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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	86.223	34.991	2.272	-	2.272	-	-	-	-	-	123.486
PA3: <i>PAC-3/MSE Missile</i>	-	86.223	34.991	2.272	-	2.272	-	-	-	-	-	123.486

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 envelope/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 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)	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>
Previous President's Budget	68.807	35.009	2.271	-	2.271
Current President's Budget	86.223	34.991	2.272	-	2.272
Total Adjustments	17.416	-0.018	0.001	-	0.001
• Congressional General Reductions	-0.036	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	19.701	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.249	-			
• Adjustments to Budget Years	-	-0.018	0.001	-	0.001

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
PA3: PAC-3/MSE Missile	-	86.223	34.991	2.272	-	2.272	-	-	-	-	-	123.486
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 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 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)

	FY 2014	FY 2015	FY 2016
Title: MSE PAC-3 Description: Funding is provided for the following efforts FY 2014 Accomplishments: MSE technical support for test program and initial PDB-8 testing. FY 2015 Plans: MSE technical support for initial PDB-8 testing.	9.372	12.300	-
Title: Program Integration Efforts Description: Funding is provided for the following efforts FY 2014 Accomplishments: Integration of missile and ground system hardware and software.	16.683	-	-
Title: Testing, Targets, and Modeling and Simulation Description: Funding is provided for the following efforts FY 2014 Accomplishments:	60.168	22.691	2.272

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B. Accomplishments/Planned Programs (\$ in Millions)									FY 2014	FY 2015	FY 2016	
Continued testing program to include utilization of targets/threat simulators, test missiles, mobile flight mission simulator, modeling efforts, PBD 8 DT and OT and test activities to support the 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.												
FY 2016 Plans: Continues testing program in support of the Test and Evaluation Master Plan (TEMP) for IOT&E activities.												
Accomplishments/Planned Programs Subtotals									86.223	34.991	2.272	
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost	
• SSN C53101: SSN C53101, MSE Missile	690.401	532.605	414.946	-	414.946	430.622	462.676	493.613	569.488	Continuing	Continuing	
• SSN C50016: SSN C50016, Lower-Tier Air and Missile Defense (AMD)	-	110.300	115.075	-	115.075	130.366	113.676	123.582	151.421	Continuing	Continuing	
• PE 0102419A: PE 0102419A, Proj E55, Joint Aero Stat Program - EMD Effort	57.976	-	-	-	-	-	-	-	-	-	57.976	
• PE 0205456: PE 0205456, Proj EF9, System Integration and Test	-	78.720	64.159	-	64.159	60.214	58.722	75.315	96.392	Continuing	Continuing	
• PE 0604319A: PE 0604319A, Proj DU3, IFPC2, (FY12 PE 0603305A IFPC II - Intercept)	76.559	96.131	155.361	-	155.361	90.323	58.562	43.384	109.495	Continuing	Continuing	
• SSN C62002: SSN C62002, IFPC Inc 2-I Block 1 Missile	-	-	-	-	-	19.920	48.046	139.362	175.738	Continuing	Continuing	
• SSN C62001: SSN C62001, IFPC Inc 2-I Block 1 System	-	-	-	-	-	-	73.552	123.106	186.840	Continuing	Continuing	
• PE 0604820A: PE 0604820A, Proj E10, SENTINEL	1.796	5.221	12.309	-	12.309	11.465	10.971	12.191	30.277	Continuing	Continuing	

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C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost	
• PE 0605457A: PE 0605457A, Proj S40 Army Integrated Air and Missile Defense (AIAMD)	358.192	152.516	214.099	-	214.099	227.103	169.575	153.451	33.424	Continuing	Continuing	
• SSN BZ5075: SSN BZ5075, IAMD Battle Command System (IBCS)	-	-	20.917	-	20.917	204.513	296.361	375.763	443.637	Continuing	Continuing	
• PE 0604741A: PE 0604741A, Proj 126,146,149, Air Defense C2I Eng Dev	38.412	15.898	24.569	-	24.569	27.131	20.524	20.018	18.082	Continuing	Continuing	
• SSN AD50700: SSN AD50700; Air & Missile Defense Planning & Control Sys	13.090	27.374	28.176	-	28.176	32.443	32.690	33.032	13.366	Continuing	Continuing	
• PE 0202429A: PE 0202429A Proj EP8 JLENS COCOM EXERCISE	22.659	43.248	40.565	-	40.565	46.371	6.746	-	-	-	159.589	
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												

