National Audit Office

MINISTRY OF DEFENCE

Major Projects Report 2006
Project Summary Sheets

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL | HC 23-II Session 2006-2007 | 24 November 2006

The National Audit Office scrutinises public spending on behalf of Parliament. The Comptroller and Auditor General, Sir John Bourn, is an Officer of the House of Commons. He is the head of the National Audit Office, which employs some 850 staff. He, and the National Audit Office, are totally independent of Government. He certifies the accounts of all Government departments and a wide range of other public sector bodies; and he has statutory authority to report to Parliament on the economy, efficiency and effectiveness with which departments and other bodies have used their resources. Our work saves the taxpayer millions of pounds every year. At least £8 for every £1 spent running the Office.

National Audit Office

MINISTRY OF DEFENCE

Major Projects Report 2006
Project Summary Sheets

This volume has been published alongside a first volume comprising of the Comptroller and Auditor General's report –

Ministry of Defence: Major Projects Report 2006 HC 23-I, Session 2006-2007

LONDON: The Stationery Office
£32.50

Ordered by the
House of Commons
to be printed on 21 November 2006

This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn
Comptroller and Auditor General
National Audit Office

21 November 2006

The National Audit Office study team consisted of:

Alison Terry, Marisa Chambers, Ffiona Kyte*, Dan Lewis, Susan Brown, James Fraser, Matthew Hemsley, Kellie Herman, Sara Hesketh, Dev Mehta and Michael Ralph, under the direction of Tim Banfield

*Omitted in error from the printed version

This report can be found on the National Audit Office web site at www.nao.org.uk

For further information about the National Audit Office please contact:

National Audit Office
Press Office
157-197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Tel: 020 7798 7400

Email: enquiries@nao.gsi.gov.uk

MAJOR PROJECTS REPORT 2006

POST MAIN GATE PROJECTS

PRE MAIN GATE PROJECTS

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

A400M

Integrated Project Team Responsible:

A400M

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics & Support)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

A400M is planned to provide tactical and strategic mobility to all three Services. The required capabilities include: operations from airfields and semi-prepared rough landing areas in extreme climates and all weather conditions by day and night; carrying a variety of equipment including vehicles and troops over extended ranges; air dropping paratroops and equipment; and being unloaded with the minimum of ground handling equipment. The Strategic Defence Review confirmed a requirement for an airlift capability to move large single items such as attack helicopters and some Royal Engineers' equipment and concluded that this would be met, in the latter part of this decade, by Future Transport Aircraft. The A400M was selected to meet this requirement. It will replace the remaining Hercules C-130K fleet.

A400M is a collaborative programme involving seven European nations (Germany, France, Turkey, Spain, Belgium, Luxembourg and United Kingdom). A total of 180 aircraft (25 for United Kingdom) are being procured through a contract with Airbus Military Sociedad Limitada. The design phase is nearing completion and manufacture activities have commenced. First Flight is scheduled for 2008 and the first United Kingdom aircraft is scheduled to be delivered to the Royal Air Force in 2010.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	**Contract Scope**	**Contract Type**	**Procurement Route**
Airbus Military Sociedad Limitada	Development, Production and Initial in-service support	Fixed price, subject to Variation of Price	International Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	2616
Approved Cost at Main Gate	2744
Variation	-128
In-year changes	-28

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-1	Accounting Adjustments and Redefinitions	Changes to Cost of Capital costs and sunk costs.
March 2006	-5	Changed Requirement	Departmental Review - Deletion of civil pallets configuration item.
February 2006	-22	Technical Factors	Programme realism with regard to costing Technical Publications (-£5m), Special to Type Equipment (-£5m), Aircraft Ground Equipment (-£4m), Government Furnished Equipment/Facilities (-£7m) and Codification of equipment/spares (-£1m).
February 2006	-24	Exchange Rate	Variation in 2005/2006.
February 2006	+21	Technical Factors	Training Needs Analysis identified the need for funding increase; Develop & Build Facilities (+£11m), Initial Training (+£7m), Develop & Build Training Devices (+£6m), and Develop & Build Training Facilities (-£3m).
February 2006	+6	Technical Factors	Identification of UK only certification requirements.
January 2006	+6	Changed Requirement	Addition of Propeller Brake.
January 2006	-23	Changed Budgetary Priorities	Departmental Reviews have identified savings to programme risks.
January 2006	+14	Inflation	Variation in 2005/2006.
Historic	-42	Accounting Adjustments and Redefinitions	Transfer from RDEL to CDEL (-£1m). Difference in variation figures due to revision of Cost of Capital Charge (-£42m). Correction of previous years' treatment of deliveries (+£1m).

Date	Variation (£m)	Factor	Explanation
Historic	-7	Technical Factors	Costing realism in line with better programme understanding including adjustment for actual sunk costs (-£6m). Costing re-adjusted with understanding of future programme: Certification (-£15m), Government Furnished Equipment (+£4m), Support (+£4m). Reprofiling deliveries for realism Build Facilities (-£1m), Initial Provision Spares (-£5m), Deployment Kits (-£1m). Reduction in the requirement for government procured items. (-£46m). Improved understanding of programme requirement for Initial Provision Spares (+83m), Deployment Kits (-£1m), Initial Training (-£13m) and Mission Planning & Restitution System (-£10m).
Historic	-313	Changed Requirement	Option to reprofile Training Facilities for realism (-£1m). Programme measure to move deferred configuration items back into aircraft delivery profile (-£2m). Reduction in number of aircraft to be equipped with Defensive Aids Sub-System (DASS) from 25 to 9 (-£238m). Programme option to delete and defer configuration items and to slip In Service Date by 12 months (-£81m). Option bringing the DASS forward onto aircraft 1-9 (+£9m).
Historic	-67	Changed Budgetary Priorities	Changed delivery profile from that in the Business Case (-£61m). Minor realism adjustments, includes UK share of OCCAR Programme Division costs (+£5m), QinetiQ Support costs increased (+£1m), unidentified variance (+£1m). Equipment Programme Measure deleting 1 Simulator (-£20m). Minor realism changes includes Certification, Special to Type equipment and Training Facilities (+£7m).

Date	Variation (£m)	Factor	Explanation
Historic	-2	Inflation	Variation in 2004/2005 (+£8m). Changes between inflation rate assumed in the Business Case and yearly inflation indices resulting in variations: 2000/2001 (-£6m), 2001/2002 (+£6m), 2002/2003 (-£10m).
Historic	+29	Exchange Rate	Variation in 2004/2005 (+£39m). Variation in exchange rate assumptions used in the Business Case, 2000/2001, 2001/2002 and 2002/2003 (-£232m). Variation in 2003/2004 (+£222m).
Historic	+353	Contracting Process	Realism to reflect 3 month delay in 2000/2001 to contract effectivity (+£52m). Slip of aircraft payments and associated equipment to reflect above contract let decision (+£15m). Improved costing data for Configuration Items available (+£160m). Contract Effectivity Date (CED) slipped from November 2001 - October 2002 (+£149m). CED slipped from October 2002 - April 2003 (-£59m). Adjustments in line with increased knowledge of Programme (+£66m). CED slipped from April 2003 - May 2003, includes redefinition of Asset Deliveries to align with aircraft delivery schedule (-£30m).
Historic	+65	Procurement Strategy	Total number of aircraft ordered by participating nations higher than anticipated, and consequent reduction in Unit Production Cost (-£65m). Subsequent contract renegotiation due to German reduction in offtake (+£130m).
Historic	-116	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-128		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	199

2d. Years of peak procurement expenditure

2009/2010	2010/2011

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	**Current**	**at Main Gate**	**Current**
***	***	25	25

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Delivery of 7th aircraft with Strategic Military Aircraft Release and support arrangements.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2011
Approved ISD at Main Gate	December 2009
Variation (Months)	15
In-year changes	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+16	Changed Budgetary Priorities	Change in the customer's requirement flowing from changed budgetary priorities (+16 months).
Historic	+9	Procurement Strategy	Delay in bringing contract into effect as a result of delayed approvals in Germany (+9 months).
Historic	-10	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	+15		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Short Term Plan	26	-	Life extension of 14 C130K aircraft.
Total	+26		

3e. Operational impact of ISD variation

The Out of Service date of C130K aircraft has been extended to 2012. This matches the planned capability build up of A400M.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Deployment Capability	Yes	-	-
02	Payload	Yes	-	-
03	Environmental Operating Envelope	Yes	-	-
04	Tactical Operations	Yes	-	-
05	Navigation Performance	Yes	-	-
06	Communication System	Yes	-	-
07	Defensive Aids Suite	Yes	-	-
08	Aerial Delivery	Yes	-	-
09	Crew Composition	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The Government announced in December 1994 that it would replace its ageing C-130K Hercules fleet, in part by procuring 25 C-130Js from Lockheed Martin and in addition, subject to certain conditions, by rejoining the next phase of the collaborative Future Large Aircraft (FLA) programme (now known as A400M). The FLA 'Initial Gate' approval was achieved in July 1997 and in the same year the solution assumed for costing purposes was changed to an initial lease of four C-17 and subsequent procurement of 25 FLA. A Request For Proposals (RFP) was issued to Airbus in September 1997 on behalf of the seven FLA nations (United Kingdom, France, Germany, Italy, Spain, Belgium, Turkey). Subsequently, in July 1998, four nations (United Kingdom, France, Spain, Belgium) issued a "competitive RFP" for a Future Transport Aircraft to Airbus Military Company (A400M), Boeing (C-17) and Lockheed Martin (C-130J).

Proposals were received on 29 January 1999 and parallel national and international assessments were undertaken. These covered Combined Operational Effectiveness and Investment Appraisal, technical and commercial compliance, risk assessment, and an appraisal of the international and industrial dimensions. This work also led to parallel negotiations and clarification with the three bidders. At the direction of the Equipment Approvals Committee in December 1999, additional work was undertaken to inform the Main Gate submission. On 16 May 2000 the Government announced the decision to procure 25 A400M aircraft to meet the FTA requirement.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	1	0.04%
Approved Cost at Initial Gate	2	0.08%
Variation	-1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 2000
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	2628	2744
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	February 2009	December 2009
Envelope within which capability was expected to be available at Initial Gate	-	-	December 2007

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

ASTUTE CLASS SUBMARINE

Integrated Project Team Responsible:

ATTACK SUBMARINES

Single Point of Accountability for project capability:

Director Equipment Capability (Under Water Effect)

Senior Responsible Owner for broader capability:

Director General Nuclear

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Astute Class of Attack Submarines is the replacement for the existing Swiftsure and Trafalgar Classes of nuclear attack submarine. The required capability places greater emphasis on land attack, intelligence gathering and special forces operations. GEC-Marconi (now BAE Systems Electronics Ltd – Astute Class Project) was identified as MOD's preferred bidder in December 1995. A Prime Contract was placed in March 1997 for the design, build and in service support of the first three of the Class.

Following BAE Systems' disclosure during 2002 of significant delay and projected cost overrun on the Astute programme, the Department entered into discussions with the company about arrangements to address those difficulties. An Agreement between the Department and BAE Systems was reached in February 2003 which reduces risk (eg by separating the design, development, build and acceptance of the First of Class from the production of the second and third submarines), and places new incentives on the company to perform. The Department agreed to increase its cash funding for Astute by around £430 million, against an increased contribution by the company of £250 million. The Department's contribution is primarily in recognition of the greater than expected difficulty in applying Computer Aided Design (CAD) techniques to United Kingdom submarines. An amendment to the Astute contract to enact the Agreement was signed in December 2003. Since the Agreement, all the programme's anchor milestones have been met and new project management disciplines have been implemented to achieve better planning and performance monitoring.

Risk analysis, taking into account opportunities to reduce construction time, predicts a most likely In-Service Date of December 2008; however, BAE Systems are determined to bring this date forward to August 2008. All three submarines are now in build and production targets for them are stable. Overall programme cost is being examined and work is proceeding on a number of fronts to deliver cost reductions inclusive of joint work with BAE Systems to secure a price for the second and third Submarines.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Swiftsure & Trafalgar Class Update Final Phase	2004	-	-
Astute Class Training Service (ACTS)	2007	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems Electronics Ltd – Astute Class Project (formerly BAE Systems Astute Class Ltd (BACL))	Design/Development & production of First of Class (DD/FOC) Production of Boats two & three	DD/FOC: Target Cost Incentive Fee. Boats two & three to be priced	UK Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	3656
Approved Cost at Main Gate	2578
Variation	+1078
In-year changes	+164

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-3	Contracting Process	Departmental Review - Reduction in warranty to be provided by BAE Systems from three years to one year.
February 2006	-18	Technical Factors	Reduced Requirement for Technology Insertion post MPR05 (CDEL -£17m, Cost of Capital -£1m).
February 2006	+29	Accounting Adjustments and Redefinitions	Re-costing of Non-Attributable items since MPR05 (items not included in the original approval).
February 2006	-73	Technical Factors	Departmental Review - Changes in throughput assumptions between MPR05 and MPR06.
February 2006	-16	Accounting Adjustments and Redefinitions	Overall reduction in Cost of Capital due to changed delivery profile and values.
February 2006	-5	Accounting Adjustments and Redefinitions	Departmental Review - Reallocation of Pension cost increases since MPR05.
February 2006	-1	Accounting Adjustments and Redefinitions	Departmental Review - Decommissioning and Decontamination costs.

Date	Variation (£m)	Factor	Explanation
January 2006	+205	Technical Factors	Cost increase identified as part of an internal review in 2005/2006. Prime Contract (PC) Overheads (+£97m), PC Materials (+£61m), PC Labour (+£26m) and (+£21m) unallocated cost growth.
January 2006	+123	Technical Factors	Increase in cost as a result of the reassessment of risk, specifically Team Leader challenge in MPR05.
January 2006	-13	Contracting Process	Departmental Review - BAE Systems to forego any incentive payments on Boat One.
January 2006	-61	Accounting Adjustments and Redefinitions	Departmental Review - Shipbuilders Relief (-£58m) and Sunk cost corrections (-£3m) made in project account.
January 2006	-3	Technical Factors	Cost growth in provision of some elements of nuclear safety cases (+£17m). Departmental Review identified savings opportunities within other elements of nuclear safety cases (-£20m).
Historic	+839	Technical Factors	PC pricing assumptions and changes to costing. Reassessment of risk (+£51m). Reduction of risk on Sonar 2076 programme (-£16m). Re-costing of land attack missile interface & integration (+£5m). Re-costing of external communications (+£5m). Increase in overall BAE Systems base costs (shipyard and sub-contracts) reflecting a re-estimate as well as cost of delay (+£571m). Increase in risk provision owing to technical complexity (+£152m). Changed cost reflecting Astute Agreement of February 2003 (+£52m).
Historic	+55	Contracting Process	Planned contract amendments (+£55m).
Historic	+257	Changed Requirement	Includes change to fore end design, completion of land attack missile capability and improved tactical data link capability (+£32m). Additional Capability originally part of Astute second buy which has been brought forward into the first buy (+225m).
Historic	+40	Inflation	Variation between anticipated rates for GDP and VOP on contract (sunk costs only) (+£14m). Correction in previous VOP calculation – incorrect split between labour and materials (+£26m).

Date	Variation (£m)	Factor	Explanation
Historic	-277	Accounting Adjustments and Redefinitions	Removal of items wrongly attributed to Astute Approval in previous years. Decrease reflects difference between anticipated resource profile at approval and current profile (EP2001 -£74m). Removal of ACTS costs that have been incorrectly included in previous MPRs – training not part of original Astute Main Gate approval (-£62m). Difference in variation figures due to revision of Cost of Capital Charge (-£89m). Removal of items wrongly attributed to Astute Approval in previous years (-£41m).
Net Variation	+1078		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	2261

2d. Years of peak procurement expenditure

2001/2002	2005/2006

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	3	3

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Contract Acceptance Schedule Stage 1 (safe operation and start of operational work up)

3b. Performance against approved in-service date

	Date
Current Forecast ISD	December 2008
Approved ISD at Main Gate	June 2005
Variation (Months)	+42
In-year changes	-1

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
May 2005	-1	Technical Factors	Risk analysis, taking into account opportunities to reduce construction time, predicts a most likely In-Service Date of December 2008.
Historic	+43	Technical Factors	Exceptional difficulties arose with the introduction of a computer aided design (CAD) system, the availability of trained staff and project management.
Net Variation	+42		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
Support costs and current equipment	-	-	Costs from this delay have been factored and subsumed into the Department's revised assessment of Force Level Requirements.
Other	-	-	Costs from this delay have been factored and subsumed into the Department's revised assessment of Force Level Requirements.

3e. Operational impact of ISD variation

The Astute delay will result in the delayed introduction of improved capability over current classes; such as improved detection, greater weapon load and increased availability. Since these delays the Department has considered fully the plans for SSN capability in the light of this and many other factors.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Weapon system effectiveness	Yes	-	-
02	Sonar performance	Yes	-	-
03	Hull strength (survivability)	Yes	-	-
04	Top speed	Yes	-	-
05	Endurance	Yes	-	-
06	Acoustic signature	Yes	-	-
07	Complement	Yes	-	-
08	Land attack capability	Yes	-	-
09	Special forces capability	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The Astute Class of submarines is the planned replacement for the Swiftsure and Trafalgar class SSNs. In June 1991, (equivalent of Initial Gate) approval was given to proceed with a programme of studies at an estimated cost of £6m (1991/1992 prices) to define the Batch 2 Trafalgar Class Boat (now known as the Astute Class). This programme of studies led to the issue of an Invitation to Tender for the design and build of an initial batch of three Astute Class SSNs and a further approval of £2m (1992/1993 prices) for contractor and Defence Research Agency support to MOD during the tendering exercise in 1994.

In July 1994, as a result of concerns over the overall affordability of the programme, Minister (Defence Procurement) and the Treasury approved a further £23.5m (at 1993/1994 prices) for risk reduction studies to be undertaken in parallel with the formal bid phase of the project. To maintain an effective competition, contracts for risk reduction were awarded to both bidders, GEC Marconi and Vickers Shipbuilding and Engineering Ltd. The successful outcome of these studies led to Equipment Approvals Committee approval (the equivalent of Main Gate) in March 1997 to place a contract for the design, build and initial support of three Astute Class submarines with GEC Marconi, now BAE Systems.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	29	1%
Approved Cost at Initial Gate	33	1%
Variation	-4	

5c. Duration of Assessment Phase

Date of Main Gate Approval	March 1997
Date of Initial Gate Approval	August 1989
Length of Assessment Phase [months]	60

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	2431	2578	2730
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	2387

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	June 2005	-
Envelope within which capability was expected to be available at Initial Gate	-	-	December 2001

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

BEYOND VISUAL RANGE AIR TO AIR MISSILE (BVRAAM)

Integrated Project Team Responsible:

BVRAAM

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Beyond Visual Range Air-to-Air Missile (BVRAAM) (also known as Meteor) will provide Typhoon with the capability to combat projected air-to-air threats and sustain air superiority throughout the life of the aircraft. The weapon is required to operate in all weather conditions and will complement Typhoon's Advanced Short Range Air-to-Air Missile (ASRAAM). Until Meteor enters service, Typhoon will be armed with the Advanced Medium Range Air-to-Air Missile (AMRAAM), contracted to Raytheon Missile Systems.

The key features of the requirement include stealthy launch, enhanced kinematics (giving increased stand-off and disengagement ranges, a better ability to chase and destroy highly agile manoeuvring targets) and robust performance against countermeasures.

This is a collaborative programme with 5 other partner nations; Germany, Spain and Italy (for Typhoon), Sweden (for JAS 39 Gripen) and France (for Rafale). The contract for the demonstration, manufacture and support of Meteor was placed with MBDA UK Ltd on 23 December 2002. Only the United Kingdom has committed to production; the contract includes production options that can be exercised by partner nations during the demonstration programme. The Typhoon Integration Programme has encountered delays that have prompted various Meteor Realignment options to be examined. The first air-launched firing of Meteor is scheduled for May 2006. This will support the demonstration of Key Technical Milestones 1 (Demonstration of Ramjet Propulsion System) and 2 (Demonstration of Guidance and Control of the Airframe).

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
Typhoon Future Capability Programme	The ISD for this project will be set when it achieves its Main Gate approval.	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
MBDA UK Ltd (Meteor)	Demonstration (all 6 nations) and Manufacture (United Kingdom only at present)	Firm price up to June 2007 (Demonstration), Firm Price up to June 2006 (Manufacture), Fixed Price thereafter subject to Variation of Price	International competition
Raytheon Missile Systems (AMRAAM)	Manufacture to In-Service	Firm price	Non-competitive

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	1204
Approved Cost at Main Gate	1362
Variation	-158
In-year changes	0

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
Historic	+27	Exchange Rate	Change in Euro exchange rate on Meteor prime (+£29m). Change in Dollar exchange rate on AMRAAM (-£11m). Revaluation of foreign currency assumptions on current and future AMRAAM contracts (+£9m).
Historic	-6	Changed Requirement	United Kingdom (UK) share of additional common requirement (+£2m), additional requirement for Dual Date Link (+£6m), additional containers required for Meteor (+£2m), refurbishment of existing AMRAAMs (-£16m).
Historic	-36	Changed Budgetary Priorities	Effect of EP05 Options: reduce Meteor numbers (-£55m), decision taken not to upgrade AMRAAM 120Bs (-£65m). Re-costing of United Kingdom Technical Support requirements in addition to Memorandum Of Understanding commitments (+£3m). Re-costing of Meteor Integration (-£1m). Increases for Insensitive Munitions (+£9m). Missiles & Ancillary Equipment in Support of Typhoon Integration (+£6m). Surveillance & Life Extension (+£5m). Initial Spares (+£3m). Container

Date	Variation (£m)	Factor	Explanation
			Development (+£1m). Container Production (+£1m). Support to Typhoon Integration (+£2m). Revised deliveries of Meteor Missiles (+£12m). Container Logistics Support for Meteor (+£7m). Production Investment (+£1m). Trial Ranger (+£11m). Increase in Unit Production Cost for AMRAAM missiles (MPR03 +£25m; MPR04 +£15m). Surveillance Spares for AMRAAM (+£1m). United Kingdom share of Government Furnished Equipment (GFE) (+£6m). Decrease for service Evaluation Trials for Meteor (-£7m). Integration of Meteor onto Typhoon (-£9m), Production of Meteor Telemetred Operational Missiles (-£1m), In Service Reliability Demonstration support (-£3m). Meteor Technical Support (-£2m). Minor miscellaneous Meteor items (-£1m).
Historic	-6	Accounting Adjustments and Re-definitions	Change in assumption in regard to recovery of VAT (+£9m), Derivation of approved cost on resource basis (-£4m), Difference in variation due to revision of Cost of Capital charge (-£11m).
Historic	-16	Contracting Process	UK's share of MBDA revalidation of prices caused by delay in contract placement (+£6m). Revalidation to reflect prices within AMRAAM contract (-£14m), and effect of revalidation on Cost of Capital Charge (-£8m).
Historic	+1	Procurement Strategy	Revaluation of United Kingdom's share of GFE/Government Furnished Facilities requirements (-£20m). Additional funding required for integration of AMRAAM AIM 120C onto Typhoon (+£82m). Gripen Trial (+£2m). Realism measure on funding for integration of AMRAAM AIM 120C onto Typhoon (-£65m). Decrease in UK's share of Development (-£30m). Increase of UK's share of development through transfer of work share from Germany (+£31m) and UK share of GFE (+£1m).

