

UNCLASSIFIED

MDA RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604865C PAC3 - EMD
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COST <i>(In Thousands)</i>	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	81892	128199	0	0	0	0	0	0	210091
2014 Patriot	0	128199	0	0	0	0	0	0	210091
2257 Patriot	81892	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

The PATRIOT Advanced Capability-3 (PAC-3) program was restructured from project 2257 in FY 2001 to project 2014 in FY 2002-2007.

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 PAC-3 Upgrade Program is the latest evolution of the phased materiel change improvement program to PATRIOT. 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 System (BMDS). The flow down of BMD System capability specifications resulting from Missile Defense National Team efforts in BM/C² and Systems Engineering & Integration will guide the integration of PAC-3 into the BMD System, the BMDS BM/C² architecture, and the BMD testbed. PATRIOT is pursuing integration of PATRIOT Battle Management Command, Control, Communications and Intelligence (BMC3I) with the Project Manager, Air Defense Command and Control Systems to take advantage of previous U.S. Army developments that can be incorporated into the PATRIOT program. The Army requirement for PAC-3 supports the Legacy to Objective transition path of the Transformation Campaign Plan.

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B. Program Change Summary	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
Previous President's Budget (<u>FY 2002</u> PB)	81016	0	77200*
Appropriated Value	81016	129100	
a. Congressional General Reductions	-1165		
b. SBIR / STTR	-1759		
c. OSD Reductions		-901	
d. Below Threshold Reprogramming	3800		
e. Rescissions			
Adjustments to Budget Years Since <u>FY 2002</u> PB			-77200**
Current Budget Submit (<u>FY 2003</u> Budget Estimates)	81892	128191	0

Change Summary Explanation:

Funding: FY 2001 (-2924) Congressional general reductions
 FY 2001 (+3800) Internal realignment

Funding:

* FY 2003: Previous Administration's President's Budget.
 ** This Program is transferring to the service.

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MDA RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2002					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604865C PAC3 - EMD			PROJECT 2014					
COST (In Thousands)				FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2014 Patriot				0	128199	0	0	0	0	0	0	210091
<p>A. <u>Mission Description and Budget Item Justification</u></p> <p>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. 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 System (BMDS). The flow down of BMD System capability specifications resulting from Missile Defense National Team efforts in BM/C² and Systems Engineering & Integration will guide the integration of PAC-3 into the BMD System, the BMDS BM/C² architecture, and the BMD testbed. PATRIOT is pursuing integration of PATRIOT Battle Management Command, Control, Communications and Intelligence (BMC3I) with the Project Manager, Air Defense Command and Control Systems to take advantage of previous U.S. Army developments that can be incorporated into the PATRIOT program. The Army requirement for PAC-3 supports the Legacy to Objective transition path of the Transformation Campaign Plan.</p> <p>FY 2001 Accomplishments:</p> <ul style="list-style-type: none"> • 0 This project was reports in Project 2257, Program Element 0604865C in FY01. <p>Total 0</p> <p>FY 2002 Planned Program:</p> <ul style="list-style-type: none"> • 42787 Complete PAC-3 missile Engineering and Manufacturing Development (EMD) program. • 11000 Initiate follow-on Block test program with Lockheed Martin Missiles and Fire Control (LMMFC)-Dallas and Raytheon. • 31923 Continue Operation Test & Evaluation. • 6390 Continue PAC-3 Target and Test Support. • 36099 Evolutionary Development. <p>Total 128199</p> <p>FY 2003 Planned Program:</p> <ul style="list-style-type: none"> • 0 This project will transfer to the Service (U.S. Army). <p>Total 0</p>												
Project 2014				Page 3 of 10 Pages				Exhibit R-2A (PE 0604865C)				

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MDA RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE February 2002
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development		PE NUMBER AND TITLE 0604865C PAC3 - EMD
		PROJECT 2014

B. Other Program Funding Summary	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
PE 0604865A Patriot PAC-3			150819	177404	79774	22045	16295		446337
PE 0604865C PAC-3 EMD	81892								
PE 0208865C PAC-3 Procurement	357692								
PE 0208865C PAC3 Procurement		731455							1094266
C49200, PATRIOT PAC-3 Procurement			471670	450514	501107	502977	501977	1545301	3973546
C50700, PATRIOT Mods	22718	24942	151307	234600	90918	79431	81634	521362	684830
CA0267, Initial Spares	2625	726	40655	32692	15206	15622	9811	32337	117337

C. Acquisition Strategy: 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 Block 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. 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. 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 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.

D. Schedule Profile	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>
Configuration 3 Initial Operational Test & Evaluation (IOT&E)		1-4Q						
PAC-3 FUE	4Q							
Milestone III		4Q						
PAC-3 Missile FRP			1Q					
PAC-3 Missile FOT			4Q					
PAC-3 Missile IOC					4Q			
Initiate PAC-3 Evolutionary Block Upgrades		1Q						
Evolutionary Block Upgrades earliest Transition to Production					2Q			

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PROJECT
2014

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PAC-3 Missile EMD	SS-CPIF	LMMFC/TX	959518	12000	1Q				971518	
b. PAC-3 Missile Integration	SS-CPIF	Raytheon/MA	174933	6000	1Q				180933	
c. RDEC	MIPR	MRDEC/AL	68999	1490	1Q				70489	
d. PAC-3 Missile FOT	SS-CPIF	LMMFC/TX		6000	2Q				6000	
e. RSC Integration	SS-CPIF	Raytheon/MA		5000	2Q				5000	
f. PAC-3 Evolutionary Development			9500	36099	2Q				45599	
Subtotal Product Development:			1212950	66589					1279539	

Remark:

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. SETA	C-CPAF	CAS/AL	48683	4690	1Q				53373	
b. OGA/In-House	PO	Various	81086	10407	1Q				91493	
c. Engineering Support	SS-CPIF	Raytheon/MA	81575	2300	2Q				83875	
Subtotal Support Costs:			211344	17397					228741	

Remark:

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BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
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PROJECT
2014

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 2002</u> Cost	<u>FY 2002</u> Award Date	<u>FY 2003</u> Cost	<u>FY 2003</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. White Sands Missile Range	MIPR	WSMR/NM	100461	5900	1Q				106361	
b. ADSAM			4668						4668	
c. Impact			3467						3467	
d. Operational Test Support	MIPR		35279	31923	1Q				67202	
e. Targets	MIPR	SMDC/AL	101981	6390	1Q				108371	
f. Lethality	MIPR	SMDC/AL	37628						37628	
Subtotal Test and Evaluation:			283484	44213					327697	

Remark:

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 2002</u> Cost	<u>FY 2002</u> Award Date	<u>FY 2003</u> Cost	<u>FY 2003</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. N/A										
Subtotal Management Services:										

Remark:

Project Total Cost:			1707778	128199					1835977	
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Remark:

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604865C PAC3 - EMD	PROJECT 2257
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COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2257 Patriot	81892	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

PATRIOT is a long range, mobile, field Army and Corps air defense system, using guided missiles to simultaneously engage and destroy multiple targets 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. 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 provides for a new missile design that provides 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 (TBM's), cruise missiles (CM's), unmanned aerial vehicles (UAVs) and other air breathing threats as part of the Theater Missile Defense (TMD) family of systems, a multilayered Theater Air and Missile Defense Architecture. PATRIOT is pursuing integration of PATRIOT Battle Management Command, Control, Communications and Intelligence (BMC3I) with the Project Manager, Air Defense Command and Control Systems to take advantage of previous U.S. Army developments that can be incorporated into the PATRIOT program.

FY 2001 Accomplishments:

- 67289 Continue PAC-3 missile Engineering and Manufacturing Development (EMD) program.
 - 9313 Continue PAC-3 Target and Test Support.
 - 5290 Continue Operational Test Support.
- Total 81892

FY 2002 Planned Program:

- 0 This project was reports in Project 2014, Program Element 0604865C in FY02.
- Total 0

FY 2003 Planned Program:

- 0 This project will transfer to the Service (U.S. Army).
- Total 0

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604865C PAC3 - EMD
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B. <u>Other Program Funding Summary</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	To <u>Compl</u>	Total <u>Cost</u>
PE 0208865C PAC-3 Procurement	357692								

C. Acquisition Strategy: The design objective of the PATRIOT system is to provide a 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. Configuration groupings are a convenience for managing block changes and are not a performance related grouping. 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. The missile performance is demonstrated through a series of flight tests and modeling and simulation activities. A PAC-3 Follow-on Test Program will supplement EMD by demonstrating system and missile improvements and capabilities not verified during EMD flight tests. Evolutionary development efforts will further improve system capabilities against emerging and reactive threats.

D. <u>Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>
PAC-3 FUE	4Q							

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PROJECT
2257

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 2002</u> Cost	<u>FY 2002</u> Award Date	<u>FY 2003</u> Cost	<u>FY 2003</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PAC-3 Missile EMD	SS-CPIF	LMMFC/TX	959518						959518	
b. PAC-3 Missile Integration	SS-CPIF	Raytheon/MA	174933						174933	
c. RDEC	MIPR	MRDEC/AL	68999						68999	
d. PAC-3 Missile FOT	SS-CPIF	LMMFC/TX								
e. RSC Integration	SS-CPIF	Raytheon/MA								
f. PAC-3 Evolutionary Development			9500						9500	
Subtotal Product Development:			1212950						1212950	

Remark:

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 2002</u> Cost	<u>FY 2002</u> Award Date	<u>FY 2003</u> Cost	<u>FY 2003</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. SETA	C-CPAF	CAS/AL	48683						48683	
b. OGA/In-House	PO		81086						81086	
c. Engineering Support	SS-CPIF	Raytheon/MA	81575						81575	
Subtotal Support Costs:			211344						211344	

Remark:

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PROJECT
2257

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 2002</u> Cost	<u>FY 2002</u> Award Date	<u>FY 2003</u> Cost	<u>FY 2003</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. White Sands Missile Range	MIPR	WSMR/NM	100461						100461	
b. ADSAM			4668						4668	
c. Impact			3467						3467	
d. Operational Test Support	MIPR		35279						35279	
e. Targets	MIPR	SMDC/AL	101981						101981	
f. Lethality	MIPR	SMDC/AL	37628						37628	
Subtotal Test and Evaluation:			283484						283484	

Remark:

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 2002</u> Cost	<u>FY 2002</u> Award Date	<u>FY 2003</u> Cost	<u>FY 2003</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. N/A										
Subtotal Management Services:										

Remark:

Project Total Cost:			1707778						1707778	
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Remark: