

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes

PE NUMBER AND TITLE
0603□6□A - Meads Concepts - Dem/Val

PROJECT
01B

COST (In Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total Cost
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate		
01B MEDIUM EXTENDED AIR DEFENSE SYSTEM (MEADS)	249444	251414	0	0	0	0	0	0	0	488237

A. Mission Description and Budget Item Justification: MEADS is an international co-development program essential to fulfill the requirements of the U.S. Army and the U.S. Marine Corps for a low-medium Air Missile Defense (AMD) system in the 21st century. MEADS will offer a significant improvement in surveillance, target tracking, integrated fire control and target engagement, tactical mobility and strategic deployability over comparable missile systems. It will defend the maneuver force and other critical forward-deployed assets against short and medium range Theater Ballistic Missiles (TBMs), cruise missiles (CMs) and other air-breathing threats such as unmanned combat aerial vehicles (UCAVs) throughout all phases of technical operations. MEADS will operate with upper-tier systems in areas of debarkation and assembly and provide continuous coverage alone or with Short Range Air Defense Systems (SHORAD) which has evolved to Cruise Missile Defense Systems (CMDS), such as SLAMRAAM, in the maneuver areas of the battlefield during movement to contact and decisive operations. MEADS will be interoperable with other airborne and ground-based sensors and utilize a netted and distributed architecture with modularly-configurable battle elements. The objective system fire unit will have a BMC4I suite in an integrated single shelter TOC, a surveillance radar, two multifunction fire control radars, six launchers and associated logistic support vehicles all mounted on common FMTV prime movers. The MEADS program has completed execution of the thirty-two and half month Risk Reduction Effort (RRE) phase which ended in March 2004. The primary objectives of RRE were to mature critical technologies, develop program cost and schedule consensus, and prepare program planning for entry into the Design and Development (D&D) Phase at Milestone B in 2004. A Risk Reduction Effort Modification (RREM) phase was executed in February 2004 to act as a bridging effort between the RRE and D&D phases. On July 1, 2004, the Defense Acquisition Board (DAB) approved Milestone B for all three increments of the Patriot/MEADS Combined Aggregate program (CAP) with a MEADS First Unit Equipped date by FY2015. The Acquisition Program Baseline (APB) and Acquisition Strategy were also approved for System Development and Demonstration (SDD). The U.S. and Italy signed the D&D Memorandum of Understanding (MOU) on September 24, 2004 and September 27, 2004, respectively. Germany is expected to sign the MOU by 2QFY05 after the German Parliament approves the program. NAMEADSMA, the NATO contracting authority, awarded a not-to-exceed \$3.4B D&D letter contract to MEADS International on September 28, 2004.

A critical void remains in maneuver force protection against the current and future AMD threat of short and medium range TBMs, CMs, and low-to-medium altitude advanced air-breathing threats. This program will meet this challenge in successive increments of capability by integrating the PAC-3 missile and developing the critical technologies required for maneuver force protection, including development and testing of a netted and distributed Battle Management/Command, Control, Communications, Computers, and Intelligence (BM/C4I) Tactical Operations Center (TOC), 360-degree Multifunction Fire Control and Surveillance Radars, Light Weight Launcher and Launcher Reloader. The PAC-3 missile is the baseline interceptor for MEADS. Sensor and battle management software technology from both U.S. and international programs will be examined to enhance and augment firing battery functions, reducing development cost, manpower requirements and program risk to develop a U.S. and Allied capability to counter the current and future AMD threats. The approach emphasizes prototyping of system-specific and surrogate hardware in key areas of BM/C4I, fire control radar, and light

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weight launcher to satisfy mobility, strategic deployability and interoperability requirements in the objective netted and distributed architecture. The CAP first increment will rehost current BMC4I capability on new computers to be tested in FY08 and begin initial production in FY09 while also serving as the basis for further increment development. The Patriot/MEADS CAP will be an integral part of the AMD System of Systems concept. The FY06 RDTE budget postures the Army to move forward with a Patriot/MEADS Combines Aggregate Program (CAP) under PE0604869A for FY06 and beyond. The CAP will provide for the evolution of the Patriot/PAC-3 system to the MEADS objective system through the early introduction of the MEADS Major End Items. This approach provides for earlier fielding of enhanced air and missile defense capabilities across the currently fielded force to counter the evolving threat and allow for knowledge gained during the development and fielding of the Patriot System to be fused into the MEADS program. The PAC-3 Missile Segment Enhancement (MSE) missile, which provides for greater ranges, will be the objective missile for MEADS and