Date	Variation (£m)	Factor	Explanation
Historic	-122	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£129m), Variation due to revised approval figures (+£7m).
Net Variation	-158		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	301

2d. Years of peak procurement expenditure

2009/2010	2012/2013

2e. Unit production cost*

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
1.0	0.9	***	***

* UPC covers Meteor missile only.

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Achievement of an operational capability with *** missiles and supporting infrastructure.

3b. Performance against approved in-service date*

	Date
Current Forecast ISD	August 2013
Approved ISD at Main Gate	August 2012
Variation (Months)	+12
In-year changes	+12

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
March 2006	-3	Contracting Process	Reassessment of opportunities arising from Meteor Realignment activities, to reduce the duration of firing trial campaigns and to de-risk transition from Demonstration to Production phases.
June 2005	+15	Change in Associated Project	Typhoon integration delays cannot be absorbed and uncertainty over Typhoon Future Capability Programme.
Historic	+11	Contracting Process	Slippage caused by delays in placing contract (+11 months).
Historic	-11	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-11 months).
Net Variation	+12		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

* ISD shown is Meteor only.

3e. Operational impact of ISD variation

Extend reliance on the current AIM-120 Advanced Medium Range Air to Air Missile (AMRAAM). AMRAAM capability falls significantly below that of Meteor and was planned as a temporary solution, providing Typhoon anti-air capability for the period between Typhoon Operational Employment Date and Meteor ISD. Whilst the ISD delay is not expected to affect peacetime policing of Sovereign airspace, the survivability and capability of Typhoon in almost all operational roles will be compromised. It should be noted that a staged transfer from AMRAAM to Meteor is necessary due to the latter's delivery profile, and hence use of AMRAAM by Typhoon extends beyond Meteor ISD. There is significant risk that part of the AMRAAM stocks will be unable to meet the revised ISD and hence we may fall below the minimum acceptable stockpile liability, although this cannot be confirmed at present.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements†

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Multiple Target Capability	Yes	-	-
02	Kill Probability	Yes	-	-
03	Enhanced Typhoon Survivability	Yes	-	-
04	Typhoon Compatibility	Yes	-	-
05	Minimum Air Carriage Life	Yes	-	-
06	Reliability	Yes	-	-
07	Support	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

† KURs are Meteor only.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

On 2 October 1995, Minister (Defence Procurement) gave approval for the issue of an Invitation to Tender (ITT) for BVRAAM. The ITT was issued on 5 December 1995. Two bids were received; one from a consortium led by Matra BAE Dynamics (MBD) UK Ltd, and one from Raytheon Systems Ltd. After extensive analysis, it was decided that both bids contained areas of risk that needed to be addressed before a development and production contract could be placed. In May 1997 a Project Definition & Risk reduction (PDRR) phase was approved and contracts were placed on both bidders for a period of one year with results to be technically and operationally assessed before a final decision was made. Both PDRR contracts were let in August 1997 and revised bids were received in May 1998.

Due to the complexity of the BVRAAM assessment, the need to accommodate the requirements of the Prospective Partner Nations and the need to go for Best And Final Offers (BAFOs) primarily as a result of the French request to join the programme, Main Gate approval was not achieved until May 2000. In his statement to the House of Commons on 16 May 2000, Secretary of State announced that MBD's Meteor missile had been selected.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	20	2%
Approved Cost at Initial Gate	14	1%
Variation	+6	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 2000
Date of Initial Gate Approval	Oct 1995
Length of Assessment Phase [months]	54

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1198	1240	1362
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	1226	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	June 2010	September 2011	August 2012
Envelope within which capability was expected to be available at Initial Gate	-	-	March 2005

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

BOWMAN

Integrated Project Team Responsible:

BOWMAN AND TACTICAL COMMUNICATIONS & INFORMATION SYSTEM (BATCIS)

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

Bowman will provide a secure tactical voice and data communications system for all three Services in support of land, littoral and air manoeuvre operations. It will replace the increasingly obsolete Clansman combat radio system and the Headquarters infrastructure element of the Ptarmigan trunk system.

In September 2001, following international competition, General Dynamics UK Ltd was awarded the Bowman Supply and Support contract as prime contractor, and conducted its own competition amongst sub-contractors. At this time it was planned to field Bowman in the following capability increments: Initial Operating Capability in November 2003 and In Service Date (ISD) capability in March 2004, to be followed by a Land Operational Readiness Date (ORD).

Following the decision in December 2002 to commit the Army to convert to Bowman, progress against the programme has been assessed at successive Acceptance and Release Points against all eight lines of development (including equipment and technology led by the Defence Procurement Agency). These assessments aim to ensure that all relevant elements contributing to the delivery of capability and sustainability in service are formally reviewed. On the basis of Brigade scale operational field trials, Bowman achieved its ISD on 26 March 2004. Subsequent uplifts in military capability have been extensively tested in a programme of demanding and complex laboratory and technical field trials. In December 2004, the completion of a further Brigade scale operational field trial permitted the first Bowman converted Brigade to deploy to Iraq on Operation TELIC with a core Bowman capability alongside its residual Clansman capability. Continued operational experience in Iraq indicates that Bowman is delivering a battle winning capability.

Recognition of the inextricable linkage between Bowman and CIP provided the opportunity to undertake a programmatic, technical and risk review from December 2004 to ensure better that the combined programmes would deliver a coherent, stable and minimum capability consistent with the MOD's vision of achieving Network Enabled Capability. The outcome of this review was submitted to the Investment Approvals Board in a Review Note in December 2005 and will form the basis for completing the demonstration and manufacture (D&M) phase of the Bowman (and CIP) contract. Littoral Manoeuvre (amphibious) ORD was declared in December 2005 and planning continues to declare Land and Air Manoeuvre operational readiness before the end of the D&M phase.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
General Dynamics UK Ltd	Demonstration and Manufacture	Firm Price	International Competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	2017
Approved Cost at Main Gate	2041
Variation	-24
In-year changes	+10

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-73	Changed Requirement	Items acquired under contract now provided as new requirements to other projects (-£73m).
February 2006	-14	Changed Requirement	Departmental Review - Support related activity incorrectly included in forecast (-£14m).
February 2006	-6	Changed Budgetary Priorities	Departmental Review - Funding brought forward to reflect contractor progress. Cost of Capital (COCC) reductions (-£6m).
January 2006	-17	Changed Requirement	Departmental Review - Removal of requirements to be accounted for as separate projects (-£17m).
December 2005	+120	Technical Factors	Technical requirements revaluated (+£90m). Associated reprofile of funding and asset balances resulted in increased COCC (+£30m).
Historic	+28	Accounting Adjustments and Re-definitions	COSVAT adjustment (+£5m). Reprofile of funding and asset balances resulted in increased COCC (+£23m).
Historic	-12	Changed Requirement	Estimated impact of Total Fleet requirements (-£17m). Additional Technical requirements not covered under terms of Supply and Support contract (+ £5m).
Historic	+87	Changed Requirement	Additional technical requirements not scoped as part of the original Supply and Support contract

Date	Variation (£m)	Factor	Explanation
			(+£61m). Technical support requirements not originally included in Main Gate approval (+£10m). Additional Technical requirements not covered under terms of Supply and Support contract (+£16m).
Historic	+15	Contracting Process	Revised prices for Global Positioning System Modules (+£3m). Difference between approved D&M cost at Main Gate and Contract Price (+£12m).
Historic	+8	Procurement Strategy	Contract Incentivisation for achieving key events leading to ISD (+£8m).
Historic	-17	Accounting Adjustments and Re-definitions	COCC reduced due to accounting for deliveries ahead of programmed profile.(-£17m). Figure adjusted following error in MPR05 (+£5m).
Historic	-143	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£143m). Figure adjusted following in MPR05 (-£5m).
Net Variation	-24		

2c. Expenditure to date

Expenditure to 31st March 2006 (£m)	1755

2d. Years of peak procurement expenditure

2004/2005	2005/2006

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	48000 radios of varying type	43000 radios of varying type

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A Brigade Headquarters, two mechanized battalions and support troops capable of engaging in Operations Other than War.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2004
Approved ISD at Main Gate	December 2004
Variation (Months)	-9
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-9		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Secure Voice.	Yes	Yes	-
02	Secure Data.	Yes	-	-
03	Automatic Position Location, Navigation and Reporting service (APLNR).	Yes	-	-
04	Security.	Yes	-	-
05	Ease of Use.	Yes	-	-
06	Provide automated system management enabling support to the full spectrum of operations.	Yes	-	-
07	Data Communications Infrastructure.	Yes	-	-
08	Support the Common Infrastructure for Battlefield Information Systems concept and provide a common operating environment for Digitization Stage 2.	Yes	-	-
09	Allow the free-flow of data and voice within and between vehicles, groups of stationary vehicles, and other systems.	Yes	-	-
10	Provide a secure and robust tactical internet service making efficient use of limited bandwidth.	Yes	-	-
11	BOWMAN is to support current operational C2 doctrine, practice, deployment and battle procedure.	Yes	-	-
12	BOWMAN is to provide interfaces to other key battlefield communication systems used at the tactical level.	Yes	-	-
13	BOWMAN equipment is to meet a level of survivability consistent with its physical environment and mission criticality for 95% of users in 95% of likely climatic conditions.	Yes	-	-
14	Make effective, robust use of the Electro-Magnetic Spectrum without degrading other systems.	Yes	-	-
15	BOWMAN is to provide working installations in all platforms designated as containing BOWMAN equipment, except for ships, WAH-64 and Lynx aircraft for which equipment is to be provided but not installed.	Yes	-	-
16	Health and Safety.	Yes	-	-
17	Supportability.	Yes	-	-
18	Training.	Yes	-	-
19	BOWMAN is to supply sufficient scales of equipment and services to meet the needs of those forces taking part in or supporting land operations, as structures at End of Supply (EOS).	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Bowman was first approved in 1988, when it was expected to have the equivalent of Main Gate in 1993 and ISD in 1995. After Feasibility Stage 1 in 1993, contracts were placed with two competing consortia for Feasibility Stage 2 (FS2) and Project Definition Stage 1.

FS2 indicated that the risk of procuring and integrating the Local Area Sub-system (LAS) would be best managed by placing the responsibility with the Bowman contractor. This change in procurement strategy was approved in 1997, along with Bowman Core Risk Reduction work.

In November 1996, the previous two consortia formed a joint venture company, Archer Communications Systems Ltd (ACSL) to submit a joint bid for Bowman. The Department approved a single source strategy for Bowman following a review of procurement options. A risk reduction contract was placed with ACSL in August 1997. ACSL received a further package of work in October 1998 worth £182m prior to production commitment at Main Gate, then planned for November 2000.

The Department rejected ACSL's bid in July 2000, removed their preferred supplier status and re-launched the competition, as it was not convinced ACSL could meet an early ISD. TRW Ltd, Computing Devices Canada Ltd (CDC), now General Dynamics UK Ltd, and Thales Defence Ltd competed for the contract, which was won by CDC in July 2001. Equipment Approvals Committee gave Main Gate approval in August 2001 and the Bowman Supply and Support contract was signed on 13 September 2001.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	397	16.4%
Approved Cost at Initial Gate	130	6.1%
Variation	+267	

5c. Duration of Assessment Phase

Date of Main Gate Approval	August 2001
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1874	1898	2041
Expected Envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	February 2004	March 2004	December 2004
Envelope within which capability was expected to be available at Initial Gate	-	-	December 1995

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

BRIMSTONE

Integrated Project Team Responsible:

AIR LAUNCED MUNITIONS

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Advanced Air-launched Anti-Armour Weapon (AAAW), known as Brimstone, is designed to reduce the fighting power of enemy armoured forces as early and as far forward as possible. It replaces the BL755 cluster bomb in the anti-armour role, and will be carried by Tornado GR4/4a, Harrier GR9 and Typhoon. These fixed-wing aircraft will complement the capability provided by the Apache AH64-D, which is armed with the Hellfire anti-armour weapon. Brimstone operates autonomously after launch, which helps reduce the hazard to the attacking aircraft from enemy fire. The longer reach and speed of deployment of fixed-wing aircraft mean that they can engage armour far beyond the battlefield area, and before it can join the contact battle.

Following an international competition an AAAW development and production contract was let in November 1996 to GEC-Marconi Radar and Defence Systems (later Alenia Marconi Systems, now MBDA) for the Brimstone system. The In-Service date for Brimstone was declared on 31 March 2005.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	**Contract Scope**	**Contract Type**	**Procurement Route**
MBDA UK Ltd	Development/ Manufacture	Firm Price	International competition.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	900
Approved Cost at Main Gate	814
Variation	+86
In-year changes	-44

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
February 2006	-31	Technical Factors	Reduction in Cost of Capital Charge (COCC) due to earlier deliveries than anticipated in the original forecast (-£31m).
February 2006	-3	Receipts	Receipt from Liquidated Damages due to late delivery of missiles (-£3m).
February 2006	-10	Receipts	Departmental Review – *** **(-£10m)** ***
Historic	-1	Receipts	Receipt from Liquidated Damages due to late delivery of missiles (-£1m).
Historic	+135	Technical Factors	Increase in Harrier integration costs to cover BAE Systems costs for Capability D (+£12m). Reassessment of Development activities(-£4m); reassessment of Tornado Integration Requirements (+£2m); and Harrier Integration Requirements (-£3m); reassessment of level of QinetiQ Support (-£3m). Non provision of Government Furnished Equipment (ie Tornado GR4) to contractor (+£9m). Increase in Tornado integration costs for 2002/2003(+£4m). Increase in COCC due to slippage in deliveries(MPR02 +£40m; MPR03 +£64m and MPR04 +£14m).
Historic	-	Changed Requirement	Reduction in launcher quantities and Service Weapon Test Sets(-£3m); deletion of Tornado Inboard Pylon (-£1m); additional requirements for Emulators (+£4m).

Date	Variation (£m)	Factor	Explanation
Historic	-4	Changed Budgetary Priorities	Removal of Typhoon integration costs as advised by Customer 1 (-£8m). Delay to ISD, milestone payment and Typhoon Integration (+£4m). Reduction of missile quantity by 25% (-£49m). Increase in EP03 provision relating to 25% missile reduction (+£49m).
Historic	+16	Inflation	Difference between the inflation assumed at contract let and the GDP deflators from the time of approval (+£14m); difference between GDP and inflation on the main contract since placement (+£2m).
Historic	-6	Exchange Rate	Change in US Dollar exchange rate quoted in the contract (-£6m).
Historic	-10	Accounting Adjustments and Re-definitions	Changes due to conversion of cash based approvals and contract details to resource basis (-£3m). Increase in Cost of Capital due to the inclusion of Harrier/Tornado costs (+£6m). Change to take account of an adjustment to the current forecast cost to previous MPRs, reflecting the availability of more accurate data (MPR01 +£13m and MPR04 -£20m). Difference in variation figures due to revision of Cost of Capital Charge (-£6m).
Net Variation	+86		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	809

2d. Years of peak procurement expenditure

2004/2005	2005/2006

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
***	***	***	***

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Delivery of first *** weapons and associated equipment to a front-line unit and declaration that the unit is operational.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2005
Approved ISD at Main Gate	September 2001
Variation (Months)	+42
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	+12	Changed Requirement	Equipment Capability Customer request to bring Brimstone ISD into line with that of Tornado GR4/4a (+12 months).
Historic	+17	Technical Factors	Safety problems resulting from the "2nd Pass" issue (ie the risk of the missile falling back into the aircraft after launch) halted flying during its investigation (MPR03 +6 months, MPR04 +5 months). Delay in signing Certificate of Design due to testing the modification of the autopilot software (+6 months).
Historic	+1	Contracting Process	Delay in letting contract with Alenia Marconi Systems as pricing negotiations took longer than anticipated (+1 month).
Historic	+12	Change in Associated Projects	Delay in provision of trials aircraft (ie Tornado GR4) (+12 months).
Net Variation	+42		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
Other	19	5	Support cost for Brimstone (-£5m). Additional costs to modify BL755 (+£11m). Urgent Operational Requirement for further modifications to BL755 (+£8m).
Total	+14		

3e. Operational impact of ISD variation

The ISD delay of 42 months results in the lack of a fully effective anti-armour capability and the run-on of BL755 in the anti-armour role. However, 12 months of the delay were necessary to align Brimstone ISD with the availability of its Tornado GR4/4a platform.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Carriage, launch and jettison from Tornado GR4/4a, Harrier GR9 and Typhoon.	Yes	-	-
02	Autonomous operation after launch.	Yes	-	-
03	Detection and attack of Main Battle Tanks, Armoured Personnel Carriers and Self Propelled Guns.	Yes	-	-
04	Kill probability as defined in System Requirement Specification (SRS).	Yes	-	-
05	Launch from high and low altitude.	Yes	-	-
06	Resistance to active and passive countermeasures.	Yes	-	-
07	Component lives as defined in SRS.	Yes	-	-
08	Compatibility with existing aircraft loads.	Yes	-	-
09	Reliability, Maintainability and Testability as SRS.	Yes	-	-
10	Minimum through-life costs.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Approval was given for feasibility studies to be carried out in 1982. However, during Options for Change, programme funding was withdrawn while alternatives for a future anti-armour capability were considered. The project was reinstated in 1993 and the revised Staff Requirement for an Advanced Air-launched Anti-armour Weapon (AAAW) was presented to the Equipment Approvals Committee (EAC) early in 1994.

In June 1994, the EAC gave approval for an Invitation to Tender (ITT) to be issued to industry for an AAAW. Following issue of the ITT in December 1994, proposals were received from GEC Marconi, Hunting Engineering, Texas Instruments, Thorn EMI and British Aerospace.

Following full technical and commercial assessment of the proposals a further tender round took place in January 1996. This concentrated on the commercial aspects of the bids in line with revised timescales and production quantity requirements.

The tender assessment was completed in February 1996 with the findings being presented to EAC. Brimstone was found to have superior relative performance by a comfortable margin and also provided the most cost-effective solution. In July 1996 the Secretary of State for Defence announced that GEC Marconi had won the AAAW competition with its Brimstone weapon, and would be awarded the contract to develop and produce the weapon system.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	23	2.5%
Approved Cost at Initial Gate	20	2.4%
Variation	+3	

5c. Duration of Assessment Phase

Date of Main Gate Approval	March 1996
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	814	-
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	September 2001	-
Envelope within which capability was expected to be available at Initial Gate	-	-	December 1991

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

CIP - COMBAT, DBL INFRASTRUCTURE, PLATFORM BISA

Integrated Project Team Responsible:

BOWMAN AND TACTICAL COMMUNICATIONS & INFORMATION SYSTEMS (BATCIS)

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

CIP comprises three closely interrelated projects procured as a single entity via the Bowman prime contractor. Common Battlefield Application Toolset (ComBAT) is a set of common software tools delivering a battle management system to aid operational planning and control and enhancing situational awareness.

Digitization of the Battlespace Land (DBL) Infrastructure builds on the Bowman communications and information system providing hardware and software in support of Headquarters to optimise the use of information and enable interoperabilty with national and international systems.

Platform Battlefield Information Systems Application (PBISA) integrates ComBAT with other systems and sensors to optimise the effectiveness of key armoured fighting vehicles (such as the Challenger 2 Main Battle Tank). It includes a set of common software tools delivering a battle management system, integrated to optimise the fightability of key armoured platforms, and enabling the concurrent operation of other software applications.

In August 2001 the Assessment Phase contract was let to General Dynamics UK, the Bowman preferred supplier., to manage the technical risk of integrating CIP with Bowman and achieve value for money. Following Main Gate approval in October 2002 the Supply and Support of CIP was added to the Bowman contract, 15 months after the award of the Bowman contract in December 2002.

The Main Gate approval recognised that CIP would be fielded in three capability increments between 2004 and 2006 to manage the inherent risks attached to the fielding of a large and complex programme in a single stage. Although the approved In Service Date (ISD) was December 2004, a demanding target of March 2004 was set to introduce the initial capability increment coincident with the delivery of Bowman. Extensive testing involving ComBAT and DBL Infrastructure (culminating in the Bowman operational field trials in March 2004) indicated that more work was required to deliver the initial capability. Based on evidence gathered during a further Brigade scale operational field trial, CIP was granted Initial System Acceptance in December 2004. In Service Date (ISD) was achieved in December 2005.

As a consequence, limited CIP functionality (limited automated position reporting and data message transfer capability) has been deployed to support Operation TELIC in Iraq since April 2005. Continued operational experience in Iraq indicates that CIP is delivering a battle winning capability. However, recognition of the inextricable linkage between Bowman and CIP provided the opportunity to undertake a programmatic, technical and risk review to better ensure that the combined programmes would deliver a coherent, stable and minimum capability consistent with the MOD's vision of achieving Network Enabled Capability. The outcome of this review now forms the basis for completing the demonstration and manufacture (D&M) phase of the CIP (and Bowman) contract. To improve affordability and reduce risk, the planned third capability increment, including delivery of a common information system (COInS), has been removed, and the validity of proceeding with it under a future programme is being reviewed separately.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
Bowman	March 2004	-	-

1c. Procurement strategy

Contractor(s)	**Contract Scope**	**Contract Type**	**Procurement Route**
General Dynamics UK Ltd	Demonstration and Manufacture	Firm Price	Single Source (NAPNOC)

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	338
Approved Cost at Main Gate	379
Variation	-41
In-year changes	0

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
February 2006	-1	Changed Budgetary Priorities	Reprofile of funding requirements reduced Cost of Capital Charge (COCC) (-£1m).
December 2005	-4	Technical Factors	Revised delivery profiles resulting in reduced COCC (-£4m).
December 2005	+5	Technical Factors	Reassessment of technical risks (+£5m).
Historic	-2	Technical Factors	Further reductions in technical risk (-£2m).
Historic	-3	Technical Factors	Reduction in level of technical risk within programme (-£3m).
Historic	-36	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (+£36m).
Net Variation	-41		

2c. Expenditure to date

Expenditure to 31st March 2006 (£m)	196

2d. Years of peak procurement expenditure

2005/2006	2006/2007

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	-	-

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A Brigade Headquarters, two mechanized battalions and support troops capable of engaging in Operations Other than War.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	December 2005
Approved ISD at Main Gate	December 2004
Variation (Months)	12
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	+12	Technical Factors	In Service Acceptance Trial not sufficiently successful to declare ISD at CIP 90% approval - primarily due to system performance during trial (+12 months).
Historic	+5	Technical Factors	Acceptance trial in July2004 failed to gather sufficient evidence to declare ISD. Further planned technical uplifts to Bowman and CIP systems expected to rectify problems by December 2004 (+5months).
Historic	+4	Technical Factors	Performance of ComBAT battle management systems during Bowman formation-level field trails in March 2004 resulted in additional time being necessary to develop and fully demonstrate effectiveness to deliver initial ('early') capability (+ 4 months).
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-9 months).
Net Variation	+12		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements*

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Situational Awareness	Yes	-	-
02	Planning	Yes	-	-
03	Co-operative Working	Yes	-	-
04	Interoperability	Yes	-	-
05	Hosting Battlefield Information Systems Applications	Yes	-	-
06	Latency	Yes	-	-
07	Common Infrastructure	Yes	-	-
08	Platform Fightability	Yes	-	-
09	Platform System Integration	Yes	-	-
10	Graceful Degradation	Yes	-	-
11	Sustainability	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

* Elements of capability were recommended for removal in December 2005 from KURs 4, 5 and 7 to ensure that the best balance of capability, value for money and timely delivery into service without unacceptable levels of risk.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

CIP started life as three separate projects.

The Assessment Phase was conducted in two stages: a Limited Initial Assessment Phase (LIAP) and a Main Assessment Phase (MAP).

LIAP was aimed at defining the technology gap between the Bowman system capability and the ComBAT and DBL Infrastructure capability requirements, and how CIP could be brought into alignment with the Bowman programme. It was also intended to confirm the procurement strategy for PBISA. Additional assessments of who should be responsible for developing and delivering the PBISA solution favoured the Bowman prime contractor over the Platform Design Authorities.

The MAP built upon the output of the LIAP with the aim of recommending a single solution for each of the CIP projects to satisfy customer requirements, whilst offering value for money at an acceptable risk. Through two stages, option analysis and system design, the MAP identified options to fill the gaps identified in the LIAP. This was achieved by the prime contractor undertaking a competitive sub-contract down selection process, the results of which were presented for MOD endorsement.

The Assessment Phase concluded that it was possible to align the CIP and Bowman projects with the optimal procurement strategy being to let the CIP Supply and Support contract as a non-competitive amendment to the Bowman contract. Despite the significant risks of attempting to align CIP with Bowman fifteen months after the award of the Bowman contract, harmonisation of the Bowman and CIP in service dates was considered essential to meet time, cost and performance requirements and avoid converting vehicles twice, for Bowman and then CIP, at nugatory cost. This strategy was endorsed at Main Gate. An extension of the Bowman contract for CIP was agreed with General Dynamics UK in December 2002.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	13	3.7%
Approved Cost at Initial Gate	13	3.7%
Variation	0	

5c. Duration of Assessment Phase

Date of Main Gate Approval	October 2002
Date of Initial Gate Approval	June 2001
Length of Assessment Phase [months]	16

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	317	343	379
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	366	-	566

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	February 2004	March 2004	December 2004
Envelope within which capability was expected to be available at Initial Gate	March 2004	-	December 2004

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

C VEHICLE CAPABILITY – PFI

Integrated Project Team Responsible:

ENGINEER SYSTEMS SUPPORT

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistic Support)

Senior Responsible Owner for broader capability:

Capability Manager (Battlespace Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The 'C' class vehicle fleet comprises of over 4000 items of 100 major types such as rough terrain earthmoving equipment, specialist engineer construction plant as well as field material handling equipment. These are held at varying degrees of military readiness and are capable of undertaking a wide range of combat support, logistic and construction tasks. The drive for the project has been to deliver the capability through a PFI service because of the commercial nature of the fleet.

The contract was signed on 10 June 2005 with the Amey Lex Consortium (ALC). ALC and MOD are now engaged in a period of implementation during which the service is gradually rolled-out by ALC to units on a geographical basis. To achieve full service ALC must demonstrate readiness and satisfactory service during six distinct phases. The first four of these phases have been successfully completed and In Service Date was declared on 31 March 2006 one month ahead of the approved ISD. The roll-out of the service to units began in December 2005 with successful completion of the Pilot Phase in eastern United Kingdom and will culminate in the final phase with provision of the service to remaining units in Canada, Cyprus and those on operations. To ensure confidence that an operational service can be met ALC have taken part in and successfully passed, a live operational scenario.

Once implementation has concluded, management of the 15 year project will transfer to the Defence Logistics Organisation (DLO) under the control of Engineer Systems Support Integrated Project Team (ESS IPT).

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Amey Lex Consortium	Competitive - International	Firm price for 5 years then fixed price subject to Variation of Price	PFI

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	703
Approved Cost at Main Gate	714
Variation	-11
In-year changes	-7

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
February 2006	-2	Contracting Process	The requirement to provide support was reduced in line with the June 2005 contract award date which delayed the transfer of operational equipment until 2006/2007. Management of the requirement with ALC and stakeholders lead to a cost reduction against that which had been originally identified.
July 2005	-5	Contracting Process	The cost was reduced following the final negotiations leading to the agreed contract price (-£6m). The set-up costs and ongoing project costs for project were also reviewed in line with the contract obligations for the estate, Management Information System and consultant support (+£2m) and the payment to other agencies for estate costs (-£1m).
Historic	+23	Contracting Process	Realism to reflect delay in contract award (+£5m), re-scoping of project specific items (+£4m) and review of fixed price risk (+£2m). Adjustments in line with improved identification of MOD requirements during January–March 2005 in support of the PFI Service Provider including set-up costs for the Management Information System (+£2m), estates provision (+£1m) and initial service support (+£9m).

Date	Variation (£m)	Factor	Explanation
Historic	+58	Accounting Adjustments and Re-definitions	External assistance (+£2m). Transfer of resource expenditure following change in policy for PFI programmes (+£56m).
Historic	-45	Accounting Adjustments and Re-definitions	Change to treatment for transfer of existing fleet from MOD to Service Provider (-£40m). Bid process re-definition (-£5m).
Historic	-40	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-11		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	15

2d. Years of peak procurement expenditure

PFI Service with annual service payment	2019/2020 – 2020/2021

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
At Main Gate	Current	at Main Gate	Current
-	-	-	-

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Completion of the Operational Feasibility Test (OFT) and has been certified by Director Equipment Capability (Ground Manoeuvre) as acceptable.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	March 2006
Approved ISD at Main Gate	April 2006
Variation (Months)	-1
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
March 2006	-1	Technical Factors	The live operational test has been successfully completed by ALC and the process of validating the result (and lessons learnt) has been completed within March 2006.
February 2006	+1	Technical Factors	Whilst the peacetime service is being rolled out successfully, there is still a requirement for ALC to pass a live operational test. Current operational commitments and the resource intensive roll out will result in the test taking place in late March 2006. The audit and approval process will therefore take place in early April 2006.
Historic	+1	Contracting Process	Extended negotiations surrounding the final project issues.
Historic	+2	Contracting Process	Effect of Standardisation of PFI Contracts version 3 review and extended re-negotiations.
Historic	+2	Changed Budgetary Priorities	Delay caused by HMT constraint on transfer of resource expenditure for the PFI service. Directors of the Equipment Capability agreed to proceed until completion of the internal funding process in September 2004.
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-1		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

As the capability exists there will not be an operational impact because of the variation.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
1	Deployment and recovery of the capability using current in-service and planned transport systems.	Yes	-	-
2	Mobility for: Obstacle breaching; Route clearance; Support to bridging operation; Road construction and maintenance; Snow & ice clearance; Beach opening and Bomb disposal.	Yes	-	-
3	Survivability to utilise C Vehicles to: Dig in armour, infantry, artillery and HQs; Harden buildings; Construct deception and concealment earthworks.	Yes	-	-
4	Sustainability Operations to: Handle stores; Out-load to stockpiles; Operate quarries; Construct BFIs; Clear derelict buildings; Construct water points.	Yes	-	-
5	Air support to provide and repair aircraft operating surfaces and essential air support facilities.	Yes	-	-
6	The C Vehicle capability must meet the readiness criteria of units and formations.	Yes	-	-
7	The asset delivery availability of 100%, with an asset intrinsic availability of at least 90%.	Yes	-	-
8	A scheduled and unscheduled maintenance regime to support the capability as far forward as is operationally practical.	Yes	-	-
9	Spares provision and delivery must be compatible with in-service systems.	Yes	-	-
10	Training to ensure that military manpower is appropriately trained to operate and maintain the supplied equipment on operations and in peacetime.	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Initial Gate approval was granted in November 2000 based on Pre-Qualification Questionnaire documentation from six consortia. Three short-listed contenders were chosen to receive the Invitation to Negotiate (ITN), released in March 2001. Throughout this period a process called 'convergence' was used to acquaint industry with the requirement and also to gain feedback on alternative solutions. The ITN responses were assessed against specified criteria. At this time, the three contenders reduced to two, as two bidders combined teams to propose a consolidated bid. A further round of Revise and Confirm offers were requested in May 2002, with responses from the two consortia (Amey Lex Consortia; FastEx) in June 2002.

The evaluation of the two bids (ALC and FastEx) against the Public Sector Comparator was completed in early 2003 before final submission of the Main Gate Business Case to the Investment Approvals Board in March 2003. Whilst awaiting the IAB and Ministerial decision, no interaction could take place with the bidders, however, specific elements of the requirement were reviewed to address any inconsistencies and implement additional risk reduction measures. This process led to the revised Preferred Bidder documentation published in December 2003. At the time of announcing the Main Gate decision to proceed with ALC, it was also recognised that a funding gap had been created by the constraint placed on the use of Indirect RDEL (non-cash) by HM Treasury. The funding requirements were addressed with ALC as the initial part of the contract negotiations and with the Directors Equipment Capability (Ground Manoeuvre) and (Expeditionary Logistics and Support) in EP05 Phase 1.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost (£m)	Proportion of total estimated procurement expenditure
Actual Cost	3	0.4%
Approved Cost at Initial Gate	4	0.6%
Variation	-1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	December 2003
Date of Initial Gate Approval	November 2000
Length of Assessment Phase [months]	44

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	669	674	714
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	July 2005	October 2005	April 2006
Envelope within which capability was expected to be available at Initial Gate	-	-	-

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

GUIDED MULTIPLE LAUNCH ROCKET SYSTEM (GMLRS)

Integrated Project Team Responsible:

FUTURE ARTILLERY WEAPON SYSTEMS

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Guided Multiple Launch Rocket System (GMLRS) will start to replace unguided MLRS M26 rockets as they reach the end of their shelf life from 2004 onwards, and deliveries are planned to commence in February 2007. GMLRS rockets will be fired from modified M270 MLRS launchers. The requirement is for a rocket that will increase MLRS's range from 30km to at least 60km, with a reduction in heat and smoke signature. The rocket will use the Global Positioning System and inertial guidance in order to achieve the required accuracy and significantly increase its effectiveness. The payload was initially planned to consist of bomblets, but in July 2005 the decision was taken to change to a high explosive Unitary Warhead taking advantage of an accelerated United States programme. GMLRS is a modular design, to allow other payloads (such as smart anti-armour sub-munitions) to be easily incorporated.

The increased precision of GMLRS will reduce the number of rockets required to defeat a target. This will allow stocks of GMLRS to be significantly lower than those for the M26 rocket, thus reducing the logistic burden and eventual disposal costs. At Main Gate the United Kingdom's requirement was for 6,500 GMLRS rockets. However, reviews during the Equipment Planning (EP) process have caused the quantity to fluctuate, due to changing Customer priorities and funding constraints. In addition, Operational Analysis emerging from a related programme, Indirect Fire Precision Attack, has led to a review of GMLRS quantities and delivery schedule. The required quantity of GMLRS now stands at 4,080 rockets.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
MLRS Future Fire Control System (FFCS)	2007	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Lockheed Martin Missiles and Fire Control, Dallas	Collaborative Manufacture	Firm Price	Single source contract placed by US Department of Defense

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	263
Approved Cost at Main Gate	360
Variation	-97
In-year changes	0

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
January 2006	-114	Changed Requirement	Departmental Review - Reduced quantity of rockets from 6,204 to 4,080.
January 2006	+114	Contracting process	Cost increase reflecting a higher unit price for the first batch of rockets than previously forecast by the United States Department of Defense.
Historic	+13	Changed budgetary priorities	Final version of Equipment Plan 2003 incorporated increased cost for Manufacture phase. Two savings measures deferred deliveries of rockets, causing an increase in price due to inflation (+£7m), and increased Cost of Capital due to changed delivery profile (+£1m).
Historic	+4	Accounting Adjustments and Redefinitions	Correction of cost error in Equipment Plan 2003.
Historic	-9	Changed requirement	Customer review reduced quantity of rockets from 6,500 to 6,204.
Historic	-64	Exchange Rate	Revaluation of programme cost to reflect revised exchange rates.
Historic	-41	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-97		

2c. Expenditure to date

Expenditure to 31 Mar 2006 (£m)	13

2d. Years of peak procurement expenditure

2006/2007	2014/2015

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.049	0.062	6,500	4,080

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	**Original ISD definition:** Provision of War Reserve quantities of rockets (1,000) to support one battery at Medium scale of effort. **Current ISD definition:** The ability to deploy a MLRS battery with a stockpile of 654 rockets in support of a medium scale war fighting operation. **Reason for change:** ISD redefined as a result of Customer 1 review, in January 2005.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	April 2007
Approved ISD at Main Gate	January 2008
Variation (Months)	-9
In-year changes	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+1	Changed budgetary priorities	A savings measure deferred funding, causing delay to ISD.
Historic	-10	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-9		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Maximum range of less than 60km upon introduction into United Kingdom service	Yes	-	-
02	Minimum range of no greater than 15km upon introduction into United Kingdom service	Yes	-	-
03	Capable of being stored, and shall function correctly thereafter, in a range of climatic conditions.	Yes	-	-
04	Shall achieve specified destructive effect against the designated target arrays with the specified numbers of rockets.	Yes	-	-
05	In Global Positioning System mode the deflection and range error of the munitions effect to be no worse than 150m from the point of aim for each rocket, at all ranges, and the GMLRS rocket shall be delivered predictably within the required target area.	Yes	-	-
06	To be compatible with current in-service and planned rocket launchers.	Yes	-	-
07	Shall incorporate a payload with a hazardous dud rate less than 1%.	Yes	-	-
08	Shall be interoperable amongst the five GMLRS partner nations.	Yes	-	
09	Shall have reduced visual and Infra Red signature compared to the M26 rocket.	Yes	-	-
10	Shall have a probability of correctly functioning of at least 93% throughout a 10 year shelf life.	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

An approval equivalent to Initial Gate was obtained in July 1998 for the United Kingdom to participate in a collaborative GMLRS assessment phase with the other MLRS Partner Nations (France, Germany, Italy and the United States). As part of this phase, and acting on behalf of the Partner Nations, the United States Department of Defense (DOD) awarded a prime contract to Lockheed Martin Missiles and Fire Control (LMMFC) in November 1998 to develop a GMLRS carrier rocket. The United Kingdom contributed 12.5% of the cost of the Engineering and Manufacturing Development (EMD) contract. The EMD contract was completed in early 2003, having been extended by the DOD from its earlier planned end date of November 2002. This extension, together with protracted negotiations with the United States regarding the arrangements for manufacture, caused the deferral of Main Gate approval from December 2002 to August 2003. The purpose of the EMD phase was to reduce costs and risk through the use of off-the-shelf components and sub-assemblies, and by maximising sub-contractor competition. All MLRS Partner Nations have equal rights to the design resulting from the EMD contract. To date only United Kingdom has formally entered into collaborative manufacture with the United States.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	14	5%
Approved Cost at Initial Gate	19	7%
Variation	-5	

5c. Duration of Assessment Phase

Date of Main Gate Approval	August 2003
Date of Initial Gate Approval	July 1998
Length of Assessment Phase [months]	61

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	291	319	360
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	399	-	503

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	March 2006	March 2007	January 2008
Envelope within which capability was expected to be available at Initial Gate	December 2007	-	December 2010

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

JOINT COMBAT AIRCRAFT

Integrated Project Team Responsible:

JOINT COMBAT AIRCRAFT

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

Senior Responsible Owner for broader capability:

Carrier Strike Senior Responsible Owner

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Strategic Defence Review confirmed the requirement to provide the Joint Force 2000 (joint command for all Harrier forces) with a multi-role fighter/attack aircraft to replace the Royal Navy Sea Harrier and the Royal Air Force Harrier GR7. Following United Kingdom participation in the Concept Demonstration Phase of the programme, the United States Joint Strike Fighter (JSF) was selected to meet the requirement. A tailored Main Gate Demonstration approval was obtained in January 2001 for participation in the System Development and Demonstration (SDD) phase, along with £600m for related non-SDD work, leading to signature that month of the associated Memorandum of Understanding (MOU). Of the eight non-United States countries participating in SDD, the United Kingdom is the sole Level 1 partner, contributing $2bn to this phase and obtaining key project roles within the JSF Joint Programme Office (JPO). The United States placed the SDD contract with the Prime Contractor, Lockheed Martin in October 2001 with the United Kingdom playing a major role in the down selection process.

In September 2002 the United Kingdom selected the Short Take Off and Vertical Landing (STOVL) JSF variant to meet our requirement. A review of the JSF Programme and the viability of the STOVL design was completed in January 2005, confirmed that a successful programme of weight reduction initiatives and other Performance enhancements had restored confidence that the STOVL design should remain the United Kingdom's planning assumption. However this position will be revisited as part of an Investment Approvals Board submission in summer 2006. Despite the weight reduction effort, two Key User Requirements (KUR) remain at risk.

KUR04 - Mission Performance: A number of mitigation measures are being explored including further weight reduction, propulsion testing and studies into Ship borne Rolling and Vertical Landing (SRVL) and throttle push.

KUR06 – Logistic Footprint: Mitigation action in hand through support equipment design

optimisation, improvements in reliability and maintainability.

The United Kingdom continues to exert influence on the JSF Programme via participation in the design process and participated in the Critical Design Review held in early 2006, leading to Conventional Take Off and Landing (CTOL) first flight in 2006 and STOVL first flight in early 2008. Participation in the SDD phase will deliver the United Kingdom a Block 3 aircraft with Air to Air and Air to Ground capabilities as required by the Joint Operational Requirements Document. Future capability upgrades, including Block 4 will be determined as part of the multilateral negotiations which are underway to agree the Memorandum of Understanding for the Production, Sustainment and Follow on Development phases of the programme.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Future Aircraft Carrier	The ISD for this project will be set when it achieves its Main Gate approval.	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Lockheed Martin (LM)	System Development and Demonstration	Cost plus award fee, subject to a maximum price.	Competitive International collaboration procurement. UK participation through MOU agreement. (Note: the contract is placed by the US DoD with LM.)

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	1916
Approved Cost at Main Gate	2236
Variation	-320
In-year changes	+2

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-9	Changed Budgetary Priorities	Re-profile of United Kingdom National Work to mitigate increase in Exchange Rate. Main drivers are Interoperability (-£1m), Capital Studies (-£1m), UK IHMDS (-£1m) and CVF Integration (-£3m). Re-profile of later years Follow on

Date	Variation (£m)	Factor	Explanation
			development (-£3m).
March 2006	+2	Accounting Adjustments and Redfinitions	Change of accounting treatment for SDD contributions. (+£19m) re-profile of 2005/2006 accrual into later years, (-£18m) removal of 2005/2006 accrual. Reconciliation of accrual (+£1m).
March 2006	+9	Exchange Rate	Exchange rate variation for 2005/2006 for SDD payments made in $.
Historic	-499	Changed Requirement	Reviews of the external missile systems for JCA resulted in the removal of the requirement for integrating externally mounted Brimstone (-£41m) and ASRAAM (-£49m), and Paveway II and III (-£1m) capabilities. Further United Kingdom participation in the Joint Integrated Test Force to reflect United Kingdom acceptance into service strategy (+£20m). Provision for Alternate Helmet Mounted Display System removed (-£40m). Reassessment of 2004/2005 forecast expenditure (-£12m). Review of miscellaneous requirement including Exchange of Letters Risk Provision (-£40m), design of United Kingdom Specific Support (-£3m), Environmental Protection (-£3m) and Autonomic Logistic Information System interoperability (-£6m). Block IV weapons as a result of JSF programme re-alignment (-£368m) and associated increase Cost of Capital charge (COCC) (+£44m).
Historic	-86	Exchange Rate	Change in dollar/pound exchange rate (MPR02 +£189m; MPR03 -£9m; MPR04 -£85m; MPR05 -£181m).
Historic	+22	Accounting Adjustments and Re-definitions	COCC correction (MPR02 +£46m; MPR03 -£12m). New DPA requirement to include Price Forecasting Group costs within the equipment plan (+£1m). Additional interest on capital from new DPA IT accrual methodology (+£1m). Accounting reclassification of feasibility studies (-£2m). Difference in variation figures due to revision of COCC (-£16m). Re profiling of United Kingdom specific tasks (+£3m). Adjustment of

Date	Variation (£m)	Factor	Explanation
			treatment of COCC calculation (+£1m)
Historic	+58	Technical Factors	Re-examination of risk within the overall programme (+£87m). Reduction of Risk line as a result of programme delays (-£29m).
Historic	+385	Changed Budgetary Priorities	Adjustment for realism in the cost of the United Kingdom non-SDD work resulting from a deeper review of the estimates originally provided by the United States (+£43m). Fewer United Kingdom studies than originally planned (MPR02 -£1m; MPR03 -£6m). Costs benefits gained from use of existing ASRAAM stocks for JCA trials (-£6m). Fewer weapon studies undertaken in year (-£1m). Improved project support strategy (-£3m). Better understanding of the integrated nature and requirements of the aircraft systems (+£384m). Reassessment of DSTL & Qinetiq tasking (-£10m). Correction of contingency estimates due to weight risks in MPR04 (-£15m).
Historic	-202	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£213m). Variation due to revised approval figures (+£11m)
Net Variation	-320		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	560

2d. Years of peak procurement expenditure*

2006/2007	2007/2008

2e. Unit production cost†

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	-	-	-

* These are peak years of SDD expenditure. These will change once the Production phase is approved in late 2006.

† The JCA Main Gate (MG) was tailored for Development only to match the US procurement cycle. Unit Production Cost approval will be sought as part of the MG Production Approval. This Approval will not be sought until at least December 2006 as part of the MG Production Approval.

*SECTION 3: PROJECT TIMESCALE**

3a. Definition of in-service date

ISD Definition:	8 embarked aircraft at Readiness 2 (2-5days notice to move)

3b. Performance against approved in-service date

	Date
Current Forecast ISD	-
Approved ISD at Main Gate	The tailored Demonstration Main Gate noted but did not approve the ISD
Variation (Months)	-
In-year changes	-

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
-	-	-	-
Net Variation	-		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

-

* The In Service Date (ISD) approval will be sought as part of the Production Approval for LRIP B (Jan 2011)

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Survivability	Yes	-	-
02	Interoperability	Yes	-	-
03	Combat radius	Yes	-	-
04	Mission performance	Yes	Yes	-
05	Mission reliability	Yes	-	-
06	Logistic footprint: The equipment required to support a number of aircraft for a prescribed period of time	Yes	Yes	-
07	Sortie generation rates: JCA will be required to contribute to a significant proportion of the total missions required in the early stages of future operations, demonstrating a high level of reliability. This requirement is to enable generation of a predetermined number of sorties without placing an unacceptable burden on the logistics system	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
March 2005	KUR 04	Technical Factors	The Short Take Off element of KUR04 (based on CVS (Invincible Class), not CVF (Carrier Variant Future)) will be changed in the ongoing KUR review. Current projections indicate robust Short Take Off performance from CVF. Weight challenges and propulsion system integration issues place the Vertical Landing Bring Back element of KUR04 at increased risk; this is subject to intensive programme action.
March 2005	KUR 06	Technical Factors	Funded design options that significantly reduce risk have been identified and further changes will be considered in due course.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Approval was obtained in November 1996 to enter the Concept Demonstration Phase (CDP) on the JSF programme under an MOU signed in December 1995. The phase began in November 1996 with two competing United States Prime Contractors (Boeing and Lockheed Martin) designing weapons systems and flying demonstration aircraft on which the selection of the preferred bidder was based. The phase completed in October 2001 with the announcement of Lockheed Martin as the successful bidder. Studies into alternative options to JSF to meet the requirement were also conducted but were rejected on cost effective grounds. The options were United States F/A18E, French Rafale M, a "navalised" Eurofighter and an advanced Harrier.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	144	7%
Approved Cost at Initial Gate*	150	7%
Variation	-6	

5c. Duration of Assessment Phase

Date of Main Gate Approval	January 2001
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals†

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1971	2034	2236
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	December 2012	April 2014
Envelope within which capability was expected to be available at Initial Gate	-	-	2012

Note: For MG Development approval, ISD was noted, not approved

* Where applicable, EAC approval for Concept Demonstration Phase has been interpreted as 'Initial Gate'.

