

UNCLASSIFIED

**Department of Defense  
Fiscal Year (FY) 2018 Budget Amendment**

November 2017



**Army**

*Justification Book of*

***Missile Procurement, Army***

**PB Amended 2018 Army**



## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation	FY 2016 Base + OCO	FY 2017 Base Enactment	FY 2017 OCO Enactment	FY 2017 Total (Base + OCO)
Missile Procurement, Army	1,604,15	1,533,804	1,214,171	2,747,975
Total Department of the Army	1,6811,154	1,533,804	1,214,171	2,747,975

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2011

Appropriation	FY 2018 Base Request	FY 2018 June Amendment Base	FY 2018 Amendmen Emergency
Missile Procurement, Army	2,519,054		884,000
Total Department of the Army	2,519,054		884,000

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation	FY 2018 OCO Request	FY 2019 Amendment OCO	FY 2018 Total OCO	FY 2018 Grand Total
Missile Procurement, Army	559,283		559,283	3,962,337
Total Department of the Army	559,283		559,283	3,962,337

ONCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: Missile Procurement, Army

Budget Activity	FY 2016 Base + OCO -----	FY 2017 Base Enactment -----	FY 2017 OCO Enactment	FY 2017 Total (Base + OCO)
2. Other Missiles	1,306,007	1,078,552	1,189,320	2,267,872
3. Modification of Missiles	334,404	414,696	24,851	439,547
4. Spares and Repair Parts	33,778	34,487		34,487
5. Support Equipment and Facilities	9,965	6,069		6,069
Total Missile Procurement, Army	1,684,154	1,533,804	1,214,171	2,747,975

UNCLASSIFIED

Department of the Army  
FY 2018 President's Budget Amendment  
Exhibit P-1 FY 2018 President's Budget Amendment  
Total Obligational Authority  
(Dollars in Thousands)

03 Nov 2017

Appropriation: Missile Procurement, Army

Budget Actlvity	FY 2018 Base Request	FY 2018 June Amendment Base	FY 2018 Amendment Emergency
02. Other Missiles	1,770,256		647,000
03. Modification of Missiles	722,966		237,000
04. Spares and Repair Parts	18,915		
05. Support Equipment and Facilities	6,917		
Total Missile Procurement, Army	2,519,054		884,000

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Allendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2011

Appropriation: Missile Procurement, Army

Budget Activity	FY 2018 OCO Request	FY 2018 Amendment OCO	FY 2018 Total OCO	FY 2018 Grand Total
02. Other Missiles	531,283		531,203	2,948,539
03. Modification of Missiles	29,000		28,000	981,966
04. S:pare s<11nd Repair Parts				18,915
05. Support Equipment and Facilities				6,917
Total Missile Procurement, Army	559,283		559,283	3,962,331



## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032A Missile Procurement, Army

Line No	Item Nomenclature	Ident Code	FY 2016 Base Quantity	+ OCO Cost	FY 2017 Base Enactment Quantity	Cost	FY 2017 OCO Enactment Quantity	Cost	FY 2017 Total (Base + OCO) Quantity	Cost	S e c
Budget Activity 02: Other Missiles											
Surface-to-Air Missile System											
1	Lower Tier Air and Missile Defense (AMD)	A		130,275		126,470				126,470	U
2	MSE Missile		112	514,946	145	423,201		279,000	145	702,201	U
3	INDIRECT FIRE PROTECTION CAPABILITY INC 2-I Less: Advance Procurement (PY)	A				(19,319)				(19,319)	U
						-----				-----	
						19,319				19,319	
Air-To-Surface Missile System											
4	Hellfire Sys Summary	A	383	86,325	155	42,013		455,830	155	49,843	U
5	Joint Air-To-Ground MsIs (JAGM) Less: Advance Procurement (PY)				324	(99,011)			324	(99,011)	U
						-----				-----	
						99,011				99,011	
6	Joint Air-To-Ground MsIs (JAGM) Advance Procurement (CY) C (FY 2016 for FY 2017) (M)			27,738 (27,738)							U
Anti-Tank/Assault Missile Sys											
7	Javelin (Aaws-M) System Summary		850	168,163	900	102,808		88,767	900	191,575	U
8	Tow 2 System Summary Less: Advance Procurement (PY)	A	1704	(107,509) (-19,984)	1133	(75,638)		(116,555)	1133	(192,193)	U
				-----		-----		-----		-----	
				87,525		75,638		116,555		192,193	
9	Tow 2 System Summary Advance Procurement (CY) C (FY 2018 for FY 2019) (M)										U

P-118AMD: FY 2018 President's Budget Amendment (Published Version), as of November 3, 2017 at 07:31:16

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032AMissile Procurement, Army

Line No	Item Nomenclature	Ident Code	FY 2018 Base Request Quantity	Cost	FY 2018 June Amendment Base Quantity	cost	FY 2018 Amendment Emergency Quantity	Cost	S e c
			-----		-----		-----		
Budget Activity 02: Other Missiles									
Surface-to-Air Missile System									
1	Lower Tier Air and Missile Defense (AMD)	A		140,826					U
2	MSE Missile		93	459,040			147	647,000	U
3	INDIRECT FIRE PROTECTION CAPABILITY INC 2-I			(77,061)					U
	Less: Advance Procurement (PY)			(-19,319)					U
				-----					
				57,742					
Air-To-Surface Missile System									
4	Hellfire Sys Summary	A	998	94,790					U
5	Joint Air-To-Ground MsIs (JAGM)		824	(215,532)					U
	Less: Advance Procurement (PY)			(-37,100)					U.
				-----					
				178,432					
6	Joint Air-To-Ground MsIs (JAGM)								
	Advance Procurement (CY)								U
	C (FY 2016 for FY 2017) (M)								
Anti-Tank/Assault Missile Sys									
7	Javelin (Aaws-M) System Summary		525	110,123					U
8	Tow 2 System Summary	A	1156	(105,800)					U
	Less: Advance Procurement (PY)			(-19,949)					U
				85,851					
9	Tow 2 System Summary								
	Advance Procurement (CY)			19,949					U
	C (FY 2018 for FY 2019) (M)			(19,949)					

P-11BAMD: FY 2018 President's Budget Amendment (Published Version), as of November 3, 2017 at 07:31:16

UNCLASSIFIED

Page A-3A

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032A Missile Procurement, Army

Line No	Item Nomenclature	Ident Code	FY 2018 OCO Request Quantity	Cost	FY 2018 Amendment OCO Quantity	Cost	FY 2018 Total OCO Quantity	Cost	FY 2018 Grand Total Quantity	Cost	s e c
Budget Activity 02: Other Missiles											
Surface-to-Air Missile System											
1	Lower Tier Air and Missile Defense (AMD)	A							140,826		u
2	MSE Missile							240	1,106,040		u
3	INDIRECT FIRE PROTECTION CAPABILITY INC 2-I	A							(77,061)		u
	Less: Advance Procurement (PY)								(-19,319)		u
			-----		-----		-----		-----	57,742	
Air-To-Surface Missile System											
4	Hellfire Sys Summary	A	2927	278,073			2927	278,073	3925	372,863	u
5	Joint Air-To-Ground MsIs (JAGM)							824	(215,532)		u
	Less: Advance Procurement (PY)								(-37,100)		u
			-----		-----		-----		-----	178,432	
6	Joint Air-To-Ground MsIs (JAGM)										u
	Advance Procurement (CY)										
	c (FY 2016 for FY 2017) (M)										
Anti-Tank/Assault Missile Sys											
7	Javelin (Aaws-MJ System Summary		47	8,112			47	8,112	572	118,235	u
8	Tow 2 System Summary	A	49	(3,907)			49	(3,907)	1205	(109,707)	u
	Less: Advance Procurement (PY)									(-19,949)	u
			-----		-----		-----		-----	89,758	
				3,907				3,907			
9	Tow 2 system summary										
	Advance Procurement (CY)									19,949	u
	c (FY 2018 for FY 2019) (M)									(19,949)	

P-118AMD: FY 2018 President's Budget Amendment (Published Version), as of November 3, 2017 at 07:31:16

Page A-3B

UNCLASSIFIED

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032AMissile Procurement, Army

