MDA Exhibit R-2 RDT&E Budget Item Justification	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/05 System Development and Demonstration (SDD)**	R-1 NOMENCLATURE: **0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	138,922	0	0	0	0	0	0
2014 PAC-3	138,922	0	0	0	0	0	0

Note: In accordance with the FY 2004 Appropriations Conference PAC-3 was transferred to the Army in PE 0604865A.

A. Mission Description and Budget Item Justification

Our goal is to defend the United States and our allies, friends, and deployed forces from ballistic missiles of all ranges in all phases of flight. By the beginning of FY 2005, we will put the BMDS on alert and, for the first time, we will have a capability to defeat a ballistic missile threatening the United States. In FY 2005 and the remainder of the FYDP, we will increase the breadth and depth of our defense by adding forward-deployed, networked sensors, by adding interceptors at sea and on land, and by adding layers of increasingly capable weapons and sensors. Throughout this documentation, therefore, every activity can be tied to one of our four objectives: complete, verify and test the Initial Defensive Capability; put the Ballistic Missile Defense System on alert; develop procedures and logistics to perform and sustain concurrent testing and operations; and enhance the BMDS capability.

The MDA develops the Ballistic Missile Defense System (BMDS) using biennial capability blocks. This approach is the most efficient and effective way to get missile defense assets into the hands of the warfighters as quickly as possible while allowing for rapid insertion of emerging technology in the most affordable manner. These capability blocks will subsequently build on and be integrated with the predecessor blocks. Block capabilities are built by using complete elements and their individual components to integrate a single BMDS and provide layered defense against ballistic missiles during all flight phases, Boost, Midcourse, and Terminal, using multiple basing modes and phenomenology.

As a part of the total BMDS, this PATRIOT PAC-3 Program Element (PE) funds the PAC-3 developmental efforts for FY 2003 as part of the overall Terminal Defense System (TDS). The US Army is programming funding for PAC-3 beginning in FY 2004 in PE 0604865A. The overall Terminal Defense System elements and activities include Theater High Altitude Area Defense (THAAD), and the Israeli Arrow Program. The BMDS elements in Terminal Defense pursue development and selective upgrades of missile defense capabilities that engage short to medium-range ballistic missiles in the terminal phase of their trajectory, when the missile or warhead reenters the atmosphere, and short-range ballistic missiles that operate only in the atmosphere.

The Terminal Defense Elements provide the final opportunity to engage short and medium range ballistic missiles not engaged or destroyed in the boost or midcourse phases of trajectory. Upon direction of the Ballistic Missile Defense System (BMDS) Command, Control, and Battle Management Communications (C2BMC) and in conjunction with the fielded Patriot System, the THAAD and Patriot Systems, provide the only capability to defend deployed US forces from short and medium-range ballistic missiles, and protect broadly dispersed assets and population centers or selected U.S. sites (Homeland Defense) from short to medium-range ballistic missile attacks. The flow down of BMD System capability specifications resulting from Missile Defense national team efforts in C2BMC and Systems Engineering & Integration will guide the BMDS C2BMC architecture, the BMD Test Bed, and the integration of PAC-3 into the BMD System in accordance with the PAC-3 Transfer and MEADS Realignment Plan from the Missile Defense Agency to the United States Army.

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B. Program Change Summary	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004 PB)	176,155	0	0
Current President's Budget (FY 2005 PB)	138,922	0	0
Total Adjustments	-37,233	0	0
Congressional Specific Program Adjustments	0	0	0
Congressional Undistributed Adjustments	0	0	0
Reprogrammings	-33,499	0	0
SBIR/STTR Transfer	-3,734	0	0

FY 2003 PAC-3 funding of $23.0 million was reprogrammed to the PAC-3 procurement account in support of the PAC-3 missile acceleration for Operation Iraqi Freedom.

FY 2003 PAC-3 funding was also reduced by $10.5 million for OSD/MDA adjustments.

FY 2003 PAC-3 funding was also reduced by $3.7 million for SBIR/STTR.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/05 System Development and Demonstration (SDD)**	R-1 NOMENCLATURE: **0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
2014 PAC-3	138,922	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: The US Army is programming funding for PAC-3 beginning in FY 2004 in PE 0604865A. MDA will continue to program funding for BMDS interoperability.

