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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0605456A: PAC-3/MSE MISSILE							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	62.500	0.000	62.500	62.100	3.500	62.000	64.500	Continuing	Continuing
PA3: PAC-3/MSE MISSILE	0.000	0.000	62.500	0.000	62.500	62.100	3.500	62.000	64.500	Continuing	Continuing

Note

From 2006 thru 2010, this system was funded under the PATRIOT/MEADS Combined Aggregate Program (CAP) program element: 0604869A

A. Mission Description and Budget Item Justification

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) and has been accepted as the baseline missile for the Medium Extended Air Defense System (MEADS). 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 and the MEADS 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.

B. Program Change Summary (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	62.500	0.000	62.500
Total Adjustments	0.000	0.000	62.500	0.000	62.500
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments 1	0.000	0.000	62.500	0.000	62.500

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
PA3: PAC-3/MSE MISSILE	0.000	0.000	62.500	0.000	62.500	62.100	3.500	62.000	64.500	Continuing	Continuing
Quantity of RDT&E Articles											
Note From 2006 thru 2010, this system was funded under the PATRIOT/MEADS Combined Aggregate Program (CAP) program element: 0604869A											
A. Mission Description and Budget Item Justification 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) and has been accepted as the baseline missile for the Medium Extended Air Defense System (MEADS). 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 and the MEADS 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.											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Program #1						0.000	0.000	18.940	0.000	18.940	
Continue MSE program with upgrades with LMMFC and Raytheon											
FY 2009 Accomplishments: FY 2009											
FY 2010 Plans: FY 2010											

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Program #2 Implementation of common redesign program integration efforts to support PAC-3/MSE improvements and to meet US operational requirements. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	0.000	31.960	0.000	31.960
Program #3 Provides for range support for testing, targets, and modeling and simulation FY 2009 Accomplishments: FY 2009	0.000	0.000	11.600	0.000	11.600

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B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
FY 2010 Plans: FY 2010											
FY 2011 Base Plans: FY 2011 Base											
FY 2011 OCO Plans: FY 2011 OCO											
Accomplishments/Planned Programs Subtotals						0.000	0.000	62.500	0.000	62.500	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: PE 0604869A, Proj M06, PATRIOT/MEADS Combined Aggregate Program (CAP)	454.565	566.215	468.139	0.000	468.139	408.012	325.184	240.018	75.585	Continuing	Continuing
• Ord. #2: SSN C53101,MSE Missile	0.000	0.000	0.000	0.000	0.000	607.796	534.022	516.479	503.786	Continuing	Continuing
• Ord. #3: SSN C53201, PATRIOT/MEADS GSE	0.000	0.000	0.000	0.000	0.000	0.000	126.589	217.639	528.435	Continuing	Continuing
• Ord. #4: PE 0102419A, Proj E55, JLENS	344.850	328.356	372.493	0.000	372.493	176.198	118.448	0.000	0.000	Continuing	Continuing
• Ord. #5: SSN BZ0525, JLENS Production	0.000	0.000	0.000	0.000	0.000	470.661	419.801	427.731	394.325	Continuing	Continuing
• Ord. #6: PE 0604802A, Prpj S23, SLAMRAAM	31.306	56.441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Ord. #7: PE 0605450A, Proj S345 SLAMRAAM	0.000	0.000	23.700	0.000	23.700	17.800	53.500	7.500	7.600	Continuing	Continuing