Line	Item Nomenclature	Account Code	FY 2016 Base + OCO Quantity Cost	FY 2017 Base Enactment Quantity Cost	FY 2017 OCO Enactment Quantity Cost	FY 2017 Total Base + OCO Quantity Cost	S e c
10	Guided MLRS Rocket (GMLRS)		1866 251,060	2256 172,088	230,491	2256 402,579	U
11	MLRS Reduced Range Practice Rockets (RRPR)		4026 39,975	1704 18,004		1704 18,004	U
12	High Mobility Artillery Rocket system (HIMARS)						U
13	LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS A)		-----	-----	18,677	18,677	U
	Total Other Missiles		1,306,007	1,078,552	1,109,320	2,267,072	
Budget Activity 03: Modification of Missiles							
Modifications							
14	Patriot Mods		241,083	197,107		197,107	U
15	ATACMS MODS	A	20,119	150,043	15,900	165,943	U
16	GMLRS MOD	A	5,321	395		395	U
17	Stinger Mods		2,216		6,578	6,570	U
18	Avenger Mods		6,171	33,606	2,373	35,979	U
19	Itas/Tow Mods		19,576	383		383	U
20	MLRS Mods		35,970	31,315		31,315	U
21	Himars Modifications		3,148	1,847		1,847	U
	Total Modification of Missiles		334,404	414,696	24,851	439,547	

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032A Missile Procurement, Army

Line No	Item Nomenclature	Account Code	FY 2018 Base Request Quantity	Cost	FY 2018 June Amendment Base Quantity	Cost	FY 2018 Amendment Emergency Quantity	Cost	S e c
			-----		-----		-----		
10	Guided MLRS Rocket (GMLRS)		4458	595,182					U
11	MLRS Reduced Range Practice Rockets (RRPR)		3306	28,321					U
12	High Mobility Artillery Rocket System (HIMARS)								U
13	LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS)	A	-----		-----		-----		U
Total Other Missiles				1,770,256				647,000	
Budget Activity 03: Modification of Missiles									
Modifications									
14	Patriot Mods			329,073				167,000	U
15	ATACMS MODS	A		116,040				70,000	U
16	GMLRS MOD	A		531					U
17	Stinger Mods			63,090					U
18	Avenger Mods			62,931					U
19	Itas/Tow Mods			3,500					U
20	MLRS Mods			138,235					U
21	Himars Modifications			9,566					U
Total Modification of Missiles				722,966				237,000	

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032AMissile Procurement, Army

Line No	Item Nomenclature	Ident Code	FY 2018 OCO Request Quantity	Cost	FY 2018 Amendment OCO Quantity	Cost	FY 2018 Total OCO Quantity	Cost	FY 2018 Grand Total Quantity	Cost	S e c
			-----		-----		-----		-----		
10	Guided MLRS Rocket (GMLRS)		1542	191,522			1542	191,522	6000	786,704	U
11	MLRS Reduced Range Practice Rockets (RRPR)								3306	28,321	U
12	High Mobility Artillery Rocket. System (HIMARS)			41,000				41,000		41,000	U
13	LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS)	A	120	8,669			120	8,669	120	8,669	U
	Total Other Missiles			531,283				531,283		2,948,539	
Budget Activity 03: Modification of Missiles											
Modifications											
14	Patriot Mods									496,073	U
15	ATACMS MODS	A								186,040	U
16	GMLRS MOD	A								531	U
17	Stinger Mods			28,000				28,000		91,090	U
18	Avenger Mods									62,931	U
19	Itas/Tow Mods									3,500	U
20	MLRS Mods									138,235	U
21	Himars Modifications									9,566	U
	Total Modification of Missiles			28,000				28,000		987,966	

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032A Missile Procurement, Army