† Three point estimates for the Production phase have yet to be determined, as costs are dependant on the final aircraft numbers.

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

LIGHT FORCES ANTI-TANK GUIDED WEAPON

Integrated Project Team Responsible:

LAND GUIDED WEAPONS

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

In January 2003 the United States Javelin system produced by the Raytheon/Lockheed Martin Joint Venture was selected to meet the Light Forces Anti-Tank Guided Weapon (LFATGW) requirement for the manufacture, supply and support of a crew portable Medium Range Anti-Tank Guided Weapon for the Light Forces, including training equipment. This is a Military Off the Shelf (MOTS) procurement.

Javelin is man-portable by a crew of two, carrying two missiles, for up to 16 kilometres. In order to meet the LFATGW requirement, the system is being provided to the Light Forces and Mechanised Infantry, replacing the ageing MILAN system. The Command Launch Unit (CLU) is reusable and offers a surveillance capability and the missile is effective against all ground vehicles including modern and future battle tanks. Javelin has a secondary capability against fixed defences and the ability to allow enclosed space firing. Effective range is out to 2.5 kilometres.

To minimise live firings in training the emphasis is being placed on simulation. The system entered service with the Light Forces in July 2005, four months ahead of the planned In-Service Date.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Javelin Joint Venture (Raytheon & Lockheed Martin)	Demonstration & Manufacture	Firm Price Direct Commercial Sale and Foreign Military Sales case	Competitive International

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	305
Approved Cost at Main Gate	345
Variation	-40
In-year changes	-5

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-2	Technical Factors	Departmental Review - Reassessment of residual programme risk following post-In Service Date review.
December 2005	-3	Technical Factors	Reassessment of residual programme risk following post-In Service Date review.
Historic	-6	Exchange Rate	Change in $ to £ Exchange Rate
Historic	+1	Changed Budgetary Priorities	Changes in timings of spend and asset deliveries leading to variations in Cost of Capital (-£2m, +(£3m).
Historic	-30	Risk Differential	Difference between risk allowed for in most likely (50%) and highest acceptable (90%) estimates at Main Gate (-£30m).
Net Variation	-40		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	189

2d. Years of peak procurement expenditure

2004/2005	2006/2007

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.1	0.1	378 (CLUs)	378 (CLUs)

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	One brigade trained and equipped.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	July 2005
Approved ISD at Main Gate	August 2006
Variation (Months)	-13
In-year changes	-4

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
July 2005	-4	Procurement Strategy	In Service Date achieved early as a result of taut project management.
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-13		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	The User shall be provided with a capability able to defeat T80U and T90 Main Battle Tanks (MBT).	Yes	-	-
02	The User shall be provided with an engagement capability with a Single Shot Kill Probability (SSKP) of at least [x] for T80 PIP1 and T90 targets.	Yes	-	-
03	The User shall be provided with a surveillance capability which has a 50% probability of recognising a NATO standard MBT target at 2500m under 0.2 extinction coefficient.	Yes	-	-
04	The User shall be provided with a surveillance capability which has a 50% probability of recognising a NATO standard MBT target at 1900m under 0.2 extinction coefficient.	Yes	-	-
05	The User shall be provided with an engagement capability for targets at a maximum range of 2500m.	Yes	-	-
06	The User shall be provided with an engagement capability for targets at a minimum range of 200m.	Yes	-	-
07	The User shall be provided with an engagement capability, which can engage a target from any direction.	Yes	-	-
08	The User shall be provided with a capability that has the same mobility as an Light Forces soldier.	Yes	-	-
09	The User shall be provided with a capability that can operate following field storage for up to 1 year in climatic environments A1-C2, M1-M3.	Yes	-	-
10	The User shall be provided with a LF ATGW capability with an operational availability of not less than 95% over 30 days warfighting of which 7 days will be high intensity.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The Assessment Phase evaluated available Military Off The Shelf systems, established through competition the best value for money solution to meet the requirement and produced a recommended option.

Initial Gate Approval was secured in July 2000 and in July 2001 a Review Note was approved to incorporate the Mechanised Infantry requirement. Following the issue of a Request for Proposals in September 2000, a contract was placed with Rafael to enable evaluation of the SPIKE system, and two Foreign Military Sales (FMS) Cases were implemented with the United States Department of Defense to acquire the JAVELIN system and to obtain the services of the Javelin Joint Venture. These were the only weapons systems deemed likely to meet the requirements in the necessary timescale.

The Main Gate approval in January 2003 authorised the procurement of the JAVELIN system. A contract was placed with the JAVELIN Joint Venture (Raytheon and Lockheed Martin) in February 2003, supported by an FMS Case, for Demonstration, Manufacture and Support.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	9	3%
Approved Cost at Initial Gate	11	3%
Variation	-2	

5c. Duration of Assessment Phase

Date of Main Gate Approval	January 2003
Date of Initial Gate Approval	July 2000
Length of Assessment Phase [months]	12

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	304	315	345
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	467	-	582

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	July 2005	November 2005	August 2006
Envelope within which capability was expected to be available at Initial Gate	December 2004	-	June 2005

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

NEXT GENERATION LIGHT ANTI-ARMOUR WEAPON

Integrated Project Team Responsible:

INFANTRY GUIDED WEAPONS

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

Next Generation Light Anti-Armour Weapon (NLAW) is a man-portable short-range anti-armour weapon to be carried and used by all Arms and Services and replaces the LAW 80 capability. NLAW will provide a predictive line-of sight capability out to a range of 600m, against main battle tanks and light armoured vehicles, when both stationary and manoeuvring, and have the ability to be fired from enclosed spaces and defensive positions. It will have a secondary role as a means of attacking structures. The project is an Enhanced Off-The-Shelf procurement, and includes the provision of training systems and support. The weapon system is being developed in conjunction with the Swedish Defence Material Administration. The NLAW prime contractor is SAAB Bofors Dynamics of Sweden, with Thales Air Defence Ltd as the main United Kingdom sub-contractor.

NLAW will be used by all forces operating in the land environment. Completion of the final design of the NLAW system, and subsequent production, has been delayed as a result of sub-system qualification difficulties. Entry of the system into service has been deferred until July 2007.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	**Contract Scope**	**Contract Type**	**Procurement Route**
Saab Bofors Dynamics, Sweden	Full Development and Production	Firm price (Development Phase) & Fixed Price (Production)	International competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	314
Approved Cost at Main Gate	415
Variation	-101
In-year changes	-42

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
October 2005	-39	Accounting Adjustments and Redefinitions	Confirmation received from HM Revenue & Customs that NLAW production is collaborative and therefore zero rated for VAT.
December 2005	-3	Procurement Strategy	Departmental Review - Reduction in Unit production Cost as a result of exercise of Swedish Option.
Historic	-5	Technical Factors	Re-assessment of Training equipment requirements resulting in need to increase procurement of training aids (+£7m). Reduction in scope of Development Phase work, including decisions made to reduce some of the development contract options to reduce costs (-£7m). Contractual Options added to increase the scope of Development (+£1m). Reduced training equipment quantities needed to meet training capability (-£3m); reduced levels of project support (-£3m).
Historic	+4	Changed Budgetary Priorities	Changes in timing of spend and Asset Deliveries leading to variations in Cost of Capital (+£1m, +£3m)
Historic	-1	Contracting Process	Prices for Trainer Spares (+£2m), price for Vehicle Kits (+£1m), Price for Combat Weapons (+£1m), Price for Core Development Contract (-£5m).
Historic	-19	Procurement Strategy	Reduction in cost of development attributable to collaboration with Sweden (-£9m), VAT saving on Development associated with collaborative approach (-£10m).
Historic	-38	Risk Differential	Difference between risk allowed for in most likely (50%) and highest acceptable (90%) estimates at Main Gate (-£38m).
Net Variation	-101		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	98

2d. Years of peak procurement expenditure

2007/2008	2008/2009

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.02	***	14002	14002

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A brigade trained and equipped.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	July 2007
Approved ISD at Main Gate	July 2007
Variation (Months)	0
In-year changes	8

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
February 2006	+8	Technical Factors	Failures in sub-system qualification have delayed the start of production with a consequent impact on In Service Date.
Historic	-8	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	0		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Maintain ILAW in service	-	-	Nil costs provided ILAW 3 year safe life certified and NLAW ISD achieved.

3e. Operational impact of ISD variation

NLAW will provide the short range anti-armour capability for all forces operating in the land environment as a replacement for LAW 80. The Interim Light Anti-Armour Weapon (ILAW) was procured under Urgent Operational Requirement to meet the capability gap created by the early withdrawal of LAW 80. The procurement was scaled for current operations only, and presently has a planned Out of Service Date of November 2007 (incidentally creating an overlap with NLAW's original ISD). NLAW is being procured for general use (for all Arms and Services), unlike ILAW which was procured in limited numbers for operations and provides a less effective capability than that which NLAW will deliver.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
1	NLAW shall be made ready in 10 seconds.	Yes	-	-
2	The time to fire for NLAW shall be less than 10 seconds.	Yes	-	-
3	The system configured for tactical carriage shall have a mass of not more than 12.5kg.	Yes	-	-
4 & 5	Against a moving target Main Battle Tank target, defined as [**x**] shall achieve a Single Shot Kill Probability (SSKP) of [**y**] between 20 and 400m.	Yes	-	-
6 & 7	Against a moving Light Armoured Fighting Vehicle Target, defined as [**x**] NLAW shall achieve an SSKP of [**y**] between 20 and 400m.	Yes	-	-
8	NLAW shall be capable of being fired safely from within a room through a window opening. The dimensions of the room shall be 4m x 2.5m x 2.5m (high), the window shall be 1m x 1m located in either the long or short wall and 1m above ground level and the door shall be 0.75m x 2m (high). The firer shall be wearing appropriate in service hearing protection.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Following approval to issue an Invitation To Tender to conduct Project Definition studies in September 1997, competitive firm price contracts were awarded in October 1999 to Matra BAE Dynamics in the United Kingdom and Celsius in Sweden. The delay between approval and contract award was caused by uncertainty over the future of the Medium Range TRIGAT anti-armour programme, and resulted in slippage to the forecast In Service Date. The Assessment Phase lasted 22 months and bids for the Demonstration, Manufacture and Support phases were received in January 2001. The contractors were required to confirm the performance of their baseline system, developing weapon enhancements and prototype training systems needed to meet NLAW requirements.

Risk reduction and trade-off studies were undertaken and detailed management, milestone and trials plans produced. The opportunities for collaboration with other countries were explored and an Memorandum Of Understanding with Sweden, facilitating joint development, was signed in June 2002.

Main Gate Approval to proceed to the Demonstration, Manufacture and Support phases, together with down selection to Saab Bofors Dynamics (formerly part of Celsius), was achieved in May 2002. Contract placement followed in June 2002.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	17	5%
Approved Cost at Initial Gate	18	5%
Variation	-1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 2002
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	377	415
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	453	468	588

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	August 2006	November 2006	July 2007
Envelope within which capability was expected to be available at Initial Gate	May 2004	-	August 2005

POST MAIN GATE PROJECT SUMMARY SHEET

NIMROD MRA4

Integrated Project Team Responsible:

NIMROD MRA4

Single Point of Accountability for project capability:

Director Equipment Capability (Under Water Effect)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Nimrod Maritime Reconnaissance and Attack MK 4 (MRA4) will replace the current Nimrod MR2 as the new maritime patrol aircraft. MRA4 will provide significantly enhanced Anti-Submarine and Anti -Surface Unit Warfare capability through improved aircraft and sensor performance, a greater degree of system integration, better Human Machine Interface design and a substantial improvement in availability and supportability.

The MRA4 contract for the design, development and production of 21 aircraft was placed with BAE Systems (then BAe) in 1996, following an international competition. The contract was re-negotiated in mid 1999 and again in early 2002 - when the Department reduced the number of aircraft from 21 to 18. Continued technical and resource problems led to a further review of the programme and in February 2003 the Department reached an agreement with BAE Systems to change the fixed price contract to a Target Cost Incentive Fee (TCIF) contract for Design and Development, which included manufacture of three trials aircraft, and an option for a further fifteen production aircraft. Pending definition of a satisfactory design standard, series production activities were suspended with the exception of those activities essential to the preservation of skill sets within BAE Systems and its supply chain. Flight trials are underway with all three aircraft.

In July 2004, studies determined that the capability of the MRA4 would enable the maritime reconnaissance requirement to be met with a fleet of about 12 aircraft and the number to be procured has been reduced accordingly. A further review of the programme identified increased production costs and that the In Service Date for the capability would need to be delayed in order to make the programme affordable within Departmental funding constraints. A Business Case seeking authorisation of commitment to full production is under consideration by the approving authorities. The Key User Requirements and In Service Date definition are being reviewed as part of the decision-making process. Pending the Production decision, low risk production activity has been authorised to preserve the viability of the BAE Systems Woodford site where the aircraft is manufactured. The Initial Gate Business Case for the Assessment Phase of future support was approved in May 2005 with the Main Gate submission expected 2007. The project is subject to Key User Requirements set prior to the introduction of SMART Acquisition and these will be reset where appropriate at the time the

approval for full Production is sought. The Initial Gate Business Case for the Assessment Phase of Future Support was approved in May 2005 with a Main Gate submission expected in 2007.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems, Warton	Design and Development	Target Cost Incentive Fee*	Prime Contractor International competition
Boeing Defence and Aerospace Group, USA	Tactical Command System and Sensors	Fixed Price	Sub-contractor to BAE Systems

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	3516
Approved Cost at Main Gate	2813
Variation	+703
In-year changes	-292

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-280	Accounting Adjustments and Redefinitions	Departmental Review - identified savings with a reclassification of termination spares expenditure (-£176m) and resulting reduction in Cost of Capital charge (COCC) (-£35m). Departmental Review identified savings from reduced COCC from early delivery to the customer (£-69m).
March 2006	+7	Changed Budgetary Priorities	Contractor forecast was greater than advised in MPR05 resulting in increased COCC.
February 2006	-3	Accounting Adjustments and Redefinitions	MPR05 transposition error.
January 2006	-11	Accounting Adjustments and Redefinitions	Departmental Review - identified savings from reclassification of Adaptable Aircraft costs (-£4m) and reclassification of Consumable Stock (-£7m).
January 2006	-107	Contracting Process	Departmental Review - identified savings from a reclassification of

* Originally let as a fixed price contract.

Date	Variation (£m)	Factor	Explanation
			overheads (-£11m), reduction of contractor fee and production costs (-£10m), provision for reduced spares (-£13m), VAT exemption (-£33m), reductions for Initial Logistics Support (ILS) (-£8m), reduced manpower requirements (-£22m), cancellation of spares (-£3m), and reduced COCC (-£7m).
December 2005	+32	Contracting Process	Overhead recoveries (+£14m), Initial Logistics Support (+£8m), VAT liability on Design & Development support (+£5m), Increase to Management Reserve identified in the Departmental Review (+£5m).
October 2005	+70	Contracting Process	Increased cost in light of company contract quality price for production and associated analysis of revised costing for October 2005 Investment Approvals Board Review Note.
Historic	+1,115	Technical Factors	Increased Production Cost (+£229m) and increased Cost of Capital Charge (COCC) linked to cost change and delay in delivery programme (+ £183m). Increase in DERA estimate (+£13m). Reduction in the study requirements (-£6m); slower technical progress than originally envisaged, particularly with wing mass, leading to reduced COCC (+£9m). Reduced COCC linked to reduction in aircraft numbers (-£2m); additional costs relating to the Agreement of February 2003 (+£359m). Increased Programme costs (+£348m).
Historic	-80	Changed Requirement	Reduction from 18 aircraft to 12 (-£155m) and associated reduction in COCC (-£10m). Reduction from 21 to 18 aircraft; MPR02 saving of £114m less estimated termination costs of £70m; MPR03 further savings identified in 2003 planning process (-£16m). Additional commitments as part of the Heads of Agreement (+£35m). Additional costs for assessment of enhanced capability as part of the Agreement announced on 19 February 2003 (+£10m). As a consequence of the Agreement, QinetiQ requirement extended (+£40m). Reduction in cost of assessment of enhanced capability (-£5m). Contract change requirements (+£70m). Reduction in

Date	Variation (£m)	Factor	Explanation
			Government Furnished Equipment requirement (-£5m).
Historic	-34	Changed Budgetary Priorities	Reduction in Risk provision (MPR00 -£17m; MPR02 -£17m).
Historic	+41	Inflation	Variation in Inflation assumptions (+£41m).
Historic	-7	Receipts	Forecast recovery of Liquidated Damages (-£46m) less those to be foregone as part of the Agreement announced on 19 February 2003 (+£39m).
Historic	+29	Contracting Process	Reduction in Risk provision (-£56m); and reductions following the re-negotiation of contract (-£26m); reduction in programme costs between Main Gate approval and original contract placement (-£37m); original contract was let at provisional indices that were below actual indices (+£16m). Additional costs relating to the agreement announced on 19 February 2003 for Design and Development Target Cost Fee (+£132m).
Historic	-69	Accounting Adjustments and Redefinitions	An adjustment of the Historic calculation of the COCC (-32m). Increase in costs owing to the creation of a trading fund for the Communications Electronic Security Group (CESG) after original approval had been granted (+£1m); derivation of the approved cost on a resource basis (-£19m). Change to take account of an adjustment to the current forecast for MPR01, reflecting the availability of more accurate data (+£29m). Changes caused by the conversion of internal accounting system to full resource basis (-£26m). Difference in variation due to revision of COCC (-£22m).
Net Variation	+703		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	2,397

2d. Years of peak procurement expenditure

2002/2003	2004/2005

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	**Current**	**at Main Gate**	**Current**
Development and Production Package	Production element not yet contractually committed	21	12

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	**Original ISD Definition:** Delivery of 7th production standard aircraft to Royal Air Force. **MPR04 Definition:** (Part of the 19th February 2003 Agreement with the Company): Delivery of the sixth production standard aircraft to the Royal Air Force. **Reason for Change:** To reflect the reduction in the fleet from 21 to 18 agreed in 2002; six aircraft represents one squadron.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2010
Approved ISD at Main Gate	April 2003
Variation (Months)	+89
In-year changes	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	+89	Technical Factors	To make overall programme affordable within Departmental funding constraints (MPR05 +12 months). Resource and Technical factors at BAE Systems leading to programme slippage: MPR00 +23 months MPR02 +11 months MPR03 +40 months MPR04 +6 months Difference between forecast date

Date	Variation (months)	Factor	Explanation
			reported in MPR99 based on 1999 re-approval at 90% confidence and forecast date reported in MPR00 based on the current plan at 50% confidence (-3 months).
Net Variation	+89		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of current equipment	344	-	Additional costs of running on Nimrod MR2
Other	-	-150	Reduction in MRA4 support costs in same period
Total	+194		

3e. Operational impact of ISD variation

The consequence of the Nimrod MRA4 ISD slip is that either the Nimrod MR2 would remain in service beyond the current out-of-service date of March 2011 or a capability gap will be endured. This slip will delay introduction of the improved capability of the Nimrod MRA4 and could require the ageing Nimrod MR2 fleet to be maintained in service longer than expected. The operational impact of this slippage will be partly mitigated by measures already in hand to introduce upgrades to some Nimrod MR2 systems. Notably the Acoustic Suite (AQS 971), navigation systems, data links and other communications will address interoperability issues. The AQS 971 programme has benefited by making use of acoustic processors procured for Nimrod MRA4 AQS 970 programme.

*SECTION 4: KEY USER REQUIREMENTS**

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Anti-Submarine Warfare (ASW) Barrier Search-Probability of Detection (PD)	Yes	-	-
02	ASW Area Search- PD	Yes	-	-
03	ASW Passive Localisation & Attack (PL&A)-Weapon Splashdown Error Range (WSER)	Yes	-	-
04	ASW PL&A - probability of Localisation (PL)	Yes	-	-
05	ASW Active Localisation &Attack -WSER	Yes	-	-
06	ASW Time on Station (ToS)	Yes	Yes	-
07	Anti-Surface Warfare (ASuW)-ToS	Yes	Yes	-
08	ASuW Area Search- Probability of detecting operational targets within a specified area	Yes	Yes	-
09	ASuW 3rd Party Targeting-Determination of target position, course and speed for 3rd party targeting	Yes	-	-
10	Airfield Performance - achieving defined take off performance	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
Historic	KUR 06	Technical Factors	Time on Station endurance is expected to be achieved for the required sortie profiles and aircraft configurations but weighing of trials aircraft indicates specified mass growth margin will be eroded.
Historic	KUR 07	Technical Factors	As above
March 2006	KUR 08	Technical Factors	Technical and financial issues now resolved surrounding procurement of Electronic Warfare Rig thereby allowing aircraft to operate with a self-defence capability. Business Case with Investment Appraisal under compilation. Procurement schedule being determined; anticipate KUR compliance when schedule and risks clearly identified.

* Further to NAO guidance, a revised additional Section 4 is included to reflect Key User Requirements currently under consideration by the approving authorities.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

In November 1992, the Equipment Approvals Committee (EAC) approved a Request for Information exercise whereby 17 companies were invited to provide responses to the draft Replacement Maritime Patrol Aircraft (RMPA) Staff Requirement. Following analysis of the industry responses, the EAC endorsed the requirement and approved an Invitation to Tender phase whereby four companies (BAE Systems, Lockheed Martin, Loral and Dassault) were invited to provide detailed technical and commercial proposals for an aircraft to meet the endorsed Staff Requirement. Dassault withdrew from the competition in January 1996, and whilst Lockheed Martin and Loral merged in May 1996, they maintained the two separate proposals until the competition concluded. Following assessment of these responses, selection of BAE Systems' Nimrod 2000 (later to be re-designated Nimrod MRA4) offer was approved by EAC and Ministers in July 1996. This was the equivalent of Main Gate approval.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	5	0.1%
Approved Cost at Initial Gate	4	0.1%
Variation	+1	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 1996
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	2813	-
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	April 2003	-
Envelope within which capability was expected to be available at Initial Gate	-	-	-

NIMROD MRA4 - REVISED KEY USER REQUIREMENTS

1. Nimrod MRA4 is a legacy project and its original approval did not include Key Requirements (KRs). The KRs reported to date in the Major Project Report were retrospectively agreed between DEC(UWE) and Nimrod IPTL. Before endorsement was sought, it was discovered that these KRs were not compliant with the latest Smart Acquisition guidelines. Consequently, new Key User Requirements (KUR) were developed from first principles to comply with the latest guidelines.

*SECTION 4: KEY USER REQUIREMENTS REVISED**

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Maritime Counter Terrorism	Yes	-	-
02	Search and Detect	Yes	-	-
03	Submarine Attack	Yes	-	-
04	Search and Detect in AWB	Yes	-	-
05	Tactical Interoperability	Yes	-	-
06	Mission Completion	Yes	-	-
07	Maritime Presence	Yes	-	-
08	Operate in a Hostile Environment	Yes	Yes	-
09	Environmental Operating Conditions	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
March 06	KUR 08	Technical Factors	Technical and financial issues now resolved surrounding procurement of Electronic Warfare Rig thereby allowing aircraft to operate with a self-defence capability. Business Case with Investment Appraisal under compilation. Procurement schedule being determined; anticipate KUR compliance when schedule and risks clearly identified.

* Revised Section 4 reflecting Key User Requirements currently under consideration of the approving authorities.

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

PANTHER COMMAND AND LIAISON VEHICLE (CLV)

Integrated Project Team Responsible:

CLOSE ARMOUR

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

PANTHER is based on an Italian IVECO designed vehicle and is being upgraded to United Kingdom specification by BAE Land Systems. It is required to provide protected tactical mobility, enabling users from the Combat, Combat Support and Combat Service Support Arms to carry out their roles across the spectrum of conflict. Panther will provide levels of crew protection and mobility commensurate with their roles in an increasingly extended ground manoeuvre area. It will offer protection against small arms, blast and anti-personnel mines and contain a Self-Defence Weapon (SDW) that can be operated under-armour to provide suppressive fire. A Surveillance and Target Acquisition (STA) system will be provided to enhance situational awareness, reconnaissance, targeting and reporting.

The Main Gate Business Case recommended the Alvis Vickers Limited Multirole Light Vehicle (MLV) for Demonstration and Manufacture of 486 vehicles with an In Service Date (ISD) of November 2007. This was approved in July 2003. However, Equipment Plan 2004 affordability options reduced the procurement quantity to 401. The contract was placed with BAE Systems Land Systems (formerly Alvis Vickers Limited) in November 2003.

Panther ISD is defined as a brigade in 3(UK) Division equipped, trained and ready for operations. The current approved ISD is November 2007.

The required levels of ballistic and mine blast protection for the platform has been demonstrated. A fully representative vehicle was tested against a 6kg anti tank mine and results indicated that the crew would survive. The Overhead Weapon Station is providing good surveillance and self-defence capability.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Land Systems (formerly Alvis Vickers Limited)	Demonstration and Manufacture	Firm/Fixed price	United Kingdom competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	201
Approved Cost at Main Gate	238
Variation	-37
In-year changes	0

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
Historic	-28	Changed Budgetary Priorities	Equipment Plan 2004 Option taken to reduce number of vehicles.
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-37		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	35

2d. Years of peak procurement expenditure

2006/2007	2007/2008

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.4	0.4	486	401

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A brigade in 3(UK) Division equipped (50 vehicles), trained and ready for operations

3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2007
Approved ISD at Main Gate	November 2007
Variation (Months)	-2
In-year changes	+6

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
February 2006	+6	Technical Factors	Poor Reliability.
Historic	+4	Changed Requirement	Delay in contract award as a result of reducing the number of platforms.
Historic	-12	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-2		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	The User shall be able to move Panther (CLV) to the same locations within the battlespace within the same timeframe as the vehicles it supports though not necessarily by the same routes.	Yes	-	-
02	The User shall be protected within Panther (CLV) from attack by enemy small arms fire.	Yes	-	-
03	The User shall be protected within Panther (CLV) against attack from an anti-personnel mine.	Yes	-	-
04	The User shall be protected within Panther (CLV) from attack by an anti-tank mine.	Yes	-	-
05	The Group 2 Panther (CLV) User shall be able to deter an attack from enemy light forces.	Yes	-	-
06	The User shall be able to process, collate, disseminate and communicate data and voice at all times.	Yes	Yes	-
07	The User shall be provided with a Panther (CLV) capability with an operational availability of 93% over a 30 day period.	Yes	Yes	-
08	The User requires fully trained manpower, to include both operators and maintainers, in order to operate Panther (CLV).	Yes	-	-
09	Panther (CLV) shall have sufficient capacity/payload to carry three crew members, and their equipment.	Yes	-	-
10	Group 2 Panther (CLV) shall have a surveillance and target acquisition capability.	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
November 2005	KUR 06	Technical Factors	ID&C contract between BAE Systems and General Dynamics (UK) not yet signed.
December 2005	KUR 07	Technical Factors	Poor reliability growth performance.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

In the assessment phase risk reduction studies and trials were conducted by QinetiQ and the Armoured Trials and Development Unit (ATDU) to assess the suitability for role, technical compliance with System Requirement Document (SRD), initial reliability and human factors of all the contenders. There were five contenders, Scarab and IVECO Multi-role Light Vehicle (MLV) from Alvis, RG31M and RG32M from Vickers and the French ACMAT Ranger from United Defence. On completion of the trials Scarab and RG31M were withdrawn from the competition. Whilst all met the Key User Requirements and mandatory requirement and were above the required capability threshold, Ranger was the most capable.

The final analysis of the three remaining bids showed that all three companies were capable of delivering the programme and achieving the Key User Requirements. However, RG32M just met the required capability, with Ranger being the most capable but unaffordable and the ALVIS/IVECO MLV coming a close second in capability terms but with the best support solution (both conventional and Contractor Logistic Support) and also commercially stronger than United Defence.

The Alvis IVECO MLV was recommended as the preferred solution.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	2	1.0%
Approved Cost at Initial Gate	4	2.0%
Variation	2	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 2003
Date of Initial Gate Approval	August 2000
Length of Assessment Phase [months]	35

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	220	229	238
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	200	-	341

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	September 2006	November 2006	November 2007
Envelope within which capability was expected to be available at Initial Gate	August 2005	-	November 2006

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

PRECISION GUIDED BOMB

Integrated Project Team Responsible:

PRECISION GUIDED BOMB

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

Senior Responsible Owner for broader capability:

Capability Manager (Precision Attack)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

An all-weather, 24 hours, general-purpose bombing requirement which offered increased accuracy to reduce collateral damage was identified during the 1991 Gulf War and re-emphasised in subsequent operations. The Precision Guided Bomb (PGB) programme was established to meet this requirement and Raytheon Systems Limited (RSL), who offered the Paveway IV weapon, was selected as the Prime Contractor following international competition. Investment Appraisals Board (IAB) approval was given in June 2003 for the procurement of the Weapon System and integration onto Harrier, Tornado and Typhoon aircraft. Contract let was planned for September 2003 however, Departmental funding constraints delayed contract let and limited it to placement of the main Weapon, support and Harrier GR9 Integration Contracts. These contracts were let in December 2003. A further submission will be made once the way forward for Tornado and Typhoon integration becomes clear.

Since contract let it has been decided to enhance further the weapon through the addition of LASER capability. This enhancement is mutually beneficial to RSL and MOD and is being delivered at no extra cost to the MOD. Progress to date is satisfactory and so far all milestones, including the Weapon System Critical Design Review, have been achieved on time or ahead of schedule. Development hardware has been provided and the qualification programme is well underway.

The delay to contract let is reflected in a pro-rata slip to the Main Gate In Service Date estimates although work is ongoing across the stakeholder community to recover this slip. The effect of the recovery work will become evident later in 2006 once the initial results of the qualification phase are known.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
Harrier GR9 Capability C Upgrade	2007	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Raytheon Systems Limited (Prime Contractor)	Demonstration to Manufacture	Firm price	International competition
BAE Systems, Warton	Demonstration to In-Service	Firm price	Non-competitive

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	341
Approved Cost at Main Gate	363
Variation	-22
In-year changes	-11

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-4	Technical Factors	Proactive risk management has given rise to a reduction in the level of risk provision required to deliver the project. This reduction reflects the revised risk predictions following a comprehensive risk review.
March 2006	-1	Exchange Rate	Departmental Review - Provision for exchange rate fluctuations now taken at a corporate level.
January 2006	-1	Changed Requirement	The maturity of Data Logging technology precludes use of Data loggers at this juncture; requirement reassessed and removed.
June 2005	-3	Procurement Strategy	Reduction in forecast as a result of prudent Integrated Test Evaluation and Acceptance (ITEA) management.
June 2005	-2	Changed Requirement	Reassessment of the quantity of training rounds required.

Date	Variation (£m)	Factor	Explanation
Historic	+13	Changed Budgetary Priorities	Increase in Tornado integration cost due to DEC Option to delay integration by a further 2 years, then a further 1 year (+£10m, +£8m). Customer 1 (DEC(DTA)) reduction in Equipment Plan 2005 (-£2m). Reduction in forecast against the Control Total at the start of the Financial Year as a result of RSL risk reduction work (-£3m).
Historic	-24	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimates at Main Gate.
Net Variation	-22		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	90

2d. Years of peak procurement expenditure

2006/2007	2007/2008

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
0.03	0.03	2303	2303

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Delivery of 96 weapons, the modification of 12 aircraft of one aircraft type, sufficient trained air and ground crew, all necessary support and a cleared Operational Flight Programme.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2007
Approved ISD at Main Gate	December 2007
Variation (Months)	-3
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	+3	Contracting Process	Delay to Contract award due to the wider constraints on Defence commitments, in particular restrictions on committing In-Year funds.
Historic	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-3		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
-	-	-	-

3e. Operational impact of ISD variation

-

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	The Over The Target Requirement (OTR) shall be no greater than that which can be achieved using Mk 82 bombs delivered with 15m Circular Error Probable (CEP).	Yes	-	-
02	The user shall be able to achieve the OTR in all-weathers.	Yes	-	-
03	The user shall be able to achieve the OTR 24-hours a day.	Yes	-	-
04	The user shall be able to programme the weapon with new target co-ordinates in the air prior to release.	Yes	-	-
05	The user shall be able to deliver PGBs from Tornado GR4/4A, Harrier GR9/9A and Typhoon.	Yes	-	-
06	The user shall be able to achieve the effect at the target without causing greater damage to collateral objects than would be created by a Mk 82 bomb delivered within a CEP of 15m.	Yes	-	-
07	The user shall be able to employ the weapon from Harrier GR9/9A on embarked operations from an Invincible Class Aircraft Carrier (CVS).	Yes	-	-
08	The weapon shall have a 75% probability of successfully completing a mission at any stage during its life.	Yes	-	-
Percentage currently forecast to be met		100%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The purpose of the Assessment Phase was to select the preferred bidder to take forward to Main Gate. Invitations to Tender were released to six companies in October 2001 and six formal tenders were received. A two-stage Assessment Phase resulted in MBDA and Raytheon Systems Limited being taken forward into the final phase of the competition. A Combined Operational Effectiveness and Investment Appraisal (COEIA) was undertaken by DSTL and a technical and commercial assessment of the tenders was undertaken by the PGB IPT and its specialist stakeholders (including QinetiQ and BAE Systems).

The Main Gate Business Case was approved in June 2003. Raytheon Systems Limited, who offered the Paveway IV weapon to meet the PGB requirement, was selected as the preferred contractor.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	5	1.4%
Approved Cost at Initial Gate	3	0.9%
Variation	+2	

5c. Duration of Assessment Phase

Date of Main Gate Approval	June 2003
Date of Initial Gate Approval	July 2001
Length of Assessment Phase [months]	23

5d. Cost boundaries at Initial Gate and Main Gate Approvals

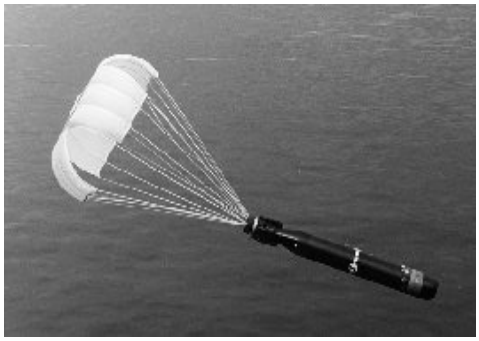
£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	318	339	363
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	218	-	230

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	September 2006	June 2007	December 2007
Envelope within which capability was expected to be available at Initial Gate	June 2006	-	December 2007

POST MAIN GATE PROJECT SUMMARY SHEET

STING RAY LIFE EXTENSION & CAPABILITY UPGRADE (SRLE)



Integrated Project Team Responsible:

TORPEDOES

Single Point of Accountability for project capability:

Director Equipment Capability (Under Water Effect)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Sting Ray lightweight torpedo is the main anti-submarine weapon for ships and aircraft. It entered operational service in 1983 with a planned service-life of around 20 years. To provide an opportunity for international collaboration on a replacement, Sting Ray will remain in-service until around 2025 when it is envisaged that other nations will require replacement lightweight torpedoes. Accordingly the Sting Ray torpedo needs to be life-extended and its capability enhanced.

The Sting Ray Life Extension (SRLE) programme was approved in May 1995 and a contract for full development was awarded to GEC-Marconi Underwater Systems (now BAE Systems Electronics Ltd) on 10 July 1996. The design is complete and the Certificate of Design has been signed off by the Authority. Following approval for the SRLE manufacturing phase, a contract was awarded to BAE Systems on 30 January 2003.

In February 2001, as a result of a study into a less sensitive warhead for the life–extended Sting Ray, a new Insensitive Munition warhead was included in the SRLE programme to comply with new Departmental safety policy. This programme has since been deferred and will now be reported as a separate programme.

The Production Qualification Trials were completed in December 2005 and the first torpedo was delivered in February 2006.

Future milestone: SRLE in-service date (ISD Initial Operating Capability) of May 2006.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
Insensitive Munition Warhead	The ISD for this project will be set when it achieves its Main Gate	-	-

	approval		

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems Electronics Ltd Farnborough (formerly GEC-Marconi Underwater Systems Group)	Full Development and Pre-Production	Fixed Price	Non-competitive Contract with design authority of equipment. No sub-contract competition at first tier level.
BAE Systems Electronics Ltd	Manufacture & In Service Support	Firm price	Non-competitive, but with competition for manufacturing sub-contracts the value of which amounts to 44% of overall value of the manufacture contract.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	594
Approved Cost at Main Gate	744
Variation	-150
In-year changes	-5

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
January 2006	-12	Accounting Adjustments and Redefinitions	Departmental Review - Removal of potential overhead costs related to a follow on project.
January 2006	-2	Changed Requirement	Departmental Review - Transfer of Military Aircraft Release Vibration trial to Insensitive Munition programme.
January 2006	+9	Technical factors	Changes in delivery profile impacting on Cost of Capital charges.
April 2005	+5	Changed Requirement	Functionality modifications to the Sting Ray Life Extension programme
April 2005	-5	Changed Requirement	Decrease in Qinetiq support costs
Historic	-173	Changed Requirement	Reduction in weapon numbers (-£183m) following two Equipment Planning Options; Assessment work on a new Insensitive Munition Warhead resulting from a change in Departmental munitions policy (+12m); Removal of warhead life extension finds (-£3m); Addition of safety case to comply with new Health and Safety regulations for

Date	Variation (£m)	Factor	Explanation
			warships (+£1m).
Historic	+25	Changed Budgetary Priorities	Variation in Cost of Capital charge due to 12 month delay to In Service Date (+£8m), earlier manufacture payments (+£19m) and rescheduling of test equipment deliveries (+£9m). Revised estimate for Trials activities (+£2m). Reassessment of Demonstration estimate (-£1m). Separation of Insensitive Munition Warhead programme from the SRLE programme (-£12m).
Historic	-1	Inflation	Variation due to revised estimate for development contract Variation of Price clauses (-£1m).
Historic	+4	Contracting Process	Development contract price exceeded estimate at approval (+£4m)
Historic	+17	Accounting Adjustments and Redefinitions	Inclusion of DERA support previously treated as an intramural charge (+£11m). Reassessment of DERA support expenditure (+£5m). Derivation of the approved cost on a resource basis (+£4m). Difference in variation figures due to a revision of Cost of Capital Charge (-£3m).
Historic	-17	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-£18m). Difference in risk differential due to revision of Cost of Capital charge (+£1m).
Net Variation	-150		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	340

2d. Years of peak procurement expenditure

2005/2006	2007/2008

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
***	***	***	***

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	The date when the first 100 production standard weapons have been modified and are ready for issue to an operational unit.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	May 2006
Approved ISD at Main Gate	December 2002
Variation (Months)	+41
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	+24	Changed Budgetary Priorities	The need to match the MOD programme to available resources in the overall pattern of MOD priorities (+24 months).
Historic	+17	Contracting Process	Delay due to contract negotiations taking longer than expected (+9 months) and reassessment of programme timescales following negotiations (+8 months).
Net Variation	+41		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
Support costs of current equipment	19	-	Additional In Service Support of present Sting Ray torpedo. (+£19m).
Other	-	14	Reduced In Service Support for updated torpedo (-£14m).
Total	+5		

3e. Operational impact of ISD variation

The ISD delay has enabled additional requirements to be incorporated into the weapon. However, the delay has the potential to cause a capability gap with the older and less effective Sting Ray weapon being retained in service with ongoing consequences for reliability. This capability gap should not be critical.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Overall Torpedo Effectiveness	Yes	-	-
02	Hit Probability	Yes	-	-
03	Automobile Performance	Yes	-	-
04	Torpedo Counter Countermeasure Capability	Yes	-	-
05	Operational Environment	Yes	-	-
06	Water Depth	Yes	-	-
07	Acoustic Environment Capability	Yes	-	-
08	Warhead and Firing Chain	-	-	Yes
09	Availability, Reliability and Maintainability	Yes	-	-
Percentage currently forecast to be met		90%		
In-Year Change		- 1		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
March 2006	Warhead and firing chain	Technical Factors	The move to an Insensitive Munition warhead with different characteristics from the current Sting Ray mod 0 warhead has meant that this KR will need to be redefined.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The equivalent of the Assessment Phase occurred within a number of Definition Studies undertaken between 1993 and 1995 under Sting Ray Design services at a cost of £2.6m. These studies considered six options which formed part of the dossier submitted to the Equipment Approvals Committee for Full Development and Pre Production (FDPP) approval. Technical, engineering and environmental specifications together with FDPP, production and in-service support cost plans were also produced.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	-	-
Approved Cost at Initial Gate	-	-
Variation	-	

5c. Duration of Assessment Phase

Date of Main Gate Approval	May 1995
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	709	727	744
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	December 2002	-
Envelope within which capability was expected to be available at Initial Gate	-	-	-

POST MAIN GATE PROJECT SUMMARY SHEET

SUPPORT VEHICLE (SV)

Integrated Project Team Responsible:

GENERAL SUPPORT VEHICLES

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics & Support)

Senior Responsible Owner for broader capability:

Capability Manager (Battlespace Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Support Vehicle programme will procure the future tri-service cargo and recovery vehicles that will increase and sustain the military's materiel lift, distribution, and recovery capabilities. These vehicles will replace the in-service cargo and recovery vehicles providing improved mobility, crew protection, load carrying capability & compliance with current & foreseeable United Kingdom/European Union vehicle legislation.

The project passed Main Gate in November 2001 which approved an international competitive conventional procurement in place of an aborted PFI, by-passing the Assessment Phase and moving directly to the main investment decision. MAN ERF UK Ltd was declared preferred bidder in October 2004.

The Investments Approvals Board directed the Project Team to procure the minimum contracted number of vehicles (5165) and conduct an Investment Appraisal to establish whether retaining elements of the existing fleet to 2034 offers better value for money than procuring the additional 2077 Cargo Vehicles. The Investment Appraisal confirmed that procuring new vehicles offers better value for money. Investments Appraisals Board approval to procure up to 2077 additional vehicles was given in April 2006.

A contract was let with MAN ERF UK Ltd on 31 March 2005 to provide 5,165 vehicles: 4,851 Cargo, 314 Recovery and 69 Recovery Trailers. The first 6, 9 & 15 Tonne vehicle prototypes have now been produced and are undergoing contractor tests and trials before commencing Authority testing. A Departmental Review, which commenced November 2005 and aimed at further reducing cost and understanding risk, resulted in a comprehensive revisit of the requirement which has resulted in a reduction in the number of Recovery Vehicles and other peripherals.

An in-service date (ISD) of February 2008 is being reported. However the ISD is in 2 stages – 161 Cargo Vehicles in July 2007 and 8 Recovery Vehicles plus 2 Recovery Trailers in February 2008.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
MAN ERF UK Ltd	Demonstration to In-Service	Firm Price for the first five years, then Fixed Price subject to Variation of Price	International competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	1338
Approved Cost at Main Gate	1641
Variation	-303
In-year changes	-24

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-18	Changed Requirement	Department Review - resulted in the reduction in the number of Recovery Vehicles by 26 and the number of Seating Kits purchased by the SV project.
February 2006	-6	Technical Factors	Department trials have been integrated with the contractor's trials resulting in progressive acceptance, reduced trials costs and reducing the amount of technical risk funding in future years of the project.
Historic	+55	Changed Requirement	Addition of Bowman Installation Kits (+£70m). Additional Seating Kits (+£10m). Future Revenue spend increased to bring project support requirements into line with the revised programme (+£3m). Reduction in SV(Cargo) requirement from the Main Gate approved quantity of 8231 to 6928 SV(Cargo), together with a reduction in, and reprofiling of, future Capital spend

Date	Variation (£m)	Factor	Explanation
			(-£28m).
Historic	-69	Changed Budgetary Priorities	Removal of Bowman Installation Kits from the programme in 2002/2003 (-£33m). Change of vehicle mix (+£20m). Option taken in 2002/2003 to slip In Service Date & compress delivery (+£40m). Reduced milestone payments (-£104m). Reduced consultancy costs (-£1m). Option taken to reduce Recovery Vehicles by quantity 75 (-£48m) and changed deliveries profile (-£5m). Better estimates of industry costs (+£52m). Change in Cost of Capital Charge due to revised accruals profile (+£10m).
Historic	+9	Accounting Adjustments and Redefinitions	Derivation of approved cost on a resource basis (-£4m). Difference in variation figures due to revision of Cost of Capital Charge from 6% to 3.5% (+£13m).
Historic	-274	Risk Differential	Difference between the risk allowed in the most likely (50%) and highest acceptable (90%) estimate at Main Gate (-£275m). Variation due to revised approval figures (+£1m).
Net Variation	-303		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	23

2d. Years of peak procurement expenditure

2009/2010	2010/2011

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
***	***	8,231 Cargo	4,851 Cargo + option to buy further 2,077
***	***	389 Recovery	288 Recovery
***	***	69 Recovery Trailers	69 Recovery trailers

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Achievement of an operational capability with 161 cargo vehicles, 8 recovery vehicles and 2 recovery trailers with the appropriate supporting through life package.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	February 2008
Approved ISD at Main Gate	April 2006
Variation (Months)	+22
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	+2	Technical Factors	Increased time given to all bidders to finalise their technical solution (+1 month). Time added to review the technical solutions and the need to revise the support strategy (+1 month).
Historic	+17	Contracting Process	Unanticipated second round of tendering required to address commercial risks, costs, performance & time efficiencies (+2 months). Additional time required by bidders to prepare, and the MOD to evaluate, the second round bids (+5 months). Time necessary to prepare and evaluate unanticipated third round of bidding and change to fielding plan / ISD (+5 months). Time necessary for approvals and contractual negotiations (+5 months).
Historic	+10	Changed Budgetary Priorities	Planning measure to reduce SV recovery vehicle quantities from 389 to 314 and delay first deliveries until February 2008.
Historic	-7	Risk Differential	Change in risk (time) allowed between the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-7 months).
Net variation	+22		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Support costs of the current equipment	29	-	The cost of running on the current fleet.
Total	+29		

3e. Operational impact of ISD variation

The delayed ISD has resulted in the life of the current equipment being extended, leading to additional support costs and a delay in fielding an increased operational capability.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
	Support Vehicle (Cargo & Recovery)	-	-	-
1	The Support Vehicle Recovery and Support Vehicle Cargo shall be capable of meeting the Defence Planning Assumptions.	-	-	Yes
2	Capable of operating in world-wide climatic conditions.	-	-	Yes
3	Compatible with existing and planned replenishment systems.	Yes	-	-
4	Capable of completing a 48 hour Battlefield Mission without replenishment.	Yes	-	-
5	Able to communicate with other units in their formation.	Yes	-	-
6	Capable of strategic deployment including by sea.	Yes	-	-
	Support Vehicles (Cargo only).	-	-	-
7	Capable of completing required Battlefield Mission.	Yes	-	-
8	Deployable in its operation state by air.	Yes	-	-
9	Capable of operating within the same parameters as other vehicles classified as Medium Mobility.	Yes	-	-
	Support Vehicle (Recovery only).	-	-	-
10	The Land, Littoral and Air components shall have the capability to recover bogged, damaged and broken down wheeled and light 'A' vehicles and provide the lift capability to the repair process in order to return them to operational use.	Yes	-	-
11	Capable of recovering military vehicles in an operational environment (including tactical operations throughout day & night).	Yes	-	-
12	Capable of lifting engines and main assemblies as part of the operational repair process.	Yes	-	-
13	Capable of manoeuvring engines and main assemblies as part of the operational repair process.	Yes	-	-
14	Capable of moving solo over the same terrain, within the same timeframe, as the 'B' vehicles it supports.	Yes	-	-
15	Capable of recovering casualty vehicles from point of failure to a place of repair.	Yes	-	-
Percentage currently forecast to be met*		88%		
In-Year Change		0		

* No in-year change. Correction of error in MPR 2005: 23 of the full list of 26 KURs are to be met. The MPR contains an abbreviated list for simplicity.

4b. Reasons for variation against approved key user requirements

Date	Key Requirement	Factor	Explanation
Historic	1	Changed Budgetary Priorities	Relaxed requirement as a result of capability/cost trade off.
Historic	2	Changed Budgetary Priorities	Relaxed requirement as a result of capability/cost trade off.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

There was no Assessment Phase. The SV programme had its origin as the Future Cargo Vehicles (FCV) and the Future Wheeled Recovery Vehicle (FWRV) projects. These were launched as potential Private Finance Initiative (PFI) programmes with advertisements in August 1998 and September 1999 respectively. The FCV project progressed through Pre-Qualification and Outline proposal stages with five bidders short-listed. An Initial Gate Business Case was drafted in December 1999, but was not submitted for approval because it did not demonstrate value for money.

Further work was requested to identify areas for further innovation, and also to develop a 'smart' Public Sector Comparator (PSC). Work continued to produce a more robust case but it became clear that confidence in PFI procurement was unlikely to improve. The decision was taken in March 2001 to replace the PFI procurement strategy with a conventional strategy and hold a fresh competition. Furthermore the FCV and FWRV programmes were merged into a single procurement and proceeded directly to the main investment decision which was secured in November 2001. The project bypassed the Assessment Phase because it was concluded that the technologies were mature and as the department had, during the PFI phase of the project, acquired a detailed knowledge of the commercial vehicle sector, the risks were low. It was also necessary to avoid further delays in order to maintain industrial interest in the requirement. The time and cost boundaries were set at Main Gate and following an advertisement placed in the MOD Contracts Bulletin, a short-list of six prime contractors was drawn up.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	-	-
Approved Cost at Initial Gate	-	-
Variation	-	-

5c. Duration of Assessment Phase

Date of Main Gate Approval	November 2001
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	1180	1367	1641
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	November 2004	September 2005	April 2006
Envelope within which capability was expected to be available at Initial Gate	-	-	-

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

TERRIER

Integrated Project Team Responsible:

MOBILITY

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

TERRIER is designed to be a highly mobile, robust and reliable armoured earthmoving vehicle, which will support mobility, counter mobility and survivability throughout the spectrum of conflict. It will be optimised for battlefield preparation and used by Close Support (CS) Engineer units. Terrier is being procured to replace the capability provided by the Combat Engineer Tractors (CET). The programme is currently mid way through its demonstration phase during which one prototype and four demonstrators will be built. These equipments will be used to progressively assure the IPT and customers that Terrier will deliver the capability required. These activities will lead to a production release in 2007. Major milestones for the next 12 months include prototype trials interim results, design reviews for the training aids and Factory Acceptance Testing (FAT) of the first demonstrator vehicle. Current issues include integration of Bowman into Terrier and the funding of modifications to the A400M floor. Only the A400M issue, however, could affect Terrier's Key User Requirements.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Land Systems (formerly known as Royal Ordnance PLC)	Demonstration and Manufacture	Firm/Fixed price	United Kingdom competition
BAE Land Systems (formerly known as Royal Ordnance PLC)	Contractor Logistic Support (first 5 years)	Fixed price	United Kingdom competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	296
Approved Cost at Main Gate	304
Variation	-8
In-year changes	-3

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-3	Accounting Adjustments and Redefinitions	Departmental Review – Variation in Cost of Capital due to the inclusion of accruals in future forecast costs.
Historic	+4	Contracting Process	Cost of Capital - Difference between the profile of the Asset Deliveries prior to contract placement and those included in the current forecast cost.
Historic	-9	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-8		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	62

2d. Years of peak procurement expenditure

2007/2008	2008/2009

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
3.1	3.1	65	65

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A total of 20 equipments delivered (4 to Army Training and Recruiting Agency (ATRA) & 16 to LAND) and supportable (Logistic Support Date (LSD) achieved, training in place, 20 crews trained).

3b. Performance against approved in-service date

	Date
Current Forecast ISD	September 2008
Approved ISD at Main Gate	December 2008
Variation (Months)	-3
In-year changes	0

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
Historic	-3	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) approved figures at Main Gate.
Net Variation	-3		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
-	-	-	-

3e. Operational impact of ISD variation

Current planning through the Capability Integration Working Group (CIWG) is based around planned ISD of December 2008 and so there will be no impact.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	User shall be able to dig vehicle slots.	Yes	-	-
02	User shall be able to dig, carry and load spoil & rubble.	Yes	-	-
03	User shall be able to dig trenches.	Yes	-	-
04	User shall be able to grapple, grab and carry items weighing no more than 2 tonnes over short distances.	Yes	-	-
05	At battleweight should not exceed 31.5 tonnes.	Yes	-	-
06	User shall be able to deploy by air.	Yes	Yes	-
07	User shall be afforded levels of indirect fire protection commensurate with its role.	Yes	-	-
08	User shall be afforded levels of direct fire protection commensurate with its role.	Yes	-	-
09	User shall have a 70% probability of completing a Battlefield Mission (BFM) without failure.	Yes	-	-
10	User shall have a 13.5% probability of completing a BFM without basic failure.	Yes	-	-
11	User should be able to maintain required capabilities while operating in varying climatic conditions.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
Historic	KUR 06	Technical Factors	Terrier must be air transportable. Verification criteria requires this to be demonstrated in A400M. The A400M cargo floor loading study shows that it is possible to modify the floor to take Terrier. We are now awaiting the outcome of the DEC Expeditionary Logistics & Support (ELS) funding review.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

A funded feasibility study for Terrier concluded that the most cost-effective way of meeting the requirement was to develop a new vehicle integrating, where possible, in-service sub-systems and commercial off-the-shelf equipment. Approval was given for a competitive Project Definition phase in August 1998 and Firm Price contracts were placed in August 1999 with BAE Systems (with the work undertaken by its subsidiary Royal Ordnance PLC) and Vickers Defence Systems. Both contractors developed detailed designs making extensive use of Computer Aided Design tools, virtual reality modelling, rigs and trials. The capabilities required and constraints imposed by physical limitations, such as rail and air transportability, resulted in very similar technical solutions. Both contractors offered tracked vehicles close in size, weight and mobility to Warrior, having a crew of two and providing protection against small arms, high explosive fragments and mines. An Invitation to Tender (ITT) was issued in February 2001 to both companies which sought detailed proposals and prices for all later phases. The ITT also adopted Smart Acquisition initiatives such as Progressive Acceptance and innovative Contractor Logistic Support proposals. The Main Gate Business Case was approved on 17 July 2002. The contract for Demonstration, Manufacture and Phase 1 Contractor Logistic Support was placed with Royal Ordnance PLC on 19 July 2002.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	17	5%
Approved Cost at Initial Gate	17	5%
Variation	0	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 2002
Date of Initial Gate Approval	August 1998
Length of Assessment Phase (months)	47

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	284	294	304
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	291

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	July 2008	September 2008	December 2008
Envelope within which capability was expected to be available at Initial Gate	December 2007	-	December 2008

THIS PAGE IS INTENTIONALLY BLANK

POST MAIN GATE PROJECT SUMMARY SHEET

TROJAN and TITAN

Integrated Project Team Responsible:

ENGINEER TANK SYSTEMS

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The project is intended to deliver new vehicles which will provide an armoured engineer capability to meet the Customer's requirements. Two different vehicles are being acquired: TITAN which is an armoured bridgelayer and TROJAN which is an armoured obstacle breaching vehicle. They will replace the Chieftain vehicles which are over 30 years old, and are the first purpose-built engineer vehicles to be procured since the Second World War. They are based on the Challenger 2 hull, but have a variety of specialist equipment added. They have very high levels of both mobility and protection and are fitted for (but not with) remote operation.

The contract was let in March 2001 and the first production vehicle (of 66) was delivered in October 2005. Training of the training staff began in January 2006 and In Service Date is forecast for October 2006. The project has suffered some delay and cost-growth from the decision to fit Bowman during production build, rather than Clansman, but the effects of this have been quantified and are reflected in the project data.

Key events in the short and medium term are the conduct of reliability growth trials in the first half of this year, together with the delivery of the necessary support elements (spares, training, publications etc.) to support the vehicles at In Service Date.

1b. Associated projects

Critical to Achievement of ISD		**Critical to Initial Gate Requirement**	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Land Systems (Weapons and Vehicles), Newcastle (formerly Vickers Defence Systems)	Demonstration and Manufacture	Firm price	International competition

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	336
Approved Cost at Main Gate	398
Variation	-62
In-year changes	+6

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	7	Technical Factors	Variation in Cost of Capital Charge (COCC) due to re-profiling of costs and deliveries due to programme delays.
March 2006	-2	Accounting Adjustments and Re-definitions	Actual spend in 2004-2005 lower than forecast.
March 2006	-4	Accounting Adjustments and Re-definitions	Departmental Review - Reclassification of element of spares costs to consumables.
February 2006	2	Changed Requirement	Increased cost of Bowman integration.
February 2006	-1	Contracting Process	Under spend against Support & Test Equipment provision
January 2006	-1	Contracting Process	Departmental Review - Deletion of requirement to convert prototype vehicles.
August 2005	+5	Changed Requirement	Variation in forecast costs through Bowman associated delays (+£4m), subsequent contract amendment (+£1m).
Historic	-18	Accounting Adjustments and Redefinitions	Variation in COCC due to re-profiling of costs and deliveries.
Historic	-50	Risk Differential	Difference between the risk allowed for in the lost likely (50%) and the highest acceptable (90%) estimates at Main Gate. Includes subsequent recalculation of approval figures for change in Cost of Capital rate to 3.5%.
Net Variation	-62		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	258

2d. Years of peak procurement expenditure

2003/2004	2005/2006

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	**Current**	**at Main Gate**	**Current**
3.278	3.020	66	66

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	A total of 12 (6 TROJAN, 6 TITAN) delivered, and supportable, to Army Training and Recruitment Agency and Headquarters Land.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	October 2006
Approved ISD at Main Gate	December 2006
Variation (Months)	-2
In-year changes	+5

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
June 2005	+5	Contracting Process	This is the result of further delays in the Bowman integration process which has impacted on production build timescales.
Historic	+2	Contracting Process	Driven by production delays, and continuing Bowman delays.
Historic	+5	Changed Requirement	Independent risk assessment of delays due to Bowman (+£3m). Forecast revised due to decision to fit Bowman and manufacturing problems as assessed by independent risk assessor (+£2m).
January 2001	-14	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate.
Net Variation	-2		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Technical Factors	1	-	Additional costs of running on in service vehicles by Tank Systems Support IPT.
Technical Factors	4	-	Claim submitted by BAE Systems in respect of Bowman delays. Value to be written off in Financial Year 2005/2006.
Total	+5		

3e. Operational impact of ISD variation

It is confirmed there has been no operational impact due to ISD delay.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	The TROJAN user shall be able to clear vehicle based obstacles from routes.	Yes	-	-
02	The TROJAN user shall be able to clear ditch and spoil bank obstacles from route.s	Yes	-	-
03	The TROJAN user shall be able to open safe lanes through enhanced pattern minefields, in order to permit the passage of Armoured and Mechanised Fighting echelons.	Yes	-	-
04	The TROJAN user shall be able to open safe routes across dry gaps of up to 7m across and 2m in depth.	Yes	-	-
05	The TITAN user shall be able to open safe routes over gaps of up to 60m.	Yes	-	-
06	The user of TROJAN and TITAN shall be afforded levels of mine protection at least as high as the in-service Main Battle Tank.	Yes	-	-
07	The user of TROJAN and TITAN shall be able to keep station tactically with CR2 equipped Armoured and Mechanised formations in the direct and indirect fire zones.	Yes	-	-
08	The user of TROJAN and TITAN requires an operational availability of 95% for a 30 day operating period in the warfighting role.	Yes	-	-
09	The user of TROJAN and TITAN shall be able to maintain the required capability in climatic category A1.	Yes	-	-
10	TITAN shall be able to launch and recover bridges whilst fitted with Track Width Mineplough.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
-	-	-	-

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Requirements were endorsed in May 1996 approving a future Armoured Vehicle Royal Engineer (AVRE) and a future Armoured Vehicle Launcher Bridge (AVLB) against an in-service date of 2001 with funding of £2.6m for a study. The estimated procurement costs were £117.5m.

The Strategic Defence Review (SDR) process and the entry into the competition of the Polish company OBRUM delayed the programme. In July 1998, the Equipment Approvals Committee endorsed a revised maximum cost of £8.5m for the next phase, and moved the in-service date to April 2006. Contracts, to include competitive bids for demonstration and manufacture, were then let to Vickers Defence Systems (VDS), Alvis and OBRUM. When the studies concluded in February 2000 the results offered a wide variety of potential solutions including the conversion of Challenger 1 tanks; new vehicles; modified Challenger 2 vehicles and "off the shelf" Polish engineer tanks with various levels of modification. It was concluded that VDS were offering the most cost effective solution with clear technical and scheduling advantages. VDS were announced as the preferred bidder in August 2000 and Main Gate approval was gained in January 2001.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	8	2.3%
Approved Cost at Initial Gate	3	0.9%
Variation	+5	

5c. Duration of Assessment Phase

Date of Main Gate Approval	January 2001
Date of Initial Gate Approval	May 1996
Length of Assessment Phase [months]	56

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	348	398
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	103

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	October 2005	December 2006
Envelope within which capability was expected to be available at Initial Gate	-	-	December 2001

POST MAIN GATE PROJECT SUMMARY SHEET

TYPHOON

Integrated Project Team Responsible:

TYPHOON

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

Typhoon, formerly known as Eurofighter, is an agile multi-role combat aircraft. Originally designed for air superiority the aircraft will also be capable of delivering a precision ground attack capability. Typhoon will have the flexibility to respond to the uncertain demands of the current strategic environment and will enable the Royal Air Force to replace progressively the Tornado F3 and Jaguar aircraft.

The aircraft is being developed in a collaborative project with Germany, Italy and Spain, and is managed on behalf of the nations by the NATO Eurofighter and Tornado Management Agency (NETMA). The contract for the first tranche of 148 aircraft, of which 55 valued at some £2.5bn are for the United Kingdom, was signed in September 1998. The second Tranche comprising 236 aircraft, 89 of which are for the United Kingdom, was placed on contract in December 2004. A decision on the third tranche of 232 aircraft (88 for the UK) is not required before at least 2007. The estimated current cost of Typhoon was classified in MPR05 and remains so in MPR06, in order to protect the UK's ability to negotiate for subsequent buys of the aircraft.

The In Service Date (ISD) of June 2003, forecast in MPR03, was achieved. Deliveries of the aircraft to the RAF are continuing to make good progress and the first Typhoon Wing at RAF Coningsby was inaugurated in July 2005. This has been followed by the formation of the first operational squadron, No.3 (Fighter) Squadron, on 31 March 2006.

The Air Forces of the four Partner Nations are in the process of evaluating, training and converting to this aircraft type. This will allow this adaptable weapons system to be fully integrated into their respective force structures. The first in-service firings of Advanced Short Range Air to Air Missile (ASRAAM) on Typhoon took place in May 2005 and the RAF successfully deployed Typhoon to the United States for trials work, including the firing of Advanced Medium Range Air to Air Missile (AMRAAM) in late 2005.

Potential export customers have been identified and the Department (in conjunction with the Typhoon Partner Nations and industry) is supporting a number of export campaigns.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
Eurofighter GmbH Airframe consortium comprising: Alenia BAE Systems EADS(CASA) EADS(Deutschland) Eurojet Turbo GmbH Engine consortium comprising: AVIO (formerly FIAT ITP), MTU, Rolls Royce	Development	Fixed Price for Airframe and equipments and Target Cost Incentive Arrangement for Aircraft Equipment Integration. Following a breach of the Limit of Contractor Liability provisions the UK price element was converted to a Limit of Liability cost reimbursement without profit in December 2004. Fixed Price.	Non-competitive but with international sub-contract competitive elements, the value of which amounts to some 30% of the overall value of the Prime Contract. Non-competitive but with international sub-contract competitive elements, the value of which amounts to some 10% of overall value of the Prime Contract.
Eurofighter GmbH Airframe consortium (see details under development above).	Production Investment/ Production	Overall Maximum Prices for Production Investment and Production of Airframes for all 232 UK Aircraft (Fixed prices for production of 1st and 2nd Tranche Airframe). Fixed Prices for all Production Investment and Production of Aircraft Equipment.	Non-competitive but with international sub-contract competitive elements, the value of which amounts to some 30% of the overall value of the Prime Contract.
Eurojet Turbo GmbH Engine consortium (see details under development above).	Production Investment/ Production	Overall Maximum Prices for Production Investment and Production of Engines for all 232 UK aircraft. Fixed prices for Tranche 1 Engine Production Investment and Production.	Non-competitive but with International sub-contract competitive elements, the value of which amounts to some 10% of the overall value of the Prime Contract.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	***
Approved Cost at Main Gate	16671
Variation	***
In-year changes	***

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	***	Technical Factors	Variation in Cost of Capital charge (COCC) due to reprofiling of consumption and delivery.
March 2006	***	Technical Factors	Correction of omission of transferred cost in MPR05 calculation.
March 2006	***	Contracting Process	Industry restructuring.
Historic	***	Changed Requirement	Removal of provision for new weapons and Tranche 1 to Tranche 2 retrofit to create separate Typhoon future capability project (FCP); subject to approval by Investment Approvals Board ***. Separation of Tranche 3 ***.
Historic	+1506	Technical Factors	Higher than expected Development costs, notably for equipments (+£316m). Obsolescence costs resulting from rapid changes in computer hardware technology (+£33m). Increases in the estimated cost of enhancing the weapons system operational capabilities (+£140m). Additional COCC plus further price variation due to slippage in the programme (+£610m). Reassessment of the cost of developing aircraft Enhanced Operational Capability and the production of Tranches 2 & 3 aircraft (most notably the reduced scope for savings due to learning curve efficiency gains) (+£320m). Slower than expected technical progress reducing asset balances thereby reducing COCC (-£45m). 9 nine month deferral of beneficial use date (+£132m COCC).
Historic	+290	Changed Requirement	Provision for integration of new weapons and sensors not contained within original approval (includes Conventionally Armed Stand-Off Missile (CASOM), Advanced Anti-Armour Weapon (AAAW), Low-

Date	Variation (£m)	Factor	Explanation
			Level Laser Guided Bomb (LLLGB), thermal imaging airborne laser designator (+£239m) & the retrofit of Tranche 1 aircraft to Tranche 2 standard (+£117m). Deletion of requirements for gun (-£32m),1500L fuel tank (-£16m), CRV7 Rocket (-£2m) & Air Launched Anti Radiation Missile (-£21m). CASOM integration assets (+£5m).
Historic	-13	Changed Budgetary Priorities	Reprofiling of expenditure, reducing asset balances and thereby reducing COCC (-£5m). Transfers to other budgets (-£8m).
Historic	-103	Inflation	Variation in inflation assumptions since approval: development (+£205m) and production (-£308m).
Historic	-114	Exchange Rate	Variation in exchange rate assumptions since approval (-£114m).
Historic	-52	Contracting Process	Reprofiling and adjustment of anticipated Tranches 2 and 3 Airframe, Equipment and Engine prices (+£103m). Introduction of benefits to be assumed from planned implementation of SMART Procurement processes (-£165m). Reassessment of the cost and timing of integrating new weapons (+£5m). Increased estimates for QinetiQ/DSTL test facilities in support of the development trials programme (+£5m).
Historic	+413	Procurement Strategy	German withdrawal from certain equipments (+£106m). <u>Reorientation</u> Development Assurance Programme (DAP) to bridge gap between Development and Production Investment (+£28m); extension of Integrated Logistic Support (ILS) programme (+£45m); Eurofighter/Eurojet GmbH management costs (+£30m); contract price increases (+£87m); risk provision (+£117m).
Historic	+416	Accounting Adjustments & Redefinitions	Changes in accounting rules (inclusion of intramural costs) (+£275m); transfer costs of industrial consortia management activities from production phase to support phase (-£218m); derivation of approved cost on a resource basis (+£202m). Variations in

Date	Variation (£m)	Factor	Explanation
			COCC resulting from changes in accounting treatment of the delivery of assets (+£27m). A redefinition of Beneficial Use of Typhoon has resulted in the DPA incurring additional one years' COCC on development expenditure (+£222m). Difference in variation figures due to revision of COCC(£92m).
Net Variation	***		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	10583

2d. Years of peak procurement expenditure

2007/2008	2008/2009

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
-	66.7*	232	232

*The UPC is based on the costs for Tranche 1 and 2 aircraft only. Tranche 3 aircraft will be the subject of a separate negotiation and contract with industry.

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	Date of Delivery of first aircraft to the Royal Air Force

3b. Performance against approved in-service date

	Date
Current Forecast ISD	June 2003
Approved ISD at Main Gate	December 1998
Variation (Months)	+54
In-year changes	0

3c. Reasons for variation from approved ISD

Date	**Variation (months)**	**Factor**	**Explanation**
Historic	+32	Technical Factors	Resulting from the application of complex technologies required to enable the equipment to meet the original Staff Requirement (+32 months).
Historic	+22	Procurement Strategy	Reorientation of the Development phase in response to the changed strategic environment and budgetary pressures of the four nations and delays in signature of the Memoranda of Understanding for the Production and Support phases (+22 months).
Net Variation	+54		

3d. Cost resulting from ISD variation

Type of Cost/Saving	**Cost £m**	**Saving £m**	**Explanation**
Support costs of current equipment	1075	-	Cost of running on Tornado and Jaguar.
Other	-	861	Estimated support costs for Typhoon not incurred.
Total	+214		

3e. Operational impact of ISD variation

Key improvements in capability not realised until revised ISD are:

i) Agility and all altitude performance;
ii) Autonomous detection, identification and multiple engagement of air to air targets;
iii) Human computer interface to reduce operator workload;
iv) Multi role capability;
v) Survivability through superior airframe and equipment performance;
vi) Low mean time between failure.

