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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Army										Date: March 2014		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile							
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	63.123	68.807	35.009	-	35.009	2.271	-	-	-	Continuing	Continuing
PA3: PAC-3/MSE Missile	-	63.123	68.807	35.009	-	35.009	2.271	-	-	-	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

Note

FY15 Adjustments to Budget Years: Decrease of \$78.758 million realigned to PE 0205456A (EF9); Decrease of \$15.860 million realigned to support Army higher priority requirement.

Development efforts after FY15 are reported under PE 0205456A (EF9).

A. Mission Description and Budget Item Justification

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

The Missile Segment Enhancement (MSE) is the latest version of the PAC-3 Missile. It provides a more agile and lethal interceptor that increases the engagement envelop/defended area of the PATRIOT System. Both Live Fire Test and Evaluation (LFT&E) and Initial Operational Test & Evaluation (IOT&E) activities are required to be executed during Low Rate Initial Production (LRIP) in support of the planned FY16 Full Rate Production (FRP) decision. As software and hardware improvements are developed there is a continuing need for system level modeling, simulations, and tests. Modeling and Simulation allow for performance assessment against all threats that would not be possible in flight tests due to cost, target, and range constraints. Flight testing is periodically required for validation of the Modeling and Simulation as well as satisfying Army Test & Evaluation Command/Director, Operational Test & Evaluation (ATEC/DOTE) requirements.

B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	69.029	68.843	129.627	-	129.627
Current President's Budget	63.123	68.807	35.009	-	35.009
Total Adjustments	-5.906	-0.036	-94.618	-	-94.618
• Congressional General Reductions	-0.091	-0.036			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.974	-			
• Adjustments to Budget Years	-	-	-94.618	-	-94.618

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PE 0605456A: PAC-3/MSE Missile
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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile				Project (Number/Name) PA3 / PAC-3/MSE Missile			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
PA3: PAC-3/MSE Missile	-	63.123	68.807	35.009	-	35.009	2.271	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
The Missile Segment Enhancement (MSE) is the latest version of the PAC-3 Missile. It provides a more agile and lethal interceptor that increases the engagement envelope/defended area of the PATRIOT System. Both LFT&E and IOT&E activities are required to be executed during Low Rate Initial Production (LRIP) in support of the planned FY16 Full Rate Production (FRP) decision. As software and hardware improvements are developed there is a continuing need for system level modeling, simulations, and tests. Modeling and Simulation allow for performance assessment against all threats that would not be possible in flight tests due to cost, target and range constraints. Flight testing is periodically required for validation of the Modeling and Simulation as well as satisfying ATEC/DOTE requirements.												
PATRIOT is an integral part of the overall Air and Missile Defense (AMD) Architecture and enables the incremental fielding of the system capability for Army Air and Missile Defense Battalions.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)												
Title: MSE PAC-3 Articles: Description: Funding is provided for the following efforts FY 2013 Accomplishments: MSE technical support for Follow-On flight tests and MSE specific qualification activities to include Solid Rocket Motor (SRM), Ignition Safety Device (ISD), canister, Functional Configuration Audit (FCA) completed. FY 2014 Plans: MSE hardware procurement and Live Fire Test & Evaluation (LFT&E) and IOT&E technical support for IOT&E and completiton of LFT&E. FY 2015 Plans: MSE technical support for initial PDB-8 testing.									FY 2013	FY 2014	FY 2015	
									3.998	2.090	14.300	
									-	-	-	
Title: Program Integration Efforts Articles: Description: Funding is provided for the following efforts FY 2013 Accomplishments:									24.531	27.617	-	
									-	-	-	

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army									Date: March 2014		
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile				Project (Number/Name) PA3 / PAC-3/MSE Missile			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2013	FY 2014	FY 2015
Integrated PAC-3 modernization hardware items in support of MSE follow-on flight tests (task 7.4 and 7.5) and MSE ground system integration.											
FY 2014 Plans: Integration of missile and ground system hardware and software.											
Title: Testing, Targets, and Modeling and Simulation									34.594	39.100	20.709
Articles:									-	-	-
Description: Funding is provided for the following efforts											
FY 2013 Accomplishments: Continued range support for Live Fire Test and Evaluation (LFTE), modeling and simulation, and MSE follow-on test.											
FY 2014 Plans: Continued testing program to include utilization of targets/threat simulators, test missiles, flight simulator, modeling efforts and test activities to support Test and Evaluation Master Plan (TEMP).											
FY 2015 Plans: Continues testing program to include utilization of targets/threat simulators, test missiles, flight simulator, modeling efforts and test activities to support Test and Evaluation Master Plan (TEMP) for initial IOT&E activities.											
Accomplishments/Planned Programs Subtotals									63.123	68.807	35.009
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• PE 0604869A: PE 0604869A, Proj M06, PATRIOT/MEADS Combined Aggregate Program (CAP)	348.234	-	-	-	-	-	-	-	-	-	348.234
• SSN C53101: SSN C53101, MSE Missile	8.249	690.401	384.605	-	384.605	419.791	422.527	458.724	497.553	Continuing	Continuing
• PE 0205456: PE 0205456, Proj EF9, System Integration and Test	-	-	78.758	-	78.758	64.628	67.461	65.734	117.666	Continuing	Continuing
• SSN C50016: SSN C50016, Lower-Tier Air and Missile Defense (AMD)	-	-	110.300	-	110.300	116.416	131.549	114.678	113.281	Continuing	Continuing