Line	Item Nomenclature	Account Code	FY 2016 Base + oco Quantity cost	FY 2017 Base Enactment Quantity Cost	FY 2017 oco Enactment Quantity Cost	FY 2017 Total (Base + OCO) Quantity Cost	S e c
Budget Activity 04: Spares and Repair Parts							
Spares and Repair Parts							
22	Spares and Repair Parts		33,778	34,487		34,487	u
Total Spares and Repair Parts			33,778	34,487		34,487	
Budget Activity 05: Support Equipment and Facilities							
Support Equipment & Facilities							
23	Air Defense Targets		3,717	4,915		4,915	u
24	Items Less Than \$5.0m Missiles)		1,544				u
25	Production Base Support		4,704	1,154		1,154	u
Total Support Equipment and Facilities			9,965	6,069		6,069	
Total Missile Procurement, Army			1,684,154	1,533,804	1,214,171	2,747,975	

## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032A Missile Procurement, Army

Line No	Item Nomenclature	Ident Code	FY 2018 Base Request Quantity -----	Cost	FY 2018 June Amendment Base Quantity -----	cost	FY 2018 Amendment Emergency Quantity -----	Cost	S e c
Budget Activity 04: Spares and Repair Parts									
Spares and Repair Parts									
22	Spares and Repair Parts			18,915					U
Total Spares and Repair Parts				18,915					
Budget Activity 05: Support Equipment and Facilities									
Support Equipment & Facilities									
23	Air Defense Targets			5,728					U
24	Items Less Than \$5.0m (Missiles)								U
25	Production Base Support			1,189					U
Total Support Equipment and Facilities				6,917					
Total Missile Procurement, Army				2,519,054			884,000		



## UNCLASSIFIED

Department of the Army  
 FY 2018 President's Budget Amendment  
 Exhibit P-1 FY 2018 President's Budget Amendment  
 Total Obligational Authority  
 (Dollars in Thousands)

03 Nov 2017

Appropriation: 2032AMissile Procurement, Army

Line	Ident	FY 2018	FY 2018	FY 2018	FY 2018	S
No	Code	Request	Amendment	Total	Grand Total	e
Item Nomenclature		Quantity	Quantity	Quantity	Quantity	c
		Cost	Cost	Cost	Cost	
Budget Activity 04: Spares and Repair Parts						
Spares and Repair Parts						
22 Spares and Repair Parts					18,915	u
Total Spares and Repair Parts					18,915	
Budget Activity 05: Support Equipment and Facilities						
Support Equipment & Facilities						
23 Air Defense Targets					5,728	u
24 Items Less Than \$5.0m (Missiles)						u
25 Production Base Support					1,189	u
Total Support Equipment and Facilities				-----	6,917	
Total Missile Procurement, Army		559,283		559,283	3,962,337	



**UNCLASSIFIED**

Army • Budget Amendment FY 2018 • Procurement

**Table of Contents**

Line Item Table of Contents (by Appropriation then Line Number) ..... ii

Exhibit P-40s..... 1

UNCLASSIFIED

Army • Budget Amendment FY 2018 • Procurement

Line Item Table of Contents (by Appropriation then Line Number)

Appropriation 2032A: Missile Procurement, Army

Line #	BA	BSA	Line Item Number	Line Item Title	Page
2	02	10	C53101	MSE Missile .....	1

Appropriation 2032A: Missile Procurement, Army

Line #	BA	BSA	Line Item Number	Line Item Title	Page
14	03	10	C50700	Patriot Mods .....	3
15	03	10	CA6700	ATACMS MODS .....	6

**UNCLASSIFIED**

<b>Exhibit P-40, Budget Line Item Justification:</b> PB Amended 2018 Army								<b>Date:</b> November 2017			
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 2032A: Missile Procurement, Army / BA 02: Other Missiles / BSA 10: Surface-to-Air Missile System						<b>P-1 Line Item Number / Title:</b> C53101 / MSE Missile					
<b>ID Code</b> (A=Service Ready, B=Not Service Ready):			<b>Program Elements for Code B Items:</b> N/A				<b>Other Related Program Elements:</b> 0604865A, 0603869A, 0604869A, 0605456A				