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #8: SSN C81002, SLAMRAAM Launcher	40.349	0.000	116.732	0.000	116.732	83.302	233.762	241.691	249.895	Continuing	Continuing
• Ord. #9: SSN C81004, SLAMRAAM Missile	0.000	0.000	0.000	0.000	0.000	0.000	39.542	39.426	15.416	Continuing	Continuing
• Ord. #10: PE 0603305A, Proj TR7, Protection Capability II - Intercept	0.000	0.000	4.296	0.000	4.296	21.303	74.197	93.679	94.006	Continuing	Continuing
• Ord. #11: SSN WK5053, FAAD GBS	0.000	0.000	91.467	0.000	91.467	7.948	7.935	0.000	0.000	Continuing	Continuing
• Ord. #12: PE 0603327A, Proj S34, AMD System of System Engineering and Integration	111.496	166.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Ord. #13: PE 0605457A, Proj S40 Army Integrated Air and Missile Defense (AIAMD)	0.000	0.000	251.124	0.000	251.124	271.543	251.646	228.639	129.043	Continuing	Continuing
• Ord. #14: SSN BZ5075, Army IAMD Battle Command System (IBCS)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.045	99.102	Continuing	Continuing
• Ord. #15: PE 0208053m Proj 635, Joint Tact Grd Station-P3I (MIP)	1.949	36.005	12.403	0.000	12.403	12.630	13.038	7.982	7.947	Continuing	Continuing
• Ord. #16: SSN BZ8401, Joint Tactical Ground Station (JTGS)	0.000	6.682	9.279	0.000	9.279	0.000	0.000	9.415	4.658	0	30.034
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 latest missile improvement is the PAC-3 Missile Segment Enhancement (MSE) program which provides extended ranges, insensitive munitions enhancements, and greater logistical flexibility. The PAC-3 MSE will be fielded to PATRIOT units and is the baseline missile for the Medium Extended Air Defense System (MEADS).											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army		DATE: February 2010
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<u>E. Performance Metrics</u> 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.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010																																																																																																																									
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Product Development (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Cost Category Item</th> <th rowspan="2">Contract Method & Type</th> <th rowspan="2">Performing Activity & Location</th> <th rowspan="2">Total Prior Years Cost</th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th rowspan="2">Cost To Complete</th> <th rowspan="2">Total Cost</th> <th rowspan="2">Target Value of Contract</th> </tr> <tr> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Missile Segment Enhancement (MSE) - Lockheed Martin Missiles and Fire Control (LMMFC)</td> <td>SS/CPIF</td> <td>LMMFC Dallas, TX</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">15.940</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">15.940</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td>MSE/PAC-3 Raytheon</td> <td>SS/FP</td> <td>Raytheon Boston, MA</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">3.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">3.000</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td>Program Integration</td> <td>C</td> <td>Various Huntsville, AL</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">19.832</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">19.832</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td>U.S. Other Government Agencies (OGAs)</td> <td>C</td> <td>Various Huntsville, AL</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">3.748</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">3.748</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td>In-House</td> <td>C</td> <td>PO Huntsville, AL</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">6.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">6.000</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td>U.S. Contracts</td> <td>C/CPIF</td> <td>Various Huntsville, AL</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">2.380</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">2.380</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td><td align="right">0.000</td><td align="right">0.000</td><td></td><td align="right">50.900</td><td></td><td align="right">0.000</td><td></td><td align="right">50.900</td><td></td><td></td><td align="right">0.000</td></tr> </tbody> </table>														Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Missile Segment Enhancement (MSE) - Lockheed Martin Missiles and Fire Control (LMMFC)	SS/CPIF	LMMFC Dallas, TX	0.000	0.000		15.940		0.000		15.940	Continuing	Continuing	0	MSE/PAC-3 Raytheon	SS/FP	Raytheon Boston, MA	0.000	0.000		3.000		0.000		3.000	Continuing	Continuing	0	Program Integration	C	Various Huntsville, AL	0.000	0.000		19.832		0.000		19.832	Continuing	Continuing	0	U.S. Other Government Agencies (OGAs)	C	Various Huntsville, AL	0.000	0.000		3.748		0.000		3.748	Continuing	Continuing	0	In-House	C	PO Huntsville, AL	0.000	0.000		6.000		0.000		6.000	Continuing	Continuing	0	U.S. Contracts	C/CPIF	Various Huntsville, AL	0.000	0.000		2.380		0.000		2.380	Continuing	Continuing	0	Subtotal			0.000	0.000		50.900		0.000		50.900			0.000
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract																																																																																																																							
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost																																																																																																																										
Missile Segment Enhancement (MSE) - Lockheed Martin Missiles and Fire Control (LMMFC)	SS/CPIF	LMMFC Dallas, TX	0.000	0.000		15.940		0.000		15.940	Continuing	Continuing	0																																																																																																																							
MSE/PAC-3 Raytheon	SS/FP	Raytheon Boston, MA	0.000	0.000		3.000		0.000		3.000	Continuing	Continuing	0																																																																																																																							
Program Integration	C	Various Huntsville, AL	0.000	0.000		19.832		0.000		19.832	Continuing	Continuing	0																																																																																																																							
U.S. Other Government Agencies (OGAs)	C	Various Huntsville, AL	0.000	0.000		3.748		0.000		3.748	Continuing	Continuing	0																																																																																																																							
In-House	C	PO Huntsville, AL	0.000	0.000		6.000		0.000		6.000	Continuing	Continuing	0																																																																																																																							
U.S. Contracts	C/CPIF	Various Huntsville, AL	0.000	0.000		2.380		0.000		2.380	Continuing	Continuing	0																																																																																																																							
Subtotal			0.000	0.000		50.900		0.000		50.900			0.000																																																																																																																							
Remarks																																																																																																																																				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010		
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Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
Range Support/Facilities	C	WSMR White Sands, NM/ Ft Wingate, White Sands, NM	0.000	0.000		5.100		0.000		5.100	Continuing	Continuing	0
Targets/Threat Simulators	C	Various Location could not be determined.	0.000	0.000		4.600		0.000		4.600	Continuing	Continuing	0
Modeling and Simulation	C	Various Location could not be determined.	0.000	0.000		1.900		0.000		1.900	Continuing	Continuing	0
Subtotal			0.000	0.000		11.600		0.000		11.600			0.000
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		62.500		0.000		62.500			0.000
Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Army			DATE: February 2010		
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			PROJECT PA3: <i>PAC-3/MSE MISSILE</i>		

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
PAC 3 Software Build								#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
PDB 7 Fielding														#														
Missile Segment Enhancement (MSE) Development								#	#	#	#	#	#	#	#													
MSE Production Decision															#													
MSE Production Contract Award														#														
MSE Production																#	#	#	#	#	#	#	#	#	#	#	#	
PAC-3 Missile Segment Testing and Evaluation								#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Army			DATE: February 2010
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Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
PAC 3 Software Build	4	2010	4	2015
PDB 7 Fielding	2	2012	2	2012
Missile Segment Enhancement (MSE) Development	4	2010	4	2012
MSE Production Decision	4	2012	4	2012
MSE Production Contract Award	3	2012	3	2012
MSE Production	1	2013	3	2015
PAC-3 Missile Segment Testing and Evaluation	4	2010	4	2015

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