

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

<b>BUDGET ACTIVITY</b> <b>5 - System Development and Demonstration</b>		<b>PE NUMBER AND TITLE</b> <b>0604869A - Patriot/MEADS Combined Aggregate Program (CAP)</b>				
	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost	
COST (In Thousands)						
M06    PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP)	401565	429846	569182	Continuing	Continuing	

**A. Mission Description and Budget Item Justification:** Medium Extended Air Defense System (MEADS) is a tri-national co-development program among the United States, Germany, and Italy to replace the U.S. PATRIOT air defense systems, PATRIOT and HAWK systems in Germany, and NIKE Hercules systems in Italy. Participating countries will sign a Memorandum Of Understanding (MOU) for each successive program phase. The NATO MEADS Management Agency (NAMEADSMA) is the North Atlantic Treaty Organization (NATO) contracting authority providing management of the MEADS program on behalf of the participating nations and is responsible for managing the system acquisition. The U.S. and Italy signed the Design and Development (D&D) MOU on September 24, 2004, and September 27, 2004, respectively. The NAMEADSMA awarded the MEADS D&D letter contract to MEADS International Inc. on September 28, 2004, initiating the MEADS D&D phase. The MOU was amended in March 2005 by the U.S. and Italy to allow the German Parliament additional time for their signature decision and on April 22, 2005 Germany signed the MOU. NAMEADSMA awarded a \$3.4 billion D&D definitized contract to MEADS International Inc. on May 31, 2005. Within the PATRIOT/MEADS Combined Aggregate Program (CAP) there are two synergistic efforts: an international MEADS development effort managed by NAMEADSMA, and a U.S. effort to inject U.S.-specific capability requirements into the MEADS Major End Items (MEIs).

MEADS will provide joint and coalition forces, critical asset and defended area protection against multiple and simultaneous attacks by short to medium range ballistic missiles, cruise missiles, unmanned aerial vehicles and tactical air-to-surface missiles. MEADS will have a netted and distributed architecture with modular components to increase survivability and flexibility of employment in a number of operational configurations. The objective MEADS Fire Unit, which will be scalable and tailorable to operational requirements, will consist of: two Battle Management Command, Control, Communication, Computers and Intelligence (BMC4I) tactical operations center (TOC), enabling distributed system operations and Beyond-Line-of-Site (BLOS) engagements for maximum protection of supported forces by engaging at longer ranges; six near-vertical launchers capable of transporting and launching up to eight missiles; three launcher reloaders; the PAC-3 Missile Segment Enhancement (MSE); an ultra-high frequency (UHF) Surveillance Radar (SR) that provides 360-degree coverage and near-range to long-range detection of low radar cross-section targets; and two X-band Multifunction Fire Control Radars (MFCR) that provide 360-degree coverage and are designed for high-precision handover to the in-flight missile, discrimination capabilities, and short-range target detection and horizon search.

In addition, MEADS will provide significant improvements in strategic deployability, transportability, mobility and maneuverability. Its substantially reduced lift requirements enable MEADS to be deployed rapidly with essential combat loads via inter/intra-theater land, sea, and airlift anywhere in the world. MEADS will provide Combatant Commanders with an Air Missile Defense (AMD) system that is fully transportable by C-130 aircraft, thus increasing strategic and tactical mobility. Further, its decreased size/weight and ability to conduct rapid march order and system emplacement will enhance maneuverability, thereby providing better AMD protection to maneuvering forces.

The PAC-3 system is continuously being improved via hardware and software changes. The latest missile improvement is the MSE and has been accepted as the baseline missile for MEADS. It is being developed by the U.S. for PATRIOT to meet U.S. operational requirements. The MSE will provide a more agile and lethal interceptor that increases the engagement envelope/defended area of PATRIOT and the MEADS systems. The MSE improves upon the current PAC-3 missile capability with a higher performance solid rocket motor, modified lethality enhancer, more responsive control surfaces, upgraded guidance software, and insensitive munitions improvements.

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**May 2009**

BUDGET ACTIVITY

**5 - System Development and Demonstration**

PE NUMBER AND TITLE

**0604869A - Patriot/MEADS Combined Aggregate Program (CAP)**

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<u><b>B. Program Change Summary</b></u>	FY 2008	FY 2009	FY 2010
Previous President's Budget (FY 2009)	369786	431270	585597
Current BES/President's Budget (FY 2010)	401565	429846	569182
Total Adjustments	31779	-1424	-16415
Congressional program reductions		-1424	
Congressional rescissions			
Congressional increases			
Reprogrammings	42126		
SBIR/STTR Transfer	-10347		
Adjustments to Budget Years			-16415

Change Summary Explanation: Funding -FY 2008 reprogramed funds for MSE and PAC-3 GPU; FY 2010 funds realigned to support Army higher priority requirements;

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**May 2009**

<b>BUDGET ACTIVITY</b> <b>5 - System Development and Demonstration</b>		<b>PE NUMBER AND TITLE</b> <b>0604869A - Patriot/MEADS Combined Aggregate Program (CAP)</b>			<b>PROJECT</b> <b>M06</b>
COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
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<b>BUDGET ACTIVITY</b> <b>5 - System Development and Demonstration</b>	<b>PE NUMBER AND TITLE</b> <b>0604869A - Patriot/MEADS Combined Aggregate Program (CAP)</b>	<b>PROJECT</b> <b>M06</b>
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<u>Accomplishments/Planned Program:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Continue the U.S. contribution to the North Atlantic Treaty Organization (NATO) MEADS Management Agency (NAMEADSMA) International Program Office operational (prime contract) and administrative (support contracts/personnel/travel) budgets to manage the Design and Development (D&D) Phase contract to design, build, test and evaluate the production representative MEADS hardware.	289418	380121	413289
Implement program integration efforts to support transition from PATRIOT to development and fielding of US MEADS capability. This includes assessment of performance against US Threat and operational requirements to identify gaps / shortfalls; development and management of US MEADS programs to address unique US requirements; MEADS-IBCS compatibility; development of a US MEADS testbed, US MEADS sensor performance upgrades; PAC-3 CRI Compatibility; and US MEADS Production and Fielding efforts (required materiel release certifications, planning for US MEADS IOT&E , and required US logistics facilitization and training efforts).	74019	8207	87400
Continue management, support and salaries for the national and international program offices.	8328	3611	8236
Includes US only efforts to support Exciter & Exportable Missile Model and Missile Segment Enhancement. Includes White Sands Missile Range (WSMR) Support and Targets.	29800	25870	60257
Small Business Innovative Research/Small Business Technology Transfer Programs		12037	
<b>Total</b>	<b>401565</b>	<b>429846</b>	<b>569182</b>

<u>B. Other Program Funding Summary</u>	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
SSN C50001, Patriot/MEADS CAP		30957	16406	Continuing	Continuing
PE 0102419A, Proj E55, JLENS	464877	355257	360076	Continuing	Continuing
PE 0604082A, Proj S23, SLAMRAAM	33570	33662	11736	Continuing	Continuing
SSN C81002, SLAMRAAM Launcher		40349	72920	Continuing	Continuing
PE 0604820A, Proj E10, SENTINEL	6828			Continuing	Continuing
PE 0603327A, Proj S34, AMD System of System Engineering and Integration	123712	114673	209531	Continuing	Continuing

Comment: PAC-3 / MEADS CAP RDTE funding was combined under PE0604869A beginning in FY06. This program is an integral part of the PEO, Missiles and Space Integrated Air and Missile Defense (IAMD) architecture.

**C. Acquisition Strategy** On 1 July 2004, the Defense Acquisition Board approved the Acquisition Strategy (AS) for the PATRIOT/MEADS CAP Milestone B. On 6 April 2006, the Lower Tier Project Manager submitted a Program Deviation Report (PDR) to notify the Under Secretary of Defense for Acquisition, Technology, and Logistics, of changes affecting the 6 August 2004, approved PATRIOT/MEADS CAP Acquisition Program Baseline (APB). On 9 February 2006, the Army System Acquisition Review

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PROJECT

**M06**

Council (ASARC) approved establishment of the Integrated Air and Missile Defense (IAMD) Project Office (PO) to lead development efforts for the Army IAMD. On 8 May 2006, the Army established the IAMD PO which will manage the U.S. Army's initiatives to implement the user's operational concept from a System-Centric focus to a Network-Centric, Component-Based (Plug and Fight) architecture. The lead proponent for the U.S. oversight of the International MEADS Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) effort now resides with the IAMD PO. The PATRIOT/MEADS CAP Acquisition Program Baseline and Acquisition Strategy will be modified to reflect these changes.

# ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604869A - Patriot/MEADS Combined Aggregate Program (CAP)							M06		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Design and Development	CPIF	NAMEADSMA, Huntsville, AL	365600	284500	2-3Q	387937	2-3Q	408600	2-3Q	Cont.	Cont.	
Missile Segment Enhancement - Lockheed Martin Missiles and Fire Control (LMMFC)	SS-CPIF	LMMFC, Dallas, TX	73000	22200	2Q			26000	2-3Q	Cont.	Cont.	
Missile Segment Enhancement (MSE) - Raytheon	SS-FP	Raytheon, Boston, MA	31800	5800	1-2Q	8000	2-3Q	6000	1-3Q	Cont.	Cont.	
Program Integration	N/A	Various, Huntsville, AL	94921	48738	1-2Q	2528	1-2Q	49129	1-3Q	Cont.	Cont.	
U.S. Only Security / Exciter	N/A	Lockheed Martin, Syracuse, NY, Dallas, TX & Orlando, FL	35900	500		16800	1-2Q	17257	3Q	Cont.	Cont.	
U. S. Other Government Agencies (OGA's)	N/A	Various, Huntsville, AL	23914	514	1-2Q			7735	1-3Q	Cont.	Cont.	
In-House	N/A	PO, Huntsville, AL	29940	10977	1-4Q	3753	1-4Q	12071	1-4Q	Cont.	Cont.	
U.S. Only Combined Aggregate Program (CAP)	N/A	Various, Huntsville, AL & Dallas, TX	67150							Cont.	Cont.	
Design and Development Government Furnished Equipment (GFE) Procurement Efforts	N/A	TACOM, Warren, MI	14087	888	2-3Q					Cont.	Cont.	
Subtotal:			736312	374117		419018		526792		Cont.	Cont.	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
International Program Office	N/A	NAMEADSMA, Huntsville, AL	8256	4030	2Q	4221	2Q	4689	1-3Q	Cont.	Cont.	
U.S. Contracts	CPFF; CPIF	Various, Huntsville, AL	36380	7185	2Q			14465	1-3Q	Cont.	Cont.	
Systems Engineering	N/A	MRDEC, Huntsville,	20641	6104	2Q	1926	2Q	4000	1-3Q	Cont.	Cont.	

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BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604869A - Patriot/MEADS Combined Aggregate Program (CAP)</b>							PROJECT <b>M06</b>		
		AL										
Subtotal:			65277	17319		6147		23154		Cont.	Cont.	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Range Support/Facilities	N/A	WSMR, White Sands, NM/Ft Wingate, White Sands NM	8400	1800	2-3Q	1070	1-3Q	3000	2-3Q	Cont.	Cont.	
Targets/Threat	N/A	Various	35400					6500	2-3Q	Cont.	Cont.	
Modeling and Simulation	N/A	AMRDEC, Huntsville, AL	8000					1500	2-3Q	Cont.	Cont.	
Subtotal:			51800	1800		1070		11000		Cont.	Cont.	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Internal Operating	N/A	NAMEADSMA, Huntsville, AL	18204	8329	2-3Q	3611	2-3Q	8236	1-4Q	Cont.	Cont.	
Subtotal:			18204	8329		3611		8236		Cont.	Cont.	

<b>Project Total Cost:</b>			<b>871593</b>	<b>401565</b>		<b>429846</b>		<b>569182</b>		<b>Cont.</b>	<b>Cont.</b>	
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# Schedule Profile (R4 Exhibit)

May 2009

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**5 - System Development and Demonstration**

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PROJECT  
**M06**

Event Name	FY 08				FY 09				FY 10				FY 11				FY 12				FY 13				FY 14				FY 15											
	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	1	2	3	4								
(1) PDB 6.5 Fielding									▲																															
Missile Segment Enhancement (MSE) Development (CAP Funded)	■ MSE DEVELOPMENT																																							
MSE Test													■ MSE Test																											
MEADS Incremental System PDR: Preliminary Design Review	■																																							
(2) MEADS System CDR: Critical Design Review																																								

# Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
<b>5 - System Development and Demonstration</b>		<b>0604869A - Patriot/MEADS Combined Aggregate Program (CAP)</b>						<b>M06</b>	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	
PDB 6.5 Fielding			1Q						
Missile Segment Enhancement (MSE) Development (CAP Funded)	1Q - 4Q	1Q - 4Q	1Q - 4Q						
MSE Test	2Q - 4Q	1Q - 4Q	1Q - 4Q						
MEADS Incremental System PDR: Preliminary Design Review	1Q								
MEADS System CDR: Critical Design Review			4Q						

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)		May 2009	
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<b>5 - System Development and Demonstration</b>	<b>0604869A - Patriot/MEADS Combined Aggregate Program (CAP)</b>	<b>M06</b>	
Funding in \$000			
Program	FY 2008	FY 2009	FY 2010
Patriot/MEADS CAP			
<b>Total Termination Liability Funding:</b>			
<p><b>Remarks:</b>            The Patriot/Meads CAP Prime Contract Incorporates the "Limitation Of Funds" Clause (DFARS 52.232-22) To Limit The Government's Liability. For the Patriot Meads CAP Program, The "Limitation Of Funds" Clause Limits The Government's Financial Liability Per The Contract To Those Funds Placed On Contract Plus Any Outstanding Commitments Plus Costs Associated With The Orderly Termination Of Contractual Actions.</p>			