<b>Line Item MDAP/MAIS Code:</b> N/A												
Resource Summary	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	200	112	145	240	-	240	95	95	95	95	283	1,118
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	1,304.643	514.946	702.201	1,106.040	-	1,106.040	499.915	540.669	523.413	524.934	1,409.000	6,588.761
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	1,304.643	514.946	702.201	1,106.040	-	1,106.040	499.915	540.669	523.413	524.934	1,409.000	6,588.761
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>1,304.643</b>	<b>514.946</b>	<b>702.201</b>	<b>1,106.040</b>	<b>-</b>	<b>1,106.040</b>	<b>499.915</b>	<b>540.669</b>	<b>523.413</b>	<b>524.934</b>	<b>1,409.000</b>	<b>6,588.761</b>
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Thousands</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Thousands</i> )	6,523.215	4,597.732	28,088.040	4,608,500	-	4,608,500	5,262.263	5,691.253	5,509.611	5,525.621	4,978.799	5,893.346

**Notes:**

FY2018 Missile Defeat and Defense Enhancement (MDDE) Budget Amendment Justification: \$647.000 million is required to address emergency warfighting requirements in support of readiness and procures 147 MSE missiles.

FY 2017 Missile Defeat Enhancements Reprogramming (FY17-26 PA): \$107.000 million is required to address emergency warfighting requirements and procures 25 MSE missiles. The MSE is based on the PAC-3 design and improves on agility, lethality, ground system radar digital processor and software, single canister design provides logistic flexibility, and insensitive munitions compliance provides greater warfighter safety.

Army Acquisition Objective (AAO) is 3376. Unit prices reflect an assessed yearly FMS procurement of PAC-3 missile variants. In the event FMS procurements do not occur at this level, the budgeted missile unit price may not be achievable.

Secondary Distribution	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022
Army	Quantity	112	145	240	-	240	95	95	95
	Total Obligation Authority	514.946	812.000	1,106.040	-	1,106.040	499.915	540.669	523.413
<b>Total:</b>	Quantity	112	170	240	-	240	95	95	95
<b>Secondary Distribution</b>	Total Obligation Authority	<b>514.946</b>	<b>812.000</b>	<b>1,106.040</b>	<b>-</b>	<b>1,106.040</b>	<b>499.915</b>	<b>540.669</b>	<b>523.413</b>

\*\*Quantities will be procured at an optimized rate utilizing price advantage created through contract negotiation, FPIF contract ceiling liability reduction through price determination, other service procurement, and/or foreign military sales (FMS) to increase the Army procurement of MSE Missiles.

**UNCLASSIFIED**

<b>Exhibit P-40, Budget Line Item Justification:</b> PB Amended 2018 Army		<b>Date:</b> November 2017
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 2032A: Missile Procurement, Army / BA 02: Other Missiles / BSA 10: Surface-to-Air Missile System		<b>P-1 Line Item Number / Title:</b> C53101 / MSE Missile
<b>ID Code</b> (A=Service Ready, B=Not Service Ready):	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> 0604865A, 0603869A, 0604869A, 0605456A
<b>Line Item MDAP/MAIS Code:</b> N/A		
<p><b>Description:</b></p> <p>The Missile Segment Enhancement (MSE) missile evolved from the PATRIOT Advanced Capability 3 (PAC-3) missile. The MSE is based on the PAC-3 Cost Reduction Initiative (CRI) missile design and improves on it for a higher performance, dual pulse, eleven-inch diameter Solid Rocket Motor (SRM) design, improved lethality enhancer, thermally hardened front end for longer fly out, upgraded batteries, enlarged fixed fins, more responsive control surfaces, and upgraded guidance software. These improvements provide a more agile, lethal interceptor missile and coupled with critical ground system improvements (Radar Digital Processor (RDP) and Software) to provide a substantial missile performance improvement while enhancing Insensitive Munitions (IM) compliance. A more IM compliant propellant for the SRM was developed for the MSE program as well as a less sensitive Lethality Enhancer. A single canister design provides enhanced warfighter and logistics flexibility, and facilitates IM compliance for greater warfighter safety. The MSE was developed to integrate with the PATRIOT system for the U.S. and international partners.</p> <p><b>Justification:</b></p> <p>The FY 2018 base procurement dollars in the amount of \$459.040 million supports the production of 93 Missile Segment Enhancement (MSE) missiles, Launcher Mod Kits (LMK), Field Surveillance Program (FSP), supporting equipment, ancillary missile items, PAC-3 Missile Support Center (P3MSC) and Obsolescence, System Engineering/Program Management (SE/PM), and support. FY2018 Missile Defeat and Defense Enhancement (MDDE) Budget Amendment Justification: \$647.000 million is required to address emergency warfighting requirements in support of readiness and procures 147 MSE missiles.</p>		

**UNCLASSIFIED**

<b>Exhibit P-40, Budget Line Item Justification:</b> PB Amended 2018 Army										<b>Date:</b> November 2017		
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 2032A: Missile Procurement, Army / BA 03: Modification of Missiles / BSA 10: Modifications							<b>P-1 Line Item Number / Title:</b> C50700 / Patriot Mods					
<b>ID Code</b> (A=Service Ready, B=Not Service Ready):			<b>Program Elements for Code B Items:</b> N/A					<b>Other Related Program Elements:</b> 0607865A				
<b>Line Item MDAP/MAIS Code:</b> N/A												
<b>ResourceSummary</b>	<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>To Complete</b>	<b>Total</b>
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	3,188.044	241.883	197.107	496.473	-	496.473	380.978	201.228	234.245	214.324	Continuing	Continuing
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	3,188.044	241.883	197.107	496.473	-	496.473	380.978	201.228	234.245	214.324	Continuing	Continuing
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority <i>(\$ in Millions)</i></b>	<b>3,188.044</b>	<b>241.883</b>	<b>197.107</b>	<b>496.473</b>	<b>-</b>	<b>496.473</b>	<b>380.978</b>	<b>201.228</b>	<b>234.245</b>	<b>214.324</b>	<b>Continuing</b>	<b>Continuing</b>
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-	-	-	-	-	-	-
<p><b>Notes:</b></p> <p>FY 2018 Missile Defeat and Defense Enhancements (MDDE) Budget Amendment Justification: \$167.400 million is required to address emergency warfighting requirements and procures 42 additional ELES (total of 72 in FY 2018). Efforts have been and will continue to be made to expedite PATRIOT materiel solutions (e.g., Radar Digital Processor and Communications Upgrades) to both enhance capability and facilitate integration into the Integrated Air and Missile Defense (IAMD) architecture.</p> <p>In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), this item is necessary for active and reserve components of the Armed Forces for homeland defense missions, domestic emergency responses, and providing military support to civil authorities.</p> <p><b>Description:</b></p> <p>The PATRIOT Mods program implements critical capability, readiness and sustainability modifications to the weapon system and maintains Integrated Logistics Support. Required modifications are identified through various means to include: validated requirement documents such as the Capability Production Document (CPD), Capabilities Development Document (CDD), and the Operational Needs Statement (ONS); material changes supported by improved operational effectiveness as identified in the PATRIOT Product Improvement Program (PIP); material deficiencies identified in the field; obsolescence issues; emerging technologies; software improvements; crew interface and communication upgrades.</p> <p>PATRIOT Mods funding supports Reliability, Availability, and Maintainability (RAM) Mods; Recapitalization (RECAP); Battery Command Post/ Tactical Command System /Computer Software Module (BCP/TCS/ CSM) Mod; the Combined Crypto Modification Phase I (CCMPI) upgrade; the Radar Digital Processor-Configuration (RDP-C) upgrade; the Air Defense Artillery (ADA) School Upgrades/ Training Aids, Devices, Simulators and Simulations (TADSS); PATRIOT Maintenance Trainer (PMT); PATRIOT Multi-Echelon Training (PMET); Reconfigurable Table Top Trainers (RT3); Assured Positioning, Navigation, and Timing (PNT); Test Detachment; the Modern Man Station (MMS) upgrade; Enhanced Launcher Electronic Systems (ELES); SIPRNet/NIPRNet Access Point/Troposcatter (SNAP/TROPO), Digital Sidelobe Canceller (DSL), and Command Obsolescence Alleviation.</p>												

**UNCLASSIFIED**

<b>Exhibit P-40, Budget Line Item Justification:</b> PB Amended 2018 Army		<b>Date:</b> November 2017
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 2032A: Missile Procurement, Army / BA 03: Modification of Missiles / BSA 10: Modifications		<b>P-1 Line Item Number / Title:</b> C50700 / Patriot Mods
<b>ID Code</b> (A=Service Ready, B=Not Service Ready):	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> 0607865A
<b>Line Item MDAP/MAIS Code:</b> N/A		
<p>The PATRIOT Weapons System uses tactical equipment and training aids, devices, simulators, and simulations (TADSS) to conduct multi-level training for both operators and maintenance personnel. This includes both hardware devices and software programs utilized to include; the Patriot Maintenance Trainer (PMT), Reconfigurable Table Top Trainer (RT3) and the Patriot Multi-Echelon Training (PMET). The PMT is a new device being developed and planned for fielding to the Air Defense Artillery Schools at Fort Sill, OK. The PMT trains 14E, 140E, 14T, 94S and 948D 6D tasks. It reduces dependency on tactical equipment by merging physical simulators and virtual simulations replicating a realistic training environment. The PMT will have one instructor station, one radar set, one launching station, and an engagement control station. Some components will be actual physical representations of the tactical hardware while other components will be virtually simulated using state of the art gaming technology of P-MET. The two environments will work seamlessly together to simulate the tactical end items. P-MET is a Microsoft Windows® based software application utilizing state of the art gaming technology to train U.S. Army personnel in the proper trouble-shooting techniques to repair and maintain the PATRIOT Missile System. P-MET is the Life Cycle Replacement for the PATRIOT Intermediate Maintenance Institutional Trainer (PIMIT) for Intermediate Maintenance training but is also used for Organizational, NET, and even Depot maintenance training. P-MET is used in an institutional, field and depot environment. P-MET is designed and developed to operate on the RT3. The RT3 provides a flexible training platform that may be configured to support multiple training levels and systems, via removable hard drives. In PATRIOT the RT3 is used to run the PATRIOT tactical embedded training software (re-hosted tactical training software, PATRIOT Conduct of Fire Trainer (PCOFT)) for operations tasks, the P-MET software for maintenance tasks, and the PATRIOT Skills Library (PSL) lessons for both maintenance and operator tasks. Other weapon systems may also use the RT3 platform for training (i.e., C-RAM, THAAD, and JLENS). The RT3 is a Life Cycle Replacement for the PCOFT and the PATRIOT Intermediate Maintenance Institutional Trainer (PIMIT) hardware platforms.</p> <p>The Modern Manstation (MMS) is designed to significantly improve the reliability of the legacy Manstation by replacing 221 obsolete parts in 41 assemblies and reducing Battery Replaceable Units (BRUs) from 493 to 51. Benefits of the MMS include the installation of two 30" high resolution color LCD displays with touch panels; significant increase in Mean Time Between Failure rates; elimination of a costly Multi-Volt power supply while greatly improving the overall visual graphics used for decision making. The MMS upgrades increased Warfighter effectiveness; enable future capabilities; increase reliability; and reduce life cycle costs. Training will be aligned with the tactical system using the same technology, providing geopolitical maps, and utilizing color symbology for immediate recognition of friend, foe or unknown. Soft keys will enable future switch configurations with software upgrades. The MMS also enables future graphical user interface with Common Warfighter Machine Interface (CWMI) systems. The MMS modification upgrade will be incorporated into the Engagement Control Station (ECS) and the Information and Coordination Central (ICC) Shelters.</p> <p>The Enhanced Launcher Electronics System (ELES) modification upgrades a PAC-2 Launcher to a PAC-3 Capability.</p> <p>In addition to the ELES modification kit, last time procurement of obsolete components will occur to support the assured producibility of the ELES.</p> <p>SIPRNet/NIPRNet Access Point/Troposcatter (SNAP/TROPO). The SNAP/TROPO program provides units with an organic Beyond Line of Sight (BLOS) capability and completes the 94 AAMDC UMR requirement to support both intra battalion and external battalion communications. Troposcatter terminals allow connectivity between PATRIOT shelters when local terrain or long distances make organic Ultra High Frequency (UHF) Line of Sight (LOS) communications impossible to support fire control quality data exchanges. SNAP terminals allow a PATRIOT shelter without access to any local infrastructure to remotely connect to both SIPRnet and NIPRnet using Ku, Ka, or X band satellites for range extension in response to Operational Need Statements from combatant commands.</p> <p>Assured Position, Navigation and Timing (PNT) - Purchases integrated Project Manager (PM) PNT M-code capable hardware for integration on Patriot Major End Items (MEI). Effort supports mandated FY2011 National Defense Authorization Act; public law 111-383 § 913.</p> <p>Test Detachment - A manned and equipped unit consisting of various ancillary PATRIOT Ground Support Equipment elements that will assume the testing role and relieve operational units. The Air and Missile Defense (AMD) test detachment is a Table of Distribution and Allowances (TDA) unit consisting of 143 personnel containing a mixture of air defense, communications and maintenance Military Occupational Specialty (MOS) Soldiers which participate in all government developmental tests, missile flight tests, Tactics Techniques and Procedures (TTP) development and operational testing in support of the development, modernization and sustainment of current and future AMD programs. Applied modernization configuration and capability will include funding to support the Radar Digital Processor (RDP), Modern Man Station (MMS), Combined Crypto Modernization Phase-1 (CCMP-1) and Post Deployment Build 8 (PDB-8) enhancements. Use of this detachment to support testing versus tasking operational PATRIOT units allows execution of currently scheduled testing while vastly minimizing the stress on the 15 PATRIOT Battalions in the operational force.</p>		



**UNCLASSIFIED**

<b>Exhibit P-40, Budget Line Item Justification:</b> PB Amended 2018 Army							<b>Date:</b> November 2017			
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 2032A: Missile Procurement, Army / BA 03: Modification of Missiles / BSA 10: Modifications						<b>P-1 Line Item Number / Title:</b> C50700 / Patriot Mods				
<b>ID Code</b> (A=Service Ready, B=Not Service Ready):			<b>Program Elements for Code B Items:</b> N/A			<b>Other Related Program Elements:</b> 0607865A				
<b>Line Item MDAP/MAIS Code:</b> N/A										
<p>Digital Sidelobe Cancellor (DSLCL) is an Electronic Counter Measures (ECM) technique used to cancel the interference that is entering the radar via the antenna sidelobes. This is currently being performed using analog hardware in the PATRIOT radar. DSLCL replaces the analog hardware and performs this task digitally in the radars processor. Benefits of the DSLCL include improved Side Lobe Cancellor (SLC) Reliability and Maintainability, removal of complicated SLC adjustments, improves radar availability, removes 5 SLC Racks, provides hardware base for improved capability, and eliminates known and future obsolescence in SLC racks.</p> <p>Command Obsolescence Alleviation supports updates for interoperability and supportability by working obsolescence alleviation and engineering changes. 35th Brigade Modification Kits provides mod kits to support the VCSA initiative accelerating the 35th BDE modernization. ADI TPX 57 Obsolescence addresses the IFF Interrogator.</p>										
<b>Secondary Distribution</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Army	Quantity	-	-	-	-	-	-	-	-	-
	Total Obligation Authority	241.883	425.307	496.473	-	496.473	380.978	201.228	234.245	214.324
<b>Total: Secondary Distribution</b>	<b>Quantity</b>	-	-	-	-	-	-	-	-	-
	<b>Total Obligation Authority</b>	<b>241.883</b>	<b>425.307</b>	<b>496.473</b>	-	<b>496.473</b>	<b>380.978</b>	<b>201.228</b>	<b>234.245</b>	<b>214.324</b>
<p><b>Justification:</b></p> <p>FY 2018 base procurement dollars in the amount of \$329.073 million supports the modifications for Reliability, Availability, and Maintainability Modifications (RAM Mods), Recapitalization (RECAP), Battery Command Post/ Tactical Command System/ Computer Software Module (BCP/TCS/CSM), Combined Crypto Modification Phase I (CCMPI), Radar Digital Processor-Configuration (RDP-C), Enhanced Launcher Electronics System (ELES), SIPRNet/NIPRNet Access Point/Troposcatter (SNAP/TROPO), PATRIOT Maintenance Trainer (PMT), PATRIOT Multi-Echelon Training (PMET), Test Detachment, Digital Sidelobe Cancellor (DSLCL), and Command Obsolescence Alleviation. FY 2018 Missile Defeat and Defense Enhancