

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army	DATE: February 2012
---	----------------------------

APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605456A: <i>PAC-3/MSE MISSILE</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	121.475	88.909	69.029	-	69.029	69.175	130.348	63.975	65.771	Continuing	Continuing
PA3: <i>PAC-3/MSE MISSILE</i>	121.475	88.909	69.029	-	69.029	69.175	130.348	63.975	65.771	Continuing	Continuing

Note

\$31.442 million adjustment in FY 2013 reflects revised test and evaluation efforts.

A. Mission Description and Budget Item Justification

This system is an integral part of the overall Air and Missile Defense (AMD) architecture and will provide for an incrementally fielded Integrated Air and Missile Defense Fire Control System/capability for the composite Army Air and Missile Defense Battalions.

The Patriot Advanced Capability 3 (PAC-3) is the evolution of the phased material change improvement to Patriot. It is continuously being improved via hardware and software changes to provide enhanced performance across the spectrum for system and threat intercept performance. The latest missile improvement is the Missile Segment Enhancement (MSE). It is being developed by the U.S. for Patriot to meet the U.S. operational requirements. The MSE will provide a more agile and lethal interceptor that increases the engagement envelope/defended area of Patriot 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 software, and insensitive munitions improvements. System testing will continue as software and hardware improvements are developed.

B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	62.500	88.993	37.587	-	37.587
Current President's Budget	121.475	88.909	69.029	-	69.029
Total Adjustments	58.975	-0.084	31.442	-	31.442
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	61.200	-			
• SBIR/STTR Transfer	-1.860	-			
• Adjustments to Budget Years	-	-	31.442	-	31.442
• Other Adjustments 1	-0.365	-0.084	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army								DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0605456A: PAC-3/MSE MISSILE				PROJECT PA3: PAC-3/MSE MISSILE			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
PA3: PAC-3/MSE MISSILE	121.475	88.909	69.029	-	69.029	69.175	130.348	63.975	65.771	Continuing	Continuing
Quantity of RDT&E Articles											
Note From FY 2006 through FY 2010, this system was funded under the PATRIOT/MEADS Combined Aggregate Program (CAP) program element: 0604869A.											
A. Mission Description and Budget Item Justification This system is an integral part of the overall Air and Missile Defense (AMD) architecture and will provide for an incrementally fielded Integrated Air and Missile Defense Fire Control System/capability for the composite Army Air and Missile Defense Battalions. The Patriot Advanced Capability 3 (PAC-3) is the evolution of the phased material change improvement to Patriot. It is continuously being improved via hardware and software changes to provide enhanced performance across the spectrum for system and threat intercept performance. The latest missile improvement is the Missile Segment Enhancement (MSE). It is being developed by the U.S. for Patriot to meet the U.S. operational requirements. The MSE will provide a more agile and lethal interceptor that increases the engagement envelope/defended area of Patriot 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 software, and insensitive munitions improvements. System testing will continue as software and hardware improvements are developed.											
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2011	FY 2012	FY 2013	
Title: MSE PAC-3 Articles: Description: Funding is provided for the following effort FY 2011 Accomplishments: MSE specific qualification activities to include Solid Rocket Motor (SRM), Ignition Safety Device (ISD), canister, Functional Configuraton Audit (FCA). and completion of Guided Test Flight 2 (GTF-2), and MSE corrective action upgrade for future follow-on qualification activities. FY 2012 Plans: Continues MSE upgrade and qualification activities. FY 2013 Plans:								62.140	6.000	3.998	
								0	0		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army		DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605456A: <i>PAC-3/MSE MISSILE</i>	PROJECT PA3: <i>PAC-3/MSE MISSILE</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012
MSE specific qualification activities to include Solid Rocket Motor (SRM), Ignition Safety Device (ISD), canister, Functional Configuration Audit (FCA), and completion of Guided Test Flight 2 (GTF-2), and MSE corrective action upgrade for future follow-on qualification activities.			FY 2013
Title: Program integration efforts Description: Funding is provided for the following effort FY 2011 Accomplishments: Implementation of common redesign program integration efforts to support PAC-3/MSE missile improvements for initiation and completion of US operational needs. FY 2012 Plans: Integration of PAC-3 modernization hardware items in support of MSE follow-on flight tests (task 7.4 and 7.5) and MSE ground system integration/software. FY 2013 Plans: Integration of PAC-3 modernization hardware items in support of MSE follow-on flight tests (task 7.4 and 7.5) and MSE ground system integration/software.		32.735 0	40.009 0
Title: Testing, targets, and modeling and simulation Description: Funding is provided for the following effort FY 2011 Accomplishments: White Sands Missile Range (WSMR) Engineering support, hardware and set-up of test activities to prove out test readiness. FY 2012 Plans: Modeling and simulation, and MSE follow-on test. FY 2013 Plans: Range support for LFTE, modeling and simulation, and MSE follow-on test.		26.600 0	40.500
Accomplishments/Planned Programs Subtotals		121.475	69.029

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army									DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT				
2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				PE 0605456A: PAC-3/MSE MISSILE				PA3: PAC-3/MSE MISSILE				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost	
• PE 0604869A: PE 0604869A, Proj M06, PATRIOT/MEADS Combined Aggregate Program (CAP)	450.584	389.630	400.861		400.861					Continuing	Continuing	
• SSN C53101: SSN C53101, MSE Missile		74.953	12.850		12.850		505.084	596.387	566.757	Continuing	Continuing	
• PE 0102419A: PE 0102419A, Proj E55, JLENS	399.477	327.338	190.422		190.422		32.480	24.130	24.612	Continuing	Continuing	
• PE 0605455A: PE 0605455A, Proj 35 SLAMRAAM	18.358	1.529								Continuing	Continuing	
• SSN C81002: SSN C81002, SLAMRAAM Launcher	2.355									Continuing	Continuing	
• PE 0604319A: PE 0604319A, Proj DU3, IFPC II - Intercept	4.143	9.269	76.039		76.039		122.355	146.463	151.769	Continuing	Continuing	
• SSN WK5053: SSN WK5053, FAAD GBS	258.413	3.958	7.980		7.980					Continuing	Continuing	
• PE 0605457A: PE 0605457A, Proj S40 Army Integrated Air and Missile Defense (AIAMD)	246.691	270.180	262.211		262.211		394.260	210.580	135.072	Continuing	Continuing	
• SSN BZ5075: SSN BZ5075, Army IAMD Battle Command System (IBCS)							103.453	281.828	426.582	Continuing	Continuing	
• PE 0208053m: PE 0208053m Proj 635, Joint Tact Grd Station-P3I (MIP)	12.005	27.586	31.738		31.738		8.006	8.134	8.314	Continuing	Continuing	
• SSN BZ8401: SSN BZ8401, Joint Tactical Ground Station (JTGS)	9.227	1.199	2.680		2.680		4.432	4.496	4.768	Continuing	Continuing	
• PE 0604820A: PE 0604820A, Proj E10, SENTINEL		2.885	3.486		3.486		1.948	2.972	3.022	Continuing	Continuing	
• PE 654741A: PE 654741A, Proj 126,146,149, Air Defense C2I Eng Dev	139.662	82.932	73.333		73.333		18.058	18.676	20.049	Continuing	Continuing	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605456A: <i>PAC-3/MSE MISSILE</i>	PROJECT PA3: <i>PAC-3/MSE MISSILE</i>
<u>D. Acquisition Strategy</u> <p>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. PAC-3 system development efforts further improve system capabilities against emerging and reactive threats. 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. The latest missile improvement is the PAC-3 MSE program which provides extended ranges, insensitive munitions enhancements, and greater logistical flexibility. The PAC-3 MSE will be fielded to Patriot units.</p>		
<u>E. Performance Metrics</u> <p>Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army											DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0605456A: PAC-3/MSE MISSILE				PROJECT PA3: PAC-3/MSE MISSILE					
Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	Various	Various:Huntsville, AL	1.003	1.003		1.003		-		1.003	Continuing	Continuing	Continuing
Subtotal			1.003	1.003		1.003		-		1.003			
Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Segment Enhancement (MSE) - Lockheed Martin Missiles and Fire Control (LMMFC)	C/CPIF	LMMFC:Dallas, TX	62.140	6.000		3.998		-		3.998	Continuing	Continuing	Continuing
Program Integration	Various	Various:Huntsville, AL	17.607	20.870		6.443		-		6.443	Continuing	Continuing	Continuing
PAC-3 Product Office	Various	PO:Huntsville, Alabama	4.997	2.327		2.304		-		2.304	Continuing	Continuing	Continuing
MSE/PAC-3 Raytheon	Various	Raytheon:Waltham, Massachusetts	3.000	18.500		24.602		-		24.602	Continuing	Continuing	Continuing
SETA Contracts	Various	Various:Huntsville, AL	2.380	3.609		3.478		-		3.478	Continuing	Continuing	Continuing
U.S. Other Government Agencies (OGAs)	Various	Various:Huntsville, AL	3.748	6.200		6.201		-		6.201	Continuing	Continuing	Continuing
Subtotal			93.872	57.506		47.026		-		47.026			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Targets/Threat Simulators	Various	Various:Huntsville, AL	16.500	16.500		1.500		-		1.500	Continuing	Continuing	Continuing
Modeling and simulation	Various	Various:Huntsville, AL	1.900	1.700		1.000		-		1.000	Continuing	Continuing	Continuing
Contractor T&E funding	Various	Various:Huntsville, AL	3.100	3.700		5.150		-		5.150	Continuing	Continuing	Continuing
Other T&E Funding	Various	Various:Holloman AFB, NM	5.100	8.500		13.350		-		13.350	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army											DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0605456A: <i>PAC-3/MSE MISSILE</i>				PROJECT PA3: <i>PAC-3/MSE MISSILE</i>					

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			26.600	30.400		21.000		-		21.000			

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	121.475	88.909		69.029		-		69.029			

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Army			DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0605456A: <i>PAC-3/MSE MISSILE</i>		PROJECT PA3: <i>PAC-3/MSE MISSILE</i>	

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
PDB 7 Fielding - Modernized Adjunct Processor (MAP)																												
MSE Production Decision																												
MSE Production Contract Award																												
PDB 8 Fielding - Radar Digital Processor (RDP)																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Army			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605456A: <i>PAC-3/MSE MISSILE</i>	PROJECT PA3: <i>PAC-3/MSE MISSILE</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PDB 7 Fielding - Modernized Adjunct Processor (MAP)	1	2013	1	2013
MSE Production Decision	1	2014	1	2014
MSE Production Contract Award	1	2014	1	2014
PDB 8 Fielding - Radar Digital Processor (RDP)	1	2016	1	2016