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Continue the U.S. contribution to the North Atlantic Treaty Organization (NATO) MEADS Management Agency (NAMEADSMA) International Program Office operational and management budgets to manage the Risk Reduction Effort (RRE), Risk Reduction Effort Modification (RREM) contract and to begin the Design and Development (D&D) Phase contract to design, develop, build, test and evaluate the production representative MEADS hardware.	157863	129637	0	0
Implement program integration efforts that will examine Department of Defense (DOD) Joint Vision and Army Transformation Future Force mix and integration issues; support Patriot / MEADS CAP in the test and evaluation of Air and Missile Defense (AMD) task force interoperability and Army System-of-Systems (in a netted and distributed architecture); support development and maintenance of Joint Data Network interface requirements; and appropriate planning of MEADS manpower, training, human factors, safety issues, cost reduction initiatives, and protection of U.S. background technology.	73781	56477	0	0
Continue management, support and salaries for the national and international program offices.	3000	4000	0	0
Continued single canister and engage on remote development. Includes efforts to support Missile Segment Enhancement.	14800	61300	0	0
Totals	249444	251414	0	0

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B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	264527	268721	275545
Current Budget (FY 2006/2007 PB)	251414	0	0
Total Adjustments	-13113	-268721	-275545
Net of Program/Database Changes			
Congressional Program Reductions			
Congressional Rescissions	-3743		
Congressional Increases			
Reprogrammings	-2087		
SBIR/STTR Transfer	-7283		
Adjustments to Budget Years		-268721	-275545

The Patriot/MEADS CAP RDTE funding are combined and under PE 0604869A beginning in FY06.

C. Other Program Funding Summary	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	ToCompl	TotalCost
PE 0604865A, PAC-3	151318	61482	0	0	0	0	0	0	0	212800
PE 0203801, Patriot Product Improvement	45587	32082	16188	10607	10884	11119	12029	12520	Continue	Continue
SSN C49100, PAC-3 Missile	616942	487364	489700	494754	466004	471770	0	0	0	3026534
SSN C50001, Patriot/MEADS CAP	0	0	0	0	88425	64338	423209	663557	22957360	24196889
PE 0102419, JLENS	57803	79316	106420	256893	471997	332428	0	0	0	1304857
SSN BZ0525, OPA, JLENS	0	0	0	0	0	29153	549707	397776	0	976636
PE 654802, Project S23 SLAMRAAM	36103	63111	36102	29200	0	0	0	0	0	164516
SSN C81001, SLAMRAAM	7397	2440	19315	21970	59273	13124	0	0	0	123519

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C. Other Program Funding Summary (continued)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	ToCompl	TotalCost
PE 0604820, SENTINEL	0	5851	5080	2547	2647	0	0	0	0	16125
SSN WK5057, OPA, SENTINEL	20646	7337	8393	15373	25074	31572	34473	32552	0	175420
PE 0603327, Project E88, Integrated Fire Control AMD	40275	0	24961	42736	48894	50930	0	0	0	207796

C. Other Program Funding Summary: PAC-3 / MEADS CAP RDTE funding are combined and under PE0604869A in FY06 and beyond. This PE is an integral part of the Air, Space and Missile Defense System of Systems (SoS) including Integrated Fire Control (IFC), JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, JTAGS, SENTINEL and on-going initiatives to achieve Single Integrated Air Picture (SIAP).

D. Acquisition Strategy: The MEADS program was approved by the Defense Acquisition Executive (DAE) in an August 2000 ADM to begin a Risk Reduction Effort (RRE) phase. This extended the Project Definition/Validation (PD/V) phase by three years to focus on integrating the PAC-3 missile into the MEADS system concept, identifying and reducing technical risk, developing a cost and schedule consensus among the partner nations (Germany, Italy, and United States), and to refine the MEADS concept. In July 2001, MEADS International (MI) was awarded a thirty-two and half month RRE contract. Additional key elements of the RRE scope include full harmonization of the threat and requirements, a detailed plan and cost consensus for Design and Development (D&D), and developing a negotiated Memorandum of Understanding (MOU) for the D&D phase. A 29 July 03 DAB IPR endorsed pursuit of Joint Requirements Oversight Council (JROC) approval of the MEADS requirements and directed further refinement of cost and acquisition strategy development. The Army Requirements Oversight Council (AROC) met on 06 August 2003 and approved the MEADS International Common Operating Requirements (ICOR). A Risk Reduction Effort Modification (RREM) phase was executed in February 2004 as a bridging effort between the RRE and D&D Phases. On 1 July 2004, the DAB approved Milestone B for all three increments of the Patriot/MEADS CAP with a First Unit Equipped date by FY2015. The United States and Italy signed the D&D MOU on September 24, 2004 and September 27, 2004, respectively. Germany is expected to sign by 2QFY05 after the German Parliament approves the program. NAMEADSM, the NATO contracting authority, awarded a not-to-exceed \$3.4B D&D letter contract to MEADS International on September 28, 2004.

Under the CAP acquisition strategy, as MEADS MEIs demonstrate maturity, a Milestone C decision review will be conducted for entry into production. The MEADS MEIs will be developed and fielded in three acquisition increments that integrate with and are in support of PEO Missiles and Space and Joint System of Systems (SoS) capabilities. Acquisition Increment 1 integrates the emerging MEADS BMC4I capability with Patriot battalions. Acquisition Increment 2 fields the lightweight launcher and MSE. Acquisition Increment 3 fields the Surveillance Radars and Multi-Function Fire Control Radars, and delivers the MEADS objective capability. For the System of Systems (SoS), the MEADS objective capability fully synergizes the interoperability and joint functionality between sensors, shooters, and BMC4I components, which addresses current Service-centric system shortfalls and provides enhanced capability through expanded engagement battlespaces and increased force protection.

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This incremental approach will maintain the current Patriot capability to protect the forces during the transformation to MEADS. Entrance criteria have been established for the MEIs to enter Low Rate Initial Production (LRIP) and Full Rate Production (FRP). MEADS performance objectives established in the International Common Operational Requirements (ICOR) document and Capability Development Document (CDD) will be assessed during MEADS system testing, which includes developmental flight testing and Initial Operational Test and Evaluation (IOT&E).

ARMY RDT&E COST ANALYSIS(R3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction	CPFF	NAMEADSMA, Huntsville, AL	71000	0		0		0		0	71000	0
b . Design and Development	CPIF	NAMEADSMA, Huntsville, AL	85443	126200	2-3Q	0		0		Continue	211643	0
c . Missile Segment Enhancement - LMMFC	SS-CPIF	LMMFC, Dallas, TX	14800	61300	2-3Q	0		0		Continue	76100	0
d . Missile Segment Enhancement - Raytheon	SS-FP	Raytheon, Boston, MA	0	0		0		0		Continue	0	0
e . Program Integration	Various	Various, Huntsville, AL	40443	41030	2-3Q	0		0		Continue	81473	0
f . U.S. Only Security	CPFF	Lockheed Martin, Syracuse, NY, Dallas, TX, & Orlando, FL	13581	0		0		0		Continue	13581	0
g . U.S. OGA's	MIPR	Various, Huntsville, AL	10672	3151	2-3Q	0		0		Continue	13823	0
h . In-House	Program Office	PO, Huntsville, AL	2033	3100	2-3Q	0		0		Continue	5133	0
i . U.S. Only Combined Aggregate Program	Various	Various, Huntsville, AL & Dallas, TX	0	1937	3Q	0		0		Continue	1937	0

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			237972	236718		0		0		Continue	474690	0
Subtotal:												

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Int'l Program Office	Program Office	NAMEADSMA, Huntsville, AL.	1420	1500	2Q	0		0		Continue	2920	0
b . U.S. Contracts	Various	CAS, Huntsville, AL & LMMFC, Dallas, TX	3015	3959	2Q	0		0		Continue	6974	0
c . Systems Engineering	MIPR	MRDEC, Huntsville, AL.	4037	5237	2Q	0		0		Continue	9274	0
Subtotal:			8472	10696		0		0		Continue	19168	0

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Internal Operating	LOE	NAMEADSMA, Huntsville, AL.	3000	4000	2-3Q	0		0		Continue	7000	0
Subtotal:			3000	4000		0		0		Continue	7000	0

Project Total Cost:			249444	251414		0		0		Continue	500858	0
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Schedule Profile (R4 Exhibit)

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Event Name	FY 04				FY 05				FY 06				FY 0□				FY 0□				FY 10				FY 11			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	RISK REDUCTION EFFORT	RRE																										
Missile Segment Enhancement (MSE) Development (CAP Funded)	MSE DEVELOPMENT																											
RRE MODIFICATION	RREM																											
(1) MS B				▲1																								
(2) ADM				▲2																								
DESIGN AND DEVELOPMENT	DESIGN AND DEVELOPMENT																											
(3) Program Decision (GE Signature)								▲3																				
(4) SRR								▲4																				
(5) MEADS System PDR: Preliminary Design Review												▲5																
MSE LRIP - Long Lead																					LRIP - LL							
(6) MEADS System CDR: Critical Design Review																								▲6				
(7) MSE LRIP Contract Award																								▲				
MSE LRIP																					MSE LRIP							

Schedule Detail (R4a Exhibit)

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<u>Schedule Detail</u>	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Milestone B	4Q							
Acquisition Decision Memorandum (ADM)	4Q							
U.S. & Italy Program Decision (MOU Signatures)	4Q							
Design and Development Phase Contract Award	4Q							
Program Decision (Germany Signature)		2Q						
System Requirements Review		3Q						
System PDR				3Q				
MSE LRIP - Long Lead Items						1Q		
System CDR							1Q	
MSE Contract Award							1Q	
MSE LRIP							1Q	