR - KEY USER REQUIREMENTS

KURs (a)	Requirement (b)	Verification (c)	Remarks (d)
K1	The vehicle shall be protected to	DSTL will be the verifying authority. DSTL will determine the level any trial requirements.	
K2	The floor pan shall be protected to	DSTL will be the verifying authority. DSTL will determine the level any trial requirements.	Equivalent to a
K3	The vehicle shall accommodate 6 (2+4) personnel.	Contractor Demonstration. User Trials.	To include all personal and mission related equipment.
K4	The supplied base vehicle chassis should provide improved medium mobility.	Contractor Demonstration against the physical requirements of DEF STAN 23-6	To comply with DEF STAN 23-6 for a vehicle offering this payload and capacity. Relaxation of the turning circle to 13m has been agreed.
K5	The vehicle must be deployable using Strategic Airlift (UK C-17) IAW Def-Stan 003/3 Sect F.	JATEAU	Priority 1 – C130
K6	The vehicle must have the provision for the mounting and operation of the BOWMAN communication system.	Contractor Demostration to meet ID and C requirements of GD UK/BATCIS IPT.	and external antenna. and external antenna. DCCU IK for battery charging. UDT. User control device or radio switch box. GPS antenna for situational awareness.
K7	The vehicle must be capable of being fitted with all current ECM equipments.	S Troop Trials	Based on
K8	The system shall be capable of operating in climatic conditions A1,A2,A3,B1,B2,B3, C0 and C1 as defined in Def-Stan 00-35 Part 4, Issue 3.	Contractor demonstration utilising climatic chambers.	

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ANNEX B TO
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PROJECT VECTOR – KEY ASSUMPTIONS

- The project will use EP funds but follow UOR procedures in order to raise its priority and achieve ISD.
- The equipment is required for Op HERRICK 6, commencing March 07.
- The business case is based on a single source/single solution to meet the current funding ceiling.
- Additional vehicles, up to the current VECTOR TFR of 153, will be the subject of a Review Note. Numbers over this will be determined by a capability audit and subject to a Balance of Investment appraisal conducted by DEC(GM).
- The vehicle may be deployed with a UOR support solution.
- The performance envelope of the base vehicle is known and it is expected this will be maintained as the GVW of the chassis is not to be exceeded.
- There will be limited additional ballistic trials in accordance with DSTL advice.
- Reliability trialling will be centered on the armour fixings as the base vehicle is proven.

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PROJECT VECTOR - MILESTONES

Ser	Milestone	Date (all at 50%)	Remarks
1	BC Approval	02 Mar 06	
2	Contract Let for Long Lead items and prototype	29 Mar 06	
3	Prototype/Trials vehicle produced	10 Apr 06	Company Started at own risk
4	Prototype trials commence	17 Apr 06	Includes reliability and user trials
5	Production Contract Let	28 Apr 06	
6	BOWMAN integration complete	2 Jun 06	
7	ECM integration complete	2 Jun 06	
8	Prototype acceptance	1 Sep 06	
9	1st off	22 Sep 06	
10	Production Commences	23 Oct 06	Allows for slippage
11	ISD	31 Dec 07	24 Vehicles.

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PROJECT VECTOR – KEY RISKS TABLE

Risk Number	Risk	Likelihood	Impact	PCT affected	Mitigation
1	Integration of BOWMAN	MEDIUM	MEDIUM	Cost/Time	Early engagement of GD UK and BATCIS IPT by ATL and SUV IPT. Solution based on in-service vehicles and will be a "simple" installation.
2	Integration of ECM	LOW	LOW	Time	Knowledge gained from SNATCH 2 and ECM integration of GS variants under Project NICKING.
3	Power Budget	MEDIUM	MEDIUM	PCT	A number of technical solutions available which are under investigation by the company. Consideration to be given on the methods of operation of fitted equipment.
4	Durability of mechanical fixing of armoured panels to base vehicle	LOW	MEDIUM	Time	Technical solution proven on other applications (eg CH 47, HET & CVR(T)). Durability trials planned on prototype vehicle in Battlefield Mission Environment.
5	Delivery of programme within timescale	MEDIUM	MEDIUM	Time	Early selection of solution. Risk mitigation to identify key choke points. DSTL trials to confirm ballistic and mine protection performance of proposed solution. Early liaison with all key stakeholders to ensure taut realistic requirements. Pragmatic approach with customer 1 to trade lower requirements within a UOR construct.
6	Maturity of production design	LOW	LOW	PCT	Armoured technology in use and is mature. Base vehicle is known. Design Reviews to be held throughout trialling programme. Testing plan to address risks. (eg. Reliability and Durability)

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PROJECT VECTOR – AFFORDABILITY TABLES

RDEL

	05/06 £M	06/07 £M	07/08 £M	08/09 £M	09/10 £M	10/11 £M	11/12 £M	12/13 £M	13/14 £M	14/15 £M	Total £M
DUCKBOARD EP05 Baseline	2.755										2.755
SNATCH 2 Requirement	0.910										0.910
VECTOR requirement	0.350										0.350
CITIZEN Requirement	0.445										0.445
Variance	1.050										1.050

CDEL

	05/06 £M	06/07 £M	07/08 £M	08/09 £M	09/10 £M	10/11 £M	11/12 £M	12/13 £M	13/14 £M	14/15 £M	Total £M
DUCKBOARD EP05 Baseline	36.337	22.000	13.366								71.703
SNATCH 2 Requirement	25.400	4.540									29.940
VECTOR requirement		16.233	2.191								18.424
CITIZEN Requirement	0.781	1.227									2.008
HMT Bfd			11.175								11.175
Variance	10.156	0.000	0.000								10.156

STP Provision. The following table shows the STP provision, as supplied by SUV IPT and endorsed by Army RP, for PPV (VECTOR and SNATCH 1/1.5/2) and demonstrates its affordability:

	06/07 £M	07/08 £M	08/09 £M	09/10 £M	10/11 £M	11/12 £M	12/13 £M	13/14 £M	14/15 £M	15/16 £M	Total £M
PPV Baseline[1]	0.786	0.556	0.189	0.220	0.226	0.253	0.237	0.243	0.249	0.255	3.214
SNATCH 1/1.5	0.077										0.077
SNATCH 2	0.496	0.296	0.126	0.156	0.160	0.163	0.167	0.172	0.176	0.181	2.093
VECTOR Requirement	0.213	0.260	0.063	0.064	0.066	0.090	0.070	0.071	0.073	0.074	1.044
Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

[1] This baseline is for the current fleet of 980 vehicles.

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