The 54 month delay has been mitigated to a small extent by compressing the entry into service period, but the net effect is a delay of 4 years.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	Take off Distance.	Yes	-	-
02	Landing Distance.	-	-	Yes
03	Attributable Failures per 1000 Flying Hours.	Yes	-	-
04	Life (Flying Hours).	Yes	-	-
05	Sustained Minimum Turn Radii at Sea Level, Maximum Reheat.	Yes	-	-
06	Maximum speed at sea level.	Yes	-	-
07	Maximum speed at 36,000 ft.	Yes	Yes	-
08	Acceleration Time at Sea level from 200 knots to Mach 0.9.	Yes	-	-
09	Instantaneous Turn Rate Sea Level, Maximum Reheat.	Yes	-	-
10	Sustained Turn Rate at Mach 0.9 at 5000ft, Maximum Dry.	Yes	-	-
Percentage currently forecast to be met		90%		
In-Year Change		0		

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
October 2005	KUR 07	Technical Factors	Industry flight trials to extend the aircraft performance envelope have identified an acoustic vibration within the engine intake which is causing the intake to resonate at very high speeds. This has potential long term fatigue implications which will need to be investigated by Eurofighter GmbH as part of the main development contract.
Historic	KUR 02	Technical Factors	Refined modelling carried out to support the 1994 reorientation submission indicated that in the most adverse conditions the specified landing distance would not be achieved – this was accepted by the Equipment Approvals Committee.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

Pre-Development, which commenced with the approval of the feasibility study in 1984, comprised a number of activities. Following early concept studies, and various efforts at establishing a collaborative programme, there were two key Typhoon demonstration activities completed by the UK before development: the Experimental Aircraft Programme (EAP), an airframe programme primarily aimed at proving the feasibility of the Typhoon unstable flight control concepts, and the XG40 engine demonstrator programme at Rolls Royce. The results of these demonstrators and their associated studies, together with the results of similar work within the other Nations were harmonised in a Definition, Refinement and Risk Reduction phase that ran from the end of 1985 when four Nations signed the initial Memorandum of Understanding, until 1988 when the development contract was signed.

5b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	78	0.4%
Approved Cost at Initial Gate	87	0.5%
Variation	-9	

5c. Duration of Assessment Phase

Date of Main Gate Approval	November 1987
Date of Initial Gate Approval	-
Length of Assessment Phase [months]	-

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	16671	-
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	-

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	December 1998	-
Envelope within which capability was expected to be available at Initial Gate	-	-	-

POST MAIN GATE PROJECT SUMMARY SHEET

T45 DESTROYER

Integrated Project Team Responsible:

TYPE 45 DESTROYER

Single Point of Accountability for project capability:

Director of Equipment Capability (Above Water Effect)

SECTION 1: ABOUT THE PROJECT

1a. Project description, progress and key future events

The Type 45 is a new class of eight* Anti-Air Warfare Destroyers, to replace the capability provided by the Royal Navy's existing Type 42s. The warship is being procured nationally. The Type 45 will carry the Principal Anti-Air Missile System (PAAMS) which is capable of protecting the vessels and ships in their company against aircraft and missiles, satisfying the Fleet's need for area air defence capability into the 2030s. PAAMS is being procured collaboratively with France and Italy. The Type 45 Integrated Project Team is responsible for providing PAAMS to the warship Prime Contractor.

BAE Systems Electronics was appointed Prime Contractor for the Type 45 in November 1999 and a contract for Demonstration and First of Class Manufacture (DFM) for the first three ships was placed in December 2000. A contract procurement of a further three Type 45s was placed with the Prime Contractor in February 2002. The ships are being built under sub-contract by BAE Systems Naval Ships and VT Shipbuilding.

The past year has seen significant progress in the manufacture of the first three ships. The first ship, HMS Daring, was launched February 2006 and during the course of the next year will be fitted with most of her equipment ahead of her first sea trials in 2007. The second, HMS Dauntless, and third, HMS Diamond, ships are on schedule. Main manufacture of the fourth ship, HMS Dragon, starts during 2006. On the PAAMS programme, the Sampson Multi-Function Radar has demonstrated its ability to track targets; a production standard Long Range Radar is in operation at the Type 45 shore integration facility; and the Aster missile development programme is nearing completion following a number of successful firings during 2005.

* The Type 45 is a planned class of eight ships. Approval has, so far, only been given for six ships. It is on the Approval of six ships that the Major Projects Report is presented.

1b. Associated projects

Critical to Achievement of ISD		Critical to Initial Gate Requirement	
Project Title	Forecast ISD	Project Title	Forecast ISD
-	-	-	-

1c. Procurement strategy

Contractor(s)	Contract Scope	Contract Type	Procurement Route
BAE Systems Electronics Ltd Farnborough	Full development and production	Fixed price incentive fee with a maximum price	Single source
EUROPAAMS	Full scale engineering development and initial production including missiles for initial use.	Fixed price	Collaborative with France and Italy
EUROPAAMS	Follow-on ships production	Fixed price for five follow-on equipments.	Collaborative with France and Italy
EUROSAM & UKAMS*	Production of missiles.	Fixed price.	Collaborative with France and Italy through OCCAR.

SECTION 2: PROJECT COSTS

2a. Performance against approved cost

£m (outturn prices)	Procurement Cost
Current Forecast Cost	6110
Approved Cost at Main Gate	5475
Variation	+635†
In-year changes	+157

2b. Reasons for variation from approved cost

Date	Variation (£m)	Factor	Explanation
March 2006	-9	Accounting Adjustments and Re-definitions	Reduction in COCC (-£9m) due to lower than expected cash expenditure in 2005/2006 (closing accrual higher than estimated).
September 2005	-36	Accounting Adjustments and Redefinitions	Transfer to MTS (-£35m) and associated Cost of Capital charge (COCC) (-£1m).
July 2005	+202	Contracting Process	Estimated increase in ship build cost (+£184m) and associated COCC (+£18m).
Historic	+57	Contracting Process	Costs omitted from EP05 and MPR05 relating to increase in ship build cost (+£52m) and associated COCC (£5m).
Historic	+36	Technical Factors	Issues arising from migrating from Skynet 4 to Skynet 5 and to

*UKAMS is a wholly owned company of MBDA.

†The variation takes into account an adjustment of the current forecast cost in MPR05. This adjustment reflects the availability of more accurate figures.

Date	Variation (£m)	Factor	Explanation
			implement system growth (+£3m). Variation in COCC resulting from In Service Date slippage (+£33m).
Historic	-8	Changed Budgetary Priorities	A combination of Equipment Plan Options plus internal adjustments, and COCC. The Options were: re-profiling of the contract for demonstration and manufacture (approved six-ship programme); re-profiling of the (planned) twelve ship programme; reducing the scope of the PAAMS missile buy and costs of shipbuilders' premium (+£91m). Increases to the PAAMS contract and additional funding and increases in delay and dislocation money (+£177m). Incremental Acquisition Programme (IAP) re-profiling and IAP upgrade deleted (-£238m). Equipment Plan Options re-profiling costs for ships five and six and deferring ships seven and eight (+£2m) and the associated COCC (+£12m). Correction to forecast: costs wrongly attributed to ships seven & eight (+£26m). PAAMS increased cost of Longbow mooring (+£4m). COCC associated with estimated cost growth of ship Batch 2 reported at MPR04 (+£54m). COCC relating to PAAMS increased cost (exchange rate) and re-profiling (+£10m). Savings in ships capability (performance) to bring costs back to EP05 baseline; Combat Systems risk provision (-£60m), Whole Life Support (support solution study) (-£21m) and IAP (-£64m). Revised estimate of WR21 engine concept/assessment phase (-£1m).
Historic	+739	Contracting Process	Higher than expected costs for PAAMS Production Equipment (+£124m). Corrections to Warship costs (+£13m). Expected increase in costs of elements of Batch 2 ships which are yet to be negotiated (+£250m). Corrections and adjustments to forecast costs (+£97m). PAAMS missiles re-instated (+£173m). Variation in COCC due to corrections to PAAMS (+£82m).
Historic	+55	Exchange Rate	£ to € rate worse than originally forecast (+£47m). PAAMS exchange rate (impact of rate at

Date	Variation (£m)	Factor	Explanation
			EP05) (+£8m).
Historic	+74	Accounting Adjustments and Re-definitions	Difference in variation figures due to revision of COCC (-£24m). Adjustment to previous years COCC due to system error (+£98m).
Historic	-475	Risk Differential	Difference between the risk allowed for in the most likely (50%) and highest acceptable (90%) estimates at Main Gate (-£506m). Increase in risk due to re-calculation of COCC (+£31m).
Net Variation	+635		

2c. Expenditure to date

Expenditure to 31 March 2006 (£m)	2853

2d. Years of peak procurement expenditure

2006/2007	2007/2008

2e. Unit production cost

Unit Production Cost (£m)		Quantities Required	
at Main Gate	Current	at Main Gate	Current
582	595.8	6	6

SECTION 3: PROJECT TIMESCALE

3a. Definition of in-service date

ISD Definition:	The date to which the First of Class will meet the Customer's minimum operational requirement.

3b. Performance against approved in-service date

	Date
Current Forecast ISD	December 2009
Approved ISD at Main Gate	November 2007
Variation (Months)	+25
In-year changes	+7

3c. Reasons for variation from approved ISD

Date	Variation (months)	Factor	Explanation
February 2006	-1	Technical Factors	Refinement of timescale risk analysis shows that there are a number of opportunities in the programme which support a most likely date of December 2009. Principal among these is the opportunity for parallel working that is not yet fully exploited within industry's plan and the potential to use the second ship to demonstrate elements of First of Class capability.
January 2006	+3	Technical Factors	Impact of slippage to SAMPSON programme and measures taken to mitigate the full impact of that delay.
October 2005	+2	Technical Factors	Assessment based on full timescale risk analysis (conducted jointly with BAE Systems) which gave a most likely date of March 2010, based on baseline programme. Agreement reached with company and Customer 1, however, on how Stage 2 trials programme can be de-scoped thereby giving a most likely date of October 2009.
August 2005	+3	Technical Factors	Latest assessment based on timescale risk analysis of most up to date programme reflecting de-scoping of trials programme.
Historic	+24	Procurement Strategy	Longer than expected design phase plus an acknowledgement that a number of other factors which had impacted earlier in the programme had injected unrecoverable delay. These factors were principally related to delays in agreeing the original industrial strategy; problems associated with managing parallel

Date	Variation (months)	Factor	Explanation
			and dependant development programmes and a better understanding of the programme to deliver ISD. (MPR02 +6 months; MPR04 +18 months).
July 2000	-6	Risk Differential	Difference between the risk allowed for in the most likely (50%) and the highest acceptable (90%) estimates at Main Gate (-6 months).
Net Variation	+25		

3d. Cost resulting from ISD variation

Type of Cost/Saving	Cost £m	Saving £m	Explanation
Incremental	1	-	Additional maintenance periods required to run-on one T42 Destroyer for 7 months.
Historic	196	-	Additional T42 run-on costs due to T45 slippage.
Total	+197		

3e. Operational impact of ISD variation

Delay in ISD further extends the period before a capability to defeat multiple attack by sea-skimming missiles will be available, as well as the capability for Royal Navy escorts to provide tactical control of combat aircraft.

SECTION 4: KEY USER REQUIREMENTS

4a. Performance against approved key user requirements

Serial	Key Requirement	Forecast to be Met	At Risk	Not to be Met
01	PAAMS. The T45 shall be able to protect with a Probability of Escaping Hit of {x}[*4], all units operating within a radius of 6.5km, against up to 8 supersonic sea skimming missiles arriving randomly within {y}† seconds.	Yes	-	-
02	Force Anti-Air Warfare Situational Awareness. The T45 shall be able to assess the Air Warfare Tactical Situation of 1000 air real world objects against a total arrival and/or departure rate of 500 air real world objects per hour.	Yes	Yes	-
03	Aircraft Control. The T45 shall be able to provide close tactical control to at least 4 fixed wing aircraft, or 4 groups of aircraft in single speaking units, assigned to the force.	Yes	Yes	-
04	Aircraft Operation. The T45 shall be able to operate both one organic Merlin (Anti-Submarine Warfare and Utility variants) and one organic Lynx Mk8 helicopter, although not simultaneously.	Yes	Yes	-
05	Embarked Military Force. The T45 shall be able to operate an Embarked Military Force of at least 30 deployable troops.	Yes	-	-
06	Naval Diplomacy. The T45 shall be able to coerce potential adversaries into compliance with the wishes of Her Majesty's Government or the wider international community through the presence of a Medium Calibre Gun System of at least 114mm.	Yes	-	-
07	Range. The T45 shall be able to transit at least 3000 nautical miles to its assigned mission, operate for 3 days and return to point of origin, unsupported throughout, within 20 days.	Yes	-	-
08	Growth Potential. The T45 capability shall be able to be upgraded to incorporate new capabilities or to enhance extant capabilities through displacement margins of at least 11.5%.	Yes	-	-
09	Availability. The T45 shall have a 70% availability to contribute to Maritime Operations over a period of at least 25 years, of which at least 35% shall be spent at sea.	Yes	-	-
Percentage currently forecast to be met		100 %		
In-Year Change		0		

* Values are classified

† Values are classified

4b. Reasons for variation against approved key requirements

Date	Key Requirement	Factor	Explanation
February 2006	KUR 02	Changed Budgetary Priorities	Revised programme to achieve earliest possible ISD leads to a lower level of CMS functionality at ISD.
February 2006	KUR 03	Changed Budgetary Priorities	Revised programme to achieve earliest possible ISD leads to a lower level of CMS functionality at ISD.
August 2005	KUR 04	Technical Factors	Ability to operate Lynx but not Merlin will be demonstrated by Full Operating Capability ISD. Merlin will be demonstrated beyond ISD.

SECTION 5: HISTORY UP TO MAIN GATE APPROVAL

5a. Description of the Assessment Phase

The Type 45 Destroyer programme builds on the Assessment work carried out in Phase 1 of the collaborative HORIZON project, the warship element of the Common New Generation Frigate programme. Following the decision of the three HORIZON partners (France, Italy and the United Kingdom) to proceed with PAAMS, but to pursue national warship programmes, BAE Systems was appointed Prime Contractor for the Type 45 in November 1999. The contract for PAAMS Full Scale Engineering Development and Initial Production was placed in August 1999. Main Gate approval for the warship was achieved in July 2000 and a contract for Demonstration and First of Class Manufacture was placed in December 2000.

5b. Cost of the Assessment Phase*

£m (outturn prices)	Assessment Phase cost	Proportion of total estimated procurement expenditure
Actual Cost	232	3.7%
Approved Cost at Initial Gate	213	3.4%
Variation	+19	

5c. Duration of Assessment Phase

Date of Main Gate Approval	July 2000
Date of Initial Gate Approval	July 1991†
Length of Assessment Phase [months]	108‡

* The Assessment Phase Costs approved at initial Gate did not take into account that all expenditure on the WR21 engine was to be treated as Assessment Costs rather than Manufacturing Costs

† T45 Destroyer is a legacy project that drew upon concept work of Project Horizon and Future Frigate. T45 did not formally go through Initial Gate, but for MPR2000, the NAO agreed that EP11/91 should be equated as Initial Gate for T45.

‡ This aligns with the derived date for Initial Gate above. T45 is a legacy project building on the Assessment work carried out in phase 1 of the collaborative Horizon project.

5d. Cost boundaries at Initial Gate and Main Gate Approvals

£m (outturn prices)	Lowest	Budgeted For	Highest
Cost of Demonstration and Manufacture Phase forecast at Main Gate	-	5000	5475
Expected envelope of costs to support Demonstration and Manufacture Phase at Initial Gate	-	-	7689

5e. ISD boundaries at Initial Gate and Main Gate Approvals

	Earliest	Budgeted For	Latest Acceptable
Forecast ISD at Main Gate	-	May 2007	November 2007
Envelope within which capability was expected to be available at Initial Gate	-	-	December 2002

THIS PAGE IS INTENTIONALLY BLANK

PRE-MAIN GATE PROJECT SUMMARY SHEET

ADVANCED JET TRAINER (AJT)

Integrated Project Team Responsible:

UNITED KINGDOM MILITARY FLYING TRAINING SYSTEM

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

Senior Responsible Owner for broader capability:

Capability Manager Precision Attack

SECTION 1: ABOUT THE REQUIREMENT

The MOD requires an Advanced Jet Trainer (AJT) for pre-operational training of fast-jet aircrew. This task is currently fulfilled by the Hawk TMk1 aircraft, which will need to be replaced in the flying training role from 2010 onwards. The full range of skills required for aircrew to fly front-line aircraft cannot now be gained using the current Advanced Jet Trainer, so more training on operational aircraft has to be undertaken. The introduction of Typhoon and the future Joint Combat Aircraft exacerbates this training gap such that the required standard for Typhoon aircrew is not achievable with Hawk TMk1.

The AJT is the Fast Jet element of the wider United Kingdom Military Flying Training System (UKMFTS) programme and will deliver capabilities including: a modern glass cockpit environment, an avionics suite compliant with latest airspace legislation, an embedded training system that simulates front-line sensors and weapons and a flexible and upgradeable mission system. Support, Infrastructure and a Ground Based Training Environment will also be provided. AJT will be contracted for in such a way as to ensure that it can be subsumed within the main UKMFTS contract at a later date.

Initial planning was for 20 aircraft with options up to a total of 44. The current plan assumes a baseline capability requirement of 28 aircraft.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made i.e. Main Gate approval. Until this point, all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

At Initial Gate (December 2002) AJT was a component of UKMFTS. Within the £39m approved for UKMFTS assessment, £2m related to AJT and a Private Finance Initiative (PFI) approach was assumed. In July 2003 a Ministerial Direction was given to conventionally procure Hawk 128 from BAE Systems. In December 2003 a £31m Risk Reduction Contract (RRC) was placed with BAE Systems to cover risk reduction activities to October 2003. In November 2004, approval was given for a combined Assessment & Development Phase based on an incremental approach at a Not To Exceed price of £196m and a Not To Exceed completion date of August 2008; the Assessment Phase element of this approval was around £75m. A Design and Development Contract was let to BAE Systems in December 2004. Main Gate approval is expected later this year. This approval will set the aircraft build standard, definition of In-Service Date, Key System Requirements and aircraft numbers.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	73
Approved Cost at Initial Gate	75
Variation	-2

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***
This project will provide the MoD with an Advanced Jet Trainer (AJT) for pre-operational training of fast jet aircrew, replacing the Hawk TMk1 aircraft, which is now approaching the end of its operational life.		

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

FALCON

Integrated Project Team Responsible:

THEATRE AND FORMATION COMMUNICATIONS SYSTEMS (TFCS)

Single Point of Accountability for project capability:

Director Equipment Capability (Command, Control & Information Infrastructure)

SECTION 1: ABOUT THE REQUIREMENT

Falcon will provide a tactical formation level secure communications system for the UK and the Allied Rapid Reaction Corps (ARRC) and will replace the current communications systems Ptarmigan, Euromux and the Royal Air Force Transportable Telecommunications System.

Falcon will enable High Readiness Force (Land) (HRF(L)) units to be deployed rapidly to areas of crisis, allowing the UK to remain a pivotal member of the ARRC. It will provide the comprehensive and effective communications systems that are needed at all levels of command and will operate in conjunction with systems such as Bowman, Cormorant, Skynet 5 and with allies' communications and information systems. It will not duplicate the capability of existing systems, but will be the high capacity system that binds together tactical communications in a theatre of operation as an integral part of the plans for Network Enabled Capability (NEC). The system will be modular and upgradeable, incorporating much off the shelf technology that will ease management of obsolescence throughout its service life. Falcon will require significantly less manpower to operate and will help alleviate shortfalls in manning, particularly in the Royal Signals trade group.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

Increment A of the Falcon programme gained Initial Gate (IG) approval in July 2002, following an extended Concept Phase that considered two key options: buy off the shelf technology (Bowman and Cormorant); and buy new capability. It was concluded that a new capability was required.

Marconi Selenia and BAE Systems (now Insyte) were selected for the 15 month Assessment Phase (AP) contract and to compete for the Demonstration and Manufacture (D&M) Phase prime contract for Increment A. The AP contracts concentrated on reducing the risk in the proposals for the D&M phase, including demonstration of components and subsystems to achieve an acceptable, affordable, low risk

solution. In addition, Whole Life Cost estimates were refined. Bidders' proposals for the D&M phase were submitted on 31 March 2004.

The procurement strategy endorsed at IG comprised four increments: Increment A provided for HRF(L) and the ARRC; Increment B for UK divisions and brigades under armour; Increment C for RAF deployed operational bases; and Increment D for littoral warfare and deep support, including higher mobility. Increment D remains an unfunded aspiration.

During the later stages of the AP in 2004/2005, a savings option removed funding from the first two years of the D&M phase, resulting in a review of the incremental procurement strategy. Two options were considered. The first was for a single programme that effectively would have combined all three funded increments. This would have necessitated the project returning to pre-IG status and delayed the In Service Date by up to 4 years. This option was adopted as the planning assumption and reflected in MPR 2005. The second option was for the delivery of "early capability" that would provide for one medium scale deployment by 2010. It would utilise the savings option funding profile and exploit the existing contractor bids for Increment A. This option was explored and found to be viable.

In July 2005, approval was given to the further in-depth exploration of the second option and the selection of BAE Systems Insyte as the preferred bidder for Falcon Increment A. A programme was developed in conjunction with the preferred bidder that was affordable within the available funding.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	31
Approved Cost at Initial Gate	30
Variation	+1

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***

Falcon will provide a tactical formation level secure communications system for the UK and the Allied Rapid Reaction Corps (ARRC) and will incrementally replace the current communications systems Ptarmigan, Euromux and the RAF Transportable Telecommunications System over the timeframe 2010 to 2014. FALCON will provide the comprehensive and effective communications systems that are needed at all levels of command and will operate in conjunction with systems such as Bowman, Cormorant, Skynet 5 and with allies' communications and information systems. FALCON will be a high capacity system that binds together tactical communications in a theatre of operation as an integral part of the plans for Network Enabled Capability (NEC). The system will be modular and upgradeable, incorporating much off the shelf technology that will ease management of obsolescence throughout its service life. Falcon will require significantly less manpower to operate and will help alleviate shortfalls in manning.

A Main Gate Business Case was approved by the Investment Approvals Board on 28 March 2006 with a D&M phase Contract signed with BAE Systems Insyte on 30 March 2006.

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

FUTURE AIRCRAFT CARRIER (CVF)

Integrated Project Team Responsible:

CVF

Single Point of Accountability for project capability:

Director Equipment Capability (Above Water Effect)

Senior Responsible Owner for broader capability:

Carrier Strike Senior Responsible Owner

SECTION 1: ABOUT THE REQUIREMENT

The requirement for the Future Aircraft Carrier (CVF) was endorsed in the Strategic Defence Review (SDR) which identified a continuing need for rapidly deployable forces with the reach and self-sufficiency to act independently of host-nation support. The SDR concluded that the ability to deploy offensive air power would be central to future force projection operations, with carriers able to operate the largest possible range of aircraft in the widest possible range of roles. The current Invincible Class of carriers was designed for Cold War anti-submarine warfare operations. With helicopters and a limited air-defence capability provided by a relatively small number of embarked Sea Harriers, it was judged that this capability would no longer meet future United Kingdom requirements. It was therefore decided to replace the Invincible Class with two larger and more capable aircraft carriers. CVF's offensive air power will be provided primarily by the Future Joint Combat Aircraft (JCA). The Carrier Aircraft Group (CAG) will also operate the Maritime Airborne Surveillance and Control (MASC) system together with helicopters from all three Services in a variety of roles that include anti-submarine/anti-surface warfare, attack and support.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

CVF received Initial Gate approval in December 1998 and Invitations to Tender were issued in January 1999. Following tender evaluation, competitive firm price contracts for the Assessment Phase, each potentially worth some £30m, were awarded to BAE Systems and Thales UK in November 1999. Initially, the Assessment Phase was broken down into two stages. The first involved the examination of several carrier designs, and helped inform the decision in January 2001 to select the United States Joint Strike Fighter (JSF) as the option with best potential to meet the JCA requirement. Stage 1 completed in June 2001, following which proposals from the contractors for Stage 2 were considered,

together with an assessment of their views on the level of work needed to adequately de-risk the programme. After careful consideration, the conclusion was reached that the original two-stage approach no longer offered value for money and the Assessment Phase strategy was changed.
The competitive second stage was revised and shortened (completing in November 2002) and enabled the competing contractors to concentrate on refining their designs and taking key trade-off decisions. An innovative Continuous Assessment (CA) process was used throughout to evaluate the contractors' performance which led to the conclusion that an alliance approach involving BAE Systems, Thales UK and the Department represented the best approach to CVF. The innovative Alliance procurement strategy will enable the full exploitation of the resources and strengths of the alliance participants with the shared objective of improving on agreed performance targets and was announced in January 2003. A third stage of assessment was therefore taken forward on this basis to further increase the maturity of the design and determine the alliancing strategy for CVF. Stage 3 completed in March 2004.
In July 2004, the Assessment Phase was extended into Stage 4 to further mature the design and carry out risk reduction work, to ensure that the best technical & procurement solution is achieved. Alliancing principles were agreed with BAE Systems and Thales UK and further developed with the selection in February 2005, of Kellogg, Brown & Root UK Ltd as an additional participant in the Alliance. The timescale for completing the design and risk reduction work was further extended in August 2005 (into Stage 5) although this did not result in any additional cost to the programme. The Assessment Phase completed end January 2006 at a total cost of £302m.

Following direction from the Investment Approvals Board, the project has adopted an incremental approach to Main Gate approval with the Demonstration and Manufacture (D&M) phases being divided into two sequential Main Gate approval points. The first phase (demonstration), which included expanding the alliance to include Babcock Engineering Services and VT Shipbuilding, was approved by the IAB and Treasury in December 2005. The total cost of the demonstration phase has been capped at £297m (not to exceed figure). A second and final submission seeking approval for the manufacturing phase will be submitted in late 2006. In March 2006, the UK agreed a Memorandum of Understanding that provides for the supply to France of a common baseline design data pack to enable French industry to bid for the design, manufacture and support of one CVF (France). France will pay an initial entry fee and one third of the relevant costs of the UK demonstration phase in 2006.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	302
Approved Cost at Initial Gate	118
Variation	+184

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***

The Future Aircraft Carrier (CVF) is a key enabling component of carrier strike, capable of delivering the full level of offensive air effort, at medium scale, from the sea. The two CVFs will replace the current in service CVSs, HMSs Ark Royal, Illustrious and Invincible, which have a planned Out of Service Date (OSD) of 2013.

The decision to divide demonstration and manufacture into 2 sequential main approvals was taken to ensure that there is greater certainty on overall time and cost prior to committing to manufacture and to allow for coherency with the Defence Industrial Strategy.

The IAB and Treasury approved the demonstration phase of the project in December 2005, and Main Gate approval for manufacturing will be sought when the data required to support the Business Case is sufficiently mature.

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

THIS PAGE IS INTENTIONALLY BLANK

PRE-MAIN GATE PROJECT SUMMARY SHEET

FUTURE INTEGRATED SOLDIER TECHNOLOGY (FIST)

Integrated Project Team Responsible:

DISMOUNTED CLOSE COMBAT

Single Point of Accountability for project capability:

Director Equipment Capability (Ground Manoeuvre)

SECTION 1: ABOUT THE REQUIREMENT

The Future Integrated Soldier Technology (FIST) programme aims to integrate both current and emerging key technologies that British dismounted soldiers require for them to maintain their position in the forefront of capability. The programme will ensure the future soldier has equipment that optimises effectiveness, reduces physical and psychological load, and minimises the effects of combat stress and the risks of human error.

Historically, soldiers have been equipped in a piecemeal manner. FIST will consider the dismounted soldier as a system, and the eight-man section as the platform. This 'system of systems' approach, demonstrated successfully during the Concept Phase, will fundamentally improve the capabilities of troops engaged in dismounted close combat. FIST will deliver an integrated suite of equipment encompassing the NATO domains of C4I (Command, Control, Communications, Computers and Information), lethality, mobility, survivability and sustainability.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

Initial Gate approval was achieved in August 2001. Four companies submitted tenders for the Assessment Phase (AP) prime contract, and a two-stage selection process was adopted (four to two and two to one). Two companies were de-selected in August 2002, leaving BAE Systems and Thales Defence Ltd to take part in a competitive planning phase between August 2002 and January 2003. The selection of Thales Defence Ltd as the FIST AP prime contractor was announced on 12 March 2003.

The AP prime contract was expected to take 32 months but commitment of troops to operations overseas delayed critical trials planned for Summer 2004, leading to an extension of three months and a cost increase of £2.5m. Problems were encountered on a subsequent major trial held in Autumn 2005,

as some systems proved insufficiently robust to allow adequate data to be collected. Consequently, more time is needed to mature our understanding of the requirement and of the final technical solution. The revised estimate of the cost of the AP has therefore been increased by a further £5m to a total of £33m.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	33
Approved Cost at Initial Gate	26
Variation	+7

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***
The FIST project is intended to provide dismounted soldiers with an integrated suite of equipment that optimises their effectiveness on the battlefield. Soldiers have hitherto been equipped in a piecemeal manner, but FIST will regard the individual soldier as a system. The Main Gate Business Case will be submitted for approval once the work currently being carried out in the AP has reached maturity. The Main Gate Business Case will seek approval for demonstration and production of a range of equipment to deliver the required capability.		

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

FUTURE RAPID EFFECT SYSTEM (FRES)

Picture not available

Integrated Project Team Responsible:

FUTURE RAPID EFFECT SYSTEM

Single Point of Accountability for project capability:

Director Equipment Capability – (Ground Manoeuvre)

Senior Responsible Owner for broader capability:

Capability Manager (Battlespace Manoeuvre)

SECTION 1: ABOUT THE REQUIREMENT

The MOD has outlined a two track approach to meeting its armoured fighting vehicle requirement. In the short term it has an urgent need to upgrade the current fleet. In the longer term it needs to equip United Kingdom Armed Forces with a medium weight capability that would be able to project power world-wide rapidly. FRES is the response to this longer term requirement.

FRES will deliver a new, medium weight armoured vehicle fleet with higher levels of deployability and survivability than the current fleet, with the potential to grow its capability as new technology becomes available. The current planning assumption is to deliver 3,775 vehicles. The original requirement was for 1,757 vehicles but this was increased in 2004 under an equipment programme option when the Total Fleet Requirement had been established.

FRES will be part of a balanced force consisting of heavy, medium and light brigades giving the ability to deploy forces rapidly with higher levels of firepower, protection and mobility than Light Forces can achieve, but with deployability and agility that cannot be achieved by Heavy Forces. The current threat on operations, particularly from rocket propelled grenades, heavy machine guns and mines/improvised explosive devices, has reinforced the need for adequately protected armoured vehicles.
FRES will replace the Army's obsolescent Saxon, FV 430 and CVR(T) vehicles.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

The FRES fleet will encompass 16 battlefield roles that have been grouped together to reflect their technical complexity and priority for entry into service. Each group will have its own Assessment, Demonstration and Manufacture Phase. The initial Assessment Phase (iAP) was approved in April 2004 and will focus primarily on those roles that will make up the Initial Operating Capability (IOC), which is a subset of the full FRES capability. Following a competition, Atkins, an independent Systems

House (SH), was appointed as the industrial lead for this phase in November 2004. Led by the FRES IPT, the SH has been integrated into a team which also includes Defence Science Technology Laboratories and the Equipment Capability Customer. Under the strategic direction of the MOD, the SH will provide objective analysis of the options for meeting the requirement, manage the programme of technical risk reduction work and bring an industrial perspective to the development of the optimum acquisition strategy for future phases.

The analysis of the options for delivering the FRES capability is one of the key strands of work during the iAP. A number of potential fleet options have been drawn up as part of this analysis, including solutions currently available off the shelf, existing development programmes and new start options. The most significant recent milestone was Fleet Review which was successfully completed in December 2005. This review of the candidate solutions produced decisions that will form the basis of the more detailed planning work that will be carried out during the remainder of the iAP. This work will enable the performance, cost, schedule and risks of these options to be fully understood.

The current assumption is that the iAP (which is due to complete in July 2007) will be followed by a competitive Demonstration Phase for the IOC roles that will assess candidate platforms against the requirement. It is also assumed that there will be separate Main Gate investment decisions for the IOC and Specialist roles. Future Assessment and Demonstration Phases will address the requirements of the later, more technically complex roles.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	649*
Approved Cost at Initial Gate	113†
Variation	+536

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***
FRES will deliver a new, medium weight armoured vehicle fleet with higher levels of deployability and survivability than the current fleet, with the potential to grow its capability as new technology becomes available. Detailed analysis of the candidate solutions and acquisition and support strategies will be carried out during the remainder of the iAP. This work will enable the performance, cost, schedule and risks of these options to be fully understood and will inform the main investment decision		

2d. Boundaries of future Demonstration and Manufacture phase costs

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

* Includes the costs of the Assessment Phase for the IOC (Initial Operating Capability) roles and also the Assessment Phase for the Specialist roles.

† Specifically only included approval for the initial Assessment Phase for the IOC roles.

PRE-MAIN GATE PROJECT SUMMARY SHEET

FUTURE STRATEGIC TANKER AIRCRAFT (FSTA)

Integrated Project Team Responsible

FUTURE STRATEGIC TANKER AIRCRAFT

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics & Support)

SECTION 1: ABOUT THE REQUIREMENT

The Future Strategic Tanker Aircraft (FSTA) is planned to replace the air refuelling (AR) and some elements of air transport (AT) capability currently provided by the Royal Air Force's fleet of VC10 and TriStar aircraft. AR is a key military capability that provides force multiplication and operational range enhancement for front line aircraft across a range of Defence roles and military tasks.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

FSTA was nominated as a potential Private Finance Initiative (PFI) project in 1997. An Assessment Phase, designed to confirm whether PFI would offer best value for money, was launched following Initial Gate approval in December 2000.

The Assessment Phase is intended to confirm industry's ability to meet the service requirement, programme timescales and costs. It is also required to determine whether the inclusion of Air Transport capability in the contract will represent value for money, and clarify the manning and personnel implications.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	**30**
Approved Cost at Initial Gate	13
Variation	+17

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***
After a competition and several years of complex PFI negotiations AirTanker Ltd, a consortium comprising EADS, Rolls Royce, Cobham, and Thales were judged to offer the best prospective PFI solution. VT Group joined the consortium shortly after. Following subsequent resolution of key commercial terms, Secretary of State announced on 28 February 2005 that AirTanker Ltd had been selected as Preferred Bidder for FSTA. A final decision on the PFI deal for the FSTA programme can be made only when negotiations are complete, the detailed contract is agreed, and the risks to the programme are fully understood. While the MOD, in consultation with the rest of Government, hopes to complete its assessment soon, further progress has to be made with AirTanker towards agreeing a fully developed contract covering all the commercial terms and service provision aspects. This has led to a further extension, and increase in investment to the Assessment Phase in order to further de-risk the Main Gate Business Case.		

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

INDIRECT FIRE PRECISION ATTACK (IFPA)

Picture not available

Integrated Project Team Responsible:

FUTURE ARTILLERY WEAPONS SYSTEMS

Single Point of Accountability for project capability:

Director Equipment Capability (Deep Target Attack)

SECTION 1: ABOUT THE REQUIREMENT

Indirect Fire Precision Attack (IFPA) will provide a suite of munitions for indirect precision attack of static, mobile, and manoeuvring targets, by incremental acquisition, extending to ranges in excess of 150 kilometres by 2015.

The capability required under IFPA will be delivered through a structured programme of Assessment, Demonstration, and Manufacture phases. In light of the incremental approach, a revised approach to seeking approval has been agreed since MPR05 whereby approval of the overall IFPA strategy will be sought followed by the procurement of individual components via a series of Main Gate Business Cases.

The Assessment Phase (AP) is indicating that the IFPA capability is expected to be achieved by a mixture of guided rockets, enhanced artillery shells and probably loitering munitions (LM), using a variety of different payloads (Loitering munitions are unmanned airborne vehicles with a warhead, designed to fly in a holding pattern after launching until deployed with a man-in-the-loop controller to a target.). IFPA munitions will be used by the Multiple Launch Rocket System (MLRS), the AS90 self-propelled howitzer, the future Lightweight Mobile Artillery Weapon System (LIMAWS) Rocket Launcher and Gun and in the case of LM possibly as a stand-alone platform. The mix of munitions procured under the programme will have a range of In Service Dates, commencing with 155mm Ballistic Sensor Fused Munition in 2009.This multi-solution approach will be managed through an incrementally based procurement strategy.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made i.e Main gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

The Initial Gate Business Case for IFPA was approved in May 2001. Following competition using a Capability Based Questionnaire, an Assessment Phase contract was awarded in May 2002 to a consortium of companies led by BAE Systems Future Systems. The Assessment Phase was designed to provide, and iteratively update, a 'Route Map' to achieving the full IFPA capability with recommendations about the type, quantities and mix of munitions.

Invitations to Tender covering a Loitering Munition Capability Demonstration programme and a

155mm Ballistic Sensor Fused Munition Demonstration and Manufacture phase contract were issued in July 2005.

In light of the incremental procurement strategy, procurement of individual components will be approved via a series of Main Gate Business Cases.

It should be noted that the Forecast Cost of the Assessment Phase at Section 2b below only relates to Assessment work up to the IFPA submission. Assessment activity for later stages will continue long after this submission, due to the incremental nature of the programme. In fact, the bulk of IFPA assessment work will take place only after the IFPA strategy has been approved.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	20
Approved Cost at Initial Gate	24
Variation	-4

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of the capability

	FROM	TO
Envelope within which capability will be available	***	***
This project will provide the MOD with an indirect fire, precision attack capability, to be acquired on an incremental basis to 2015. The above dates relate to the current planning assumptions for the first increment of the IFPA programme, that is, the introduction into service of the 155mm Ballistic Sensor Fused Munition.		

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

MILITARY AFLOAT REACH AND SUSTAINABILTY

Picture not available

Integrated Project Team Responsible:

MARS

Single Point of Accountability for project capability:

Director Equipment Capability (Expeditionary Logistics & Support)

Senior Responsible Owner for broader capability: N/A

SECTION 1: ABOUT THE REQUIREMENT

MARS will investigate a wide range of solutions to provide the logistic support requirements of the future Royal Navy and sea-based support to deployed forces. MARS vessels will play a significant part in providing sea-based support to amphibious, land and air forces in the littoral where Host Nation Support is absent or limited. As the MARS vessels come into service, they will replace the current Royal Fleet Auxiliary (RFA) vessels as they are gradually withdrawn from service. MARS vessels will provide three capabilities:

- Bulk Consumables – the provision of fuel, oils, lubricants, ammunition, food, water and air stores to embarked forces.
- Joint Sea Based Logistics - the provision of logistic support from afloat to Joint Forces ashore.
- Forward Aviation Support - the provision of support to maritime rotary-wing operations and support to amphibious rotorcraft operations, as well as the provision of operational maintenance support for deployed helicopters.

MARS plans to deliver first up to five dedicated tankers followed by a number of other vessels. The actual number and type of vessels required will be determined during the Assessment Phase. These ships will be double hulled to comply with environmental requirements.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

The MARS project received formal approval to enter its Assessment Phase in July 2005.

The preferred contractual route for meeting the MARS requirement is to create a form of alliance (or Delivery Team) with a lead contractor (the Integrator). The contract will be developed with Industry to include continuous communications and engagement, to identify and apportion appropriate ownership of risk, and allow visibility and access to the entire supply chain and shares in cost savings.

The MARS Assessment Phase will cover generic assessment and design activity for the whole programme and the initial design for the first class of ships. Additionally, the Assessment Phase will be used to select the alliance team or teams for the MARS programme.

The MARS ships are expected to be procured in distinct phases, with class 1 and each subsequent class being approved by separate submissions to the Department's Investment Approvals Board.

It is intended that the design of class 1 will be developed to a high enough level to enable manufacture to start as soon as the main investment decision is made. Due to the planned phased nature of the project, further design on subsequent classes will take place after the main investment decision, and an early estimate for this is ***. This brings the total expected cost of Assessment work and later design for future classes to***, subject to more detailed investigations into the nature of future classes and the level of design to be undertaken. The procurement approach and contractual arrangements are all de-risked pre Main Gate.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	***
Approved Cost at Initial Gate	44
Variation	***

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***
The MARS programme will replace a large number of existing Royal Fleet Auxiliary vessels. The capability is essential for the effective deployment of the Royal Navy and replaces existing ships that will be otherwise operating outwith Maritime Pollution (Marpol) regulations at ages well beyond their design life.		

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

UNITED KINGDOM MILITARY FLYING TRAINING SYSTEM (UKMFTS) - HOLISTIC

Integrated Project Team Responsible:

UNITED KINGDOM MILITARY FLYING TRAINING SYSTEM

Single Point of Accountability for project capability:

Director Equipment Capability (Theatre Airspace)

Senior Responsible Owner for broader capability:

Capability Manager (Precision Attack)

SECTION 1: ABOUT THE REQUIREMENT

The UK Military Flying Training System will deliver a coherent, flexible and integrated flying training capability catering for the needs of the Royal Navy, the Royal Air Force and the Army Air Corps.

The flying training system takes aircrew from initial training through elementary, basic and advanced flying training phases to their arrival at their designated operational aircraft. The current system is at risk of being unable to deliver the required quantity and quality of aircrew to meet the input standard for the Operational Conversion Units.

The existing training platforms are approaching the end of their useful lives and include outdated systems that are unable to prepare trainees for current and future front line aircraft, such as Typhoon, Joint Combat Aircraft, A400M and Apache. The current system is based on a number of separate contractual arrangements for the provision of equipment and support. Consequently the system is piecemeal, difficult to manage and inefficient. It also introduces significant delays due to lengthy training programmes and gaps between courses.

The focus for UKMFTS is to achieve a holistic system based on capability and service delivery; it is not solely about the provision of aircraft platforms. It also offers an opportunity to modernise the flying training processes for all three Services, realise efficiencies and, since training is currently spread across several organisations, take advantage of potential economies of scale.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made i.e. Main Gate approval. Until this point, all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

Four possible procurement options were identified at Initial Gate. The 'Do-Nothing' option was discounted. The Do Minimum option would not deliver the required quality and quantity of students

in the correct timescales, but will continue to be considered up to Main Gate. The remaining options, Public Private Partnership/Private Finance Initiative (PPP/PFI) and Smart Conventional, were tested in a Convergence Phase which concluded that the adoption of a PPP Contractual Partnering model would best harness the collective skills of MOD and industry by utilising a mix of PFI and conventional procurement to deliver a coherent and flexible system of systems.

This option envisages the appointment of a Training System Partner (TSP) to work with the MOD over the life of the project to deliver incrementally the total aircrew training requirement. The strategy was approved by Investment Approvals Board (IAB) in February 2005. An Invitation To Negotiate was issued to three consortia in March 2005; the bids were received in August 2005 and are currently being assessed.

Main Gate approval will be sought when the Business Case is sufficiently mature. Additional assessment work will be required post-Main Gate for the different training platforms that will be acquired incrementally. These increments will be subject to further approvals.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	29
Approved Cost at Initial Gate	39
Variation	-10

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***
This project will provide the MoD with a coherent tri-service training capability, to be acquired incrementally, replacing the current disjointed contractual arrangements.		

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***

PRE-MAIN GATE PROJECT SUMMARY SHEET

WATCHKEEPER

Integrated Project Team Responsible:

TACTICAL UNMANNED AIR VEHICLE (TUAV)

Single Point of Accountability for project capability:

Director Equipment Capability (Intelligence, Surveillance, Target Acquisition & Reconnaissance)

Senior Responsible Owner for broader capability:

Assistant Chief of the Air Staff

SECTION 1: ABOUT THE REQUIREMENT

The Watchkeeper system will consist of unmanned air vehicles, sensors, and ground control stations. It will provide the Land Component Commander with a 24 hour, all weather, Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) capability supplying accurate, timely and high quality imagery to answer Commanders' critical information requirements.

The Strategic Defence Review New Chapter identified that the ability to gather information about an opponent and to then use it to maximum effect is central to future combat capabilities in both high intensity conflicts and peace support operations. The Defence Strategic Guidance, The Future Capabilities Requirement 2002 and more recently the Future Land Operational Concept 2004 highlighted the importance of an ISTAR system of networked sensors. Capability audits have further identified the importance of a LAND ISTAR system being fully integrated with other land surveillance systems and able to operate within the context of Joint Operations.

SECTION 2: THE ASSESSMENT PHASE

Note: Actual in service dates and costs are not set until projects reach the point in time when the main investment decision is made ie Main Gate approval. Until this point all costs and dates are outline assumptions solely for internal planning purposes.

2a. Description of the Assessment Phase

Watchkeeper is a consolidation of the Sender and Spectator projects. Initial Gate approval was received for Sender in November 1999 and approval for a joint Assessment Phase for both projects

was given in July 2000.

The acquisition strategy has been based on selecting Unmanned Air Vehicle (UAV) systems to suit a defined capability requirement rather than an air vehicle-centred approach. Through evaluation and system concept demonstration, the Assessment Phase has driven down technical and schedule risks and derived the whole life costs associated with the proposed options. User and System Requirements were identified and revalidated. Trade-off activity was undertaken, taking full account of the impact across all Lines of Development and supported by balance of investment studies.

Alternative acquisition options have been considered. Public Private Partnership/Private Finance Initiative was not deemed appropriate for the provision of a tactical capability deployed in theatre, due to the potential risks to contractor personnel and the required levels of availability as well as legal implications. Collaboration was explored during the early stages of the Assessment Phase, but it was not possible to align requirements. There is continuing dialogue with and between allied nations on matters of requirement definition, technology, operational experience and acquisition. The need for significant system integration with the emerging Network Enabled Capability requirements led the Defence Procurement Agency and the potential contractors to adopt an incremental approach. This approach also supports the Force Readiness Cycle and provides for a phased uplift of capability at discrete intervals.

Opportunities to enhance Watchkeeper beyond the Full Operating Capability have been considered during the Assessment Phase and will inform future investment decisions.

Following a competitive process, Thales (UK) was announced as preferred bidder in July 2004. The programme completed the Assessment Phase of the acquisition cycle in July 2005, when Main Gate approval was given to proceed to the Demonstration and Manufacture phase with Thales (UK) as the prime contractor.

2b. Cost of the Assessment Phase

£m (outturn prices)	Assessment Phase Cost
Forecast Cost	65
Approved Cost at Initial Gate	52
Variation	+13

2c. Explanation of the need and boundaries of current internal planning assumptions for introduction of capability

	FROM	TO
Envelope within which capability will be available	***	***

The Watchkeeper system will provide the Land Component Commander with a 24 hour, all weather, Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) capability supplying accurate, timely and high quality imagery to answer commanders' critical information requirements. It will supersede the Phoenix UAV which goes out of service from 2008.
The Main Gate Business Case was submitted for approval in July 2005 and the figures and dates at 2c and 2d reflect those approved.

2d. Boundaries of current internal cost assumptions for Demonstration and Manufacture Phase

£m (outturn prices)	FROM	TO
Envelope of costs to support Demonstration and Manufacture Phase	***	***