A. Mission Description and Budget Item Justification

PATRIOT is a mobile, field Army and Corps air defense system, using guided missiles to simultaneously engage and destroy multiple target types at varying ranges. The PATRIOT Advanced Capability 3 (PAC-3) Upgrade Program is the latest evolution of the phased materiel change improvement program to PATRIOT. PATRIOT PAC-3 provides the first fieldable missile defense capability in the near term to defeat both conventional and weapons of mass destruction warheads as a terminal defense element of the ballistic missile defense system. The materiel changes will provide improved performance across the spectrum for system and threat intercept performance. In addition to modernization of the ground support equipment, funding resources a new missile design providing a high velocity, hit to kill, surface to air missile with the range, accuracy, and lethality necessary to effectively intercept and destroy tactical missiles with Nuclear Biological Chemical/High Explosive (NBC/HE) warheads and air breathing threats. The full capability will provide defense against short to medium range theater ballistic missiles (TBMs), cruise missiles (CMs), unmanned aerial vehicles (UAVs) and other air breathing threats as part of the Ballistic Missile Defense (BMD) systems, a multi-layered Theater Air and Missile Defense Architecture. Funds will ensure PAC-3 will remain interoperable in the BMDS. The Army requirement for PAC-3 supports the Current to Future transition path of the Transformation Campaign Plan (TCP).

No RDT&E articles were required during FY 2003. The articles under test were previously funded, procured, and accepted.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Complete Operational Test & Evaluation	2,000		
RDT&E Articles (Quantity)			

Flight tests completed 3Q FY 2002 with regression tests conducted 4Q FY 2002.

	FY 2003	FY 2004	FY 2005
Continue PAC-3 Target and Test Support	15,560		
RDT&E Articles (Quantity)			

Target planning and support to the EMD and follow-on test programs.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/05 System Development and Demonstration (SDD)	R-1 NOMENCLATURE: 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD

	FY 2003	FY 2004	FY 2005
THAAD/PATRIOT Launcher	5,000		
RDT&E Articles (Quantity)			

Development efforts for THAAD launcher with PATRIOT interface.

	FY 2003	FY 2004	FY 2005
Evolutionary Development	64,489		
RDT&E Articles (Quantity)			

Development efforts for improvements to system capabilities.

	FY 2003	FY 2004	FY 2005
Block Test Program with LMMFC and Raytheon	51,873		
RDT&E Articles (Quantity)			

Follow-on Block test program.

C. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603889C Ballistic Missile Defense Products	0	305,309	418,608	421,049	445,971	456,339	469,621	Continuing	Continuing
PE 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	Continuing	Continuing
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	887,616	0	0	0	0	0	0	Continuing	Continuing
PE 0604865A Patriot Advanced Capability (PAC)-3	0	174,475	64,749	21,614	29,656	20,000	0	Continuing	Continuing
PE 0605502C Small Business Innovative Research - MDA	138,791	0	0	0	0	0	0	Continuing	Continuing
PE 0901585C Pentagon Reservation	7,432	14,327	13,884	12,958	12,850	13,158	13,476	Continuing	Continuing

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2004
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	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0901598C Management Headquarters - MDA	35,331	92,449	141,923	146,099	145,112	151,727	154,583	Continuing	Continuing
PE C49200 PATRIOT PAC-3	0	561,555	490,754	490,892	490,814	671,251	722,409	Continuing	Continuing
PE 0603175C Ballistic Missile Defense Technology	151,217	225,268	204,320	199,468	246,291	286,286	305,365	Continuing	Continuing
PE 0603869C Meads Concepts - Dem/Val	101,754	0	0	0	0	0	0	Continuing	Continuing
PE 0603879C Advanced Concepts, Evaluations and Systems	0	149,993	256,159	229,512	232,463	231,583	224,626	Continuing	Continuing
PE 0603880C Ballistic Missile Defense System Segment	1,028,016	0	0	0	0	0	0	Continuing	Continuing
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	134,093	874,527	937,748	993,048	1,117,657	570,000	410,324	Continuing	Continuing
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,056,035	3,744,066	4,404,335	3,067,800	3,087,147	1,881,298	1,802,257	Continuing	Continuing
PE 0603883C Ballistic Missile Defense Boost Defense Segment	705,643	617,270	492,614	555,667	611,736	473,602	455,961	Continuing	Continuing
PE 0603884C Ballistic Missile Defense Sensors	327,013	425,421	591,957	790,265	1,453,679	1,122,189	1,232,893	Continuing	Continuing
PE 0603886C Ballistic Missile Defense System Interceptors	0	117,719	511,262	1,118,599	1,717,480	2,196,531	2,449,322	Continuing	Continuing
PE 0603888C Ballistic Missile Defense Test and Targets	0	635,782	716,427	673,476	656,152	654,015	688,119	Continuing	Continuing

D. Acquisition Strategy

The PAC-3 will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The design objective of the PATRIOT system is to provide an element of an integrated Ballistic Missile Defense system capable of being modified to cope with the evolving threat. This strategy minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The PATRIOT program consists of two interrelated acquisition programs - the PATRIOT PAC-3 Growth Program and the PAC-3 Missile Program. Growth Program modifications are grouped into configurations which are scheduled to be fielded in the same time frame. However, incremental increases in performance are determined for each configuration in order to provide benchmarks for configuration testing and for the development of user doctrine and tactics. The PAC-3 Missile Program focuses on developing, fabricating and testing the high velocity, hit to kill, surface to air missile and associated ground support equipment to provide essential increases in battle space, accuracy, lethality and firepower to counter and destroy evolving air defense threats. Funds will ensure PAC-3 will remain interoperable in the BMDS. The missile performance is demonstrated through a series of flight tests and modeling and simulation activities. PAC-3 Block Evolutionary development efforts will further improve system interoperability, commonality, and capabilities against emerging and reactive threats.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/05 System Development and Demonstration (SDD)	R-1 NOMENCLATURE: 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
THAAD/PATRIOT Launcher										
T/P Launcher	CPFF	LMSSC/ CA	12,916						12,916	
RSC Integration	CPFF	Raytheon/MA	2,000						2,000	
Evolutionary Development										
LMMFC ED	CPAF	LMMFC/ Dallas	54,199						54,199	
Raytheon ED	CPAF	Raytheon/ MA	31,859						31,859	
RDEC ED	CPFF	MRDEC/ AL	4,368						4,368	
Block Test Program with LMMFC and Raytheon										
LMMFC FOT	CPAF	LMMFC, Dallas	20,225						20,225	
RSC Integration	CPAF	Raytheon, MA	12,464						12,464	
RDEC FOT	MIPR	MRDEC, AL	3,358						3,358	
Subtotal Product Development			141,389	0		0		0	141389	

Remarks

FY 2003 efforts included:
- Continuing development of common launcher electronics for a THAAD/PATRIOT launcher.
- Development and integration of cost reduction initiatives (Advanced Master Frequency Generator, Multiband Radio Frequency Data Link, and Advance Inertial Measurement Unit) for implementation.
- Test planning, preparation, and analysis of the Congressionally directed Ripple Fire Test and future test efforts.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/05 System Development and Demonstration (SDD)	R-1 NOMENCLATURE: 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Evolutionary Development										
SETA	CPAF	CAS/ AL	3,822						3,822	
OGA	MIPR	PO/ AL	3,290						3,290	
Block Test Program with LMMFC and Raytheon										
SETA	CPAF	CAS/AL	3,414						3,414	
OGA	MIPR	PO	3,876						3,876	
Engineering Spt	CPAF	Various	7,126						7,126	
Subtotal Support Costs			21,528	0		0		0	21528	

Remarks

FY 2003 efforts included:
- Test planning, conduct, preparation, and analysis of the Congressionally directed Ripple Fire Test and future test efforts.
- System Engineering analysis supporting the continuing MDA ? BMDS development efforts (CCB, ICS, Test & Integration).

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Complete Operational Test & Evaluation										
Operational Test Support	MIPR	Various	69,202						69,202	
Continue PAC-3 Target and Test Support										
Targets	MIPR	SMDC/ AL	108,371						108,371	
Lethality	MIPR	SMDC/ AL	37,628						37,628	

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/05 System Development and Demonstration (SDD)	R-1 NOMENCLATURE: 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block Test Program with LMMFC and Raytheon										
White Sands Missile Range	MIPR	WSMR, NM	6,868						6,868	
Targets	MIPR	SMDC/AL	10,103						10,103	
Evolutionary Development										
WSMR	MIPR	WSMR, NM	4,423						4,423	
Targets	MIPR	SMDC, AL	3,768						3,768	
Subtotal Test and Evaluation			240,363	0		0		0	240363	

Remarks

FY 2003 efforts included: - Test planning, conduct, preparation, targets, and analysis of the Congressionally directed Ripple Fire Test and future test efforts.

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Management Services										
Project Total Cost			403,280	0		0			403,280	

Remarks

MDA Exhibit R-4 Schedule Profile	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/05 System Development and Demonstration (SDD)**	R-1 NOMENCLATURE: **0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD**

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	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
Production Milestones																												
PAC-3 Missile Block 02 Production DAB	▲																											
PAC-3 Missile Block 04 Production DAB								Δ																				
PAC-3 Missile Block 06 Production DAB																				Δ								
Testing Milestones																												
PAC-3 Missile FOT						Δ																						
Decisions																												
PAC-3 IOC												Δ																

MDA Exhibit R-4A Schedule Detail	Date: February 2004
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/05 System Development and Demonstration (SDD)**	R-1 NOMENCLATURE: **0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD**

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Production Milestones							
PAC-3 Missile Block 02 Production DAB	1Q						
PAC-3 Missile Block 04 Production DAB		4Q					
PAC-3 Missile Block 06 Production DAB					4Q		
Testing Milestones							
PAC-3 Missile FOT		2Q					
Decisions							
PAC-3 IOC			4Q				