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Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile				Project (Number/Name) PA3 / PAC-3/MSE Missile				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost	
• PE 0102419A: PE 0102419A, Proj E55, JLENS	142.508	83.406	54.076	-	54.076	50.167	39.590	2.566	0.003	Continuing	Continuing	
• PE 0605457A: PE 0605457A, Proj S40 Army Integrated Air and Missile Defense (AIAMD)	233.892	369.452	142.584	-	142.584	215.659	228.791	170.828	154.565	Continuing	Continuing	
• PE 0604319A: PE 0604319A, Proj DU3, IFPC2, (FY12 PE 0603305A IFPC II - Intercept)	25.710	79.190	96.177	-	96.177	156.523	90.980	58.214	27.663	Continuing	Continuing	
• SSN BZ5075: SSN BZ5075, IAMD Battle Command System (IBCS)	-	-	-	-	-	21.091	206.300	298.990	379.981	Continuing	Continuing	
• PE 0604820A: PE 0604820A, Proj E10, SENTINEL	3.734	1.548	5.224	-	5.224	12.213	11.389	10.906	12.132	Continuing	Continuing	
• PE 0604741A: PE 0604741A, Proj 126,146,149, Air Defense C2I Eng Dev	42.876	18.284	15.906	-	15.906	20.248	19.632	19.878	20.165	Continuing	Continuing	
Remarks												
This program is an integral part of the Army Integrated Air and Missile Defense (IAMD) architecture.												
D. 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 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 PAC-3 MSE program evolves the PAC-3 system providing extended ranges, insensitive munitions enhancements, and greater logistical flexibility. The PAC-3 MSE will be fielded to U.S. PATRIOT units.												
E. Performance Metrics												
N/A												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile				Project (Number/Name) PA3 / PAC-3/MSE Missile					
Management Services (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	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	2.006	1.003	Dec 2012	1.100	Dec 2013	-		-		-	Continuing	Continuing	Continuing
Subtotal			2.006	1.003		1.100		-		-		-	-	-	-
Product Development (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Integration	Various	Various : Huntsville, AL	38.477	5.321	Dec 2012	5.775	Dec 2013	-		-		-	Continuing	Continuing	Continuing
MSE/PAC-3 Raytheon	Various	Raytheon : Waltham, Massachusetts	21.500	20.409	Dec 2012	10.900	Dec 2013	-		-		-	Continuing	Continuing	Continuing
SETA Contracts	Various	Various : Huntsville, AL	5.989	2.887	Jan 2013	3.764	Feb 2014	-		-		-	Continuing	Continuing	Continuing
Subtotal			65.966	28.617		20.439		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	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	26.166	1.500	Dec 2012	4.585	Dec 2013	-		-		-	Continuing	Continuing	Continuing
Modeling and simulation	Various	Various : Huntsville, AL	2.974	1.000	Dec 2012	3.930	Dec 2013	-		-		-	Continuing	Continuing	Continuing
Contractor T&E funding	Various	Various : Huntsville, AL / Dallas, TX	5.278	5.150	Dec 2012	1.048	Dec 2013	12.709	Feb 2015	-		12.709	Continuing	Continuing	Continuing
Other T&E Funding (Live Fire)	MIPR	Various : Holloman AFB, NM	10.112	13.350	Dec 2012	3.605	Dec 2013	7.000	Dec 2014	-		7.000	Continuing	Continuing	Continuing
Mobile Flight Mission Simulator	TBD	Raytheon : Massachusetts	9.700	-		11.800	Dec 2013	-		-		-	Continuing	Continuing	Continuing
PDB 8 DT/OT	TBD	Various : Huntsville, AL	0.000	-		9.900	Dec 2013	-		-		-	-	9.900	-

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Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PAC-3 Product Office	Various	Inhouse : Huntsville, AL	7.324	2.304	Dec 2012	2.400	Dec 2013	1.000	Dec 2014	-		1.000	-	13.028	-
U.S. Other Government Agencies (OGAs)	MIPR	Various : Huntsville, AL	9.948	6.201	Dec 2012	7.900	Nov 2013	3.000	Dec 2014	-		3.000	-	27.049	-
Missile Segment Enhancement (MSE) - Lockheed Martin Missiles and Fire Control (LMMFC)	C/CPIF	LMMFC Dallas, : Texas	68.140	3.998	Dec 2012	2.100	Dec 2013	11.300	Dec 2014	-		11.300	-	85.538	-
Subtotal			139.642	33.503		47.268		35.009		-		35.009	-	-	-
			Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			207.614	63.123		68.807		35.009		-		35.009	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army	Date: March 2014
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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile	Project (Number/Name) PA3 / PAC-3/MSE Missile
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	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
Missile Segment Enhancement (MSE) Development																												
Milestone Decision C Defense Acquisition Board Scheduled																												
MSE System Test and Evaluation																												
DTE																												
IOT&E																												
MSE FRP Decision																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile	Project (Number/Name) PA3 / PAC-3/MSE Missile	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Missile Segment Enhancement (MSE) Development	1	2011	4	2013
Milestone Decision C Defense Acquisition Board Scheduled	2	2014	2	2014
MSE System Test and Evaluation	1	2011	2	2016
DTE	3	2014	2	2015
IOT&E	3	2015	1	2016
MSE FRP Decision	2	2016	2	2016