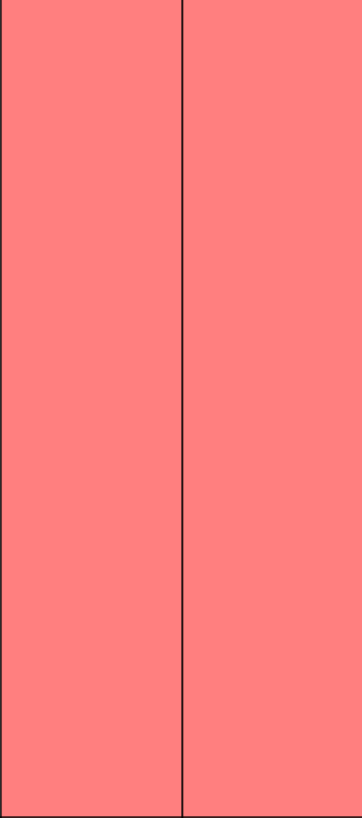
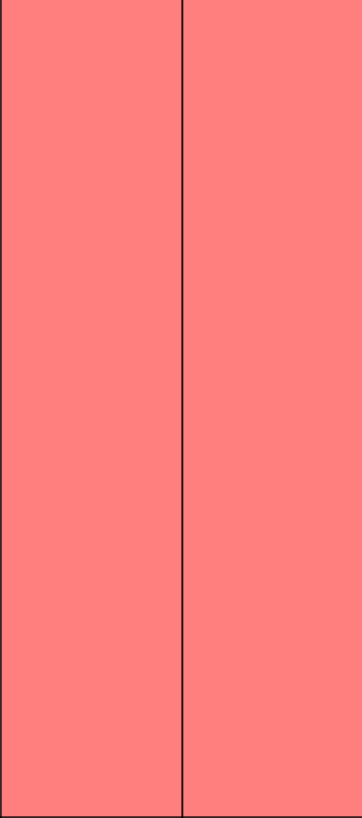
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0605456A / PAC-3/MSE Missile				Project (Number/Name) PA3 / PAC-3/MSE Missile					
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	3.009	1.100	Dec 2013	-		-		-		-	-	4.109	4.109
PAC-3 Product Office	Various	Various : Huntsville, AL	9.628	2.400	Dec 2013	1.000	Dec 2014	-		-		-	-	13.028	-
Subtotal			12.637	3.500		1.000		-		-		-	-	17.137	4.109
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	43.798	5.783	Dec 2013	-		-		-		-	-	49.581	49.573
MSE/PAC-3 Raytheon	Various	Raytheon : Waltham, Massachusetts	41.909	10.900	Dec 2013	-		-		-		-	-	52.809	52.809
SETA Contracts	Various	Various : Huntsville, AL	8.876	3.772	Feb 2014	-		-		-		-	-	12.648	12.640
Subtotal			94.583	20.455		-		-		-		-	-	115.038	115.022
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	27.666	4.585	Dec 2013	-		-		-		-	-	32.251	32.251
Modeling and Simulation	Various	Various : Huntsville, AL	3.974	3.930	Dec 2013	-		-		-		-	-	7.904	7.904
Contractor T&E funding	Various	Various : Huntsville, AL / Dallas, TX	10.428	1.048	Dec 2013	5.691	Dec 2014	-		-		-	-	17.167	24.185
Other T&E Funding	MIPR	Various : Holloman AFB, NM	23.462	3.605	Dec 2013	7.000	Dec 2014	2.272	Dec 2015	-		2.272	-	36.339	36.338
Mobile Flight Mission Simulator	TBD	Raytheon : Massachusetts	9.700	11.800	Dec 2013	-		-		-		-	-	21.500	21.500

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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
PDB 8 DT/OT	TBD	Various : Huntsville, AL	0.000	27.300	Dec 2013	7.000		-		-		-	-	34.300	9.900
U.S. Other Government Agencies (OGAs)	MIPR	Various : Huntsville, AL	16.149	7.900	Nov 2013	3.000	Nov 2014	-		-		-	-	27.049	27.049
Missile Segment Enhancement (MSE) - Lockheed Martin Missiles and Fire Control (LMMFC)	C/CPIF	LMMFC Dallas, : Texas	72.138	2.100	Dec 2013	11.300	Dec 2014	-		-		-	-	85.538	85.538
Subtotal			163.517	62.268		33.991		2.272		-		2.272	-	262.048	244.665
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			270.737	86.223		34.991		2.272		-		2.272	-	394.223	363.796
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army																Date: February 2015												
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										
Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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) Milestone Decision C Defense Acquisition Board Scheduled																												
MSE System Test and Evaluation																												
DTE																												
IOT&E																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army			Date: February 2015
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
Milestone Decision C Defense Acquisition Board Scheduled	2	2014	2	2014
MSE System Test and Evaluation	1	2014	2	2017
DTE	1	2016	2	2016
IOT&E	3	2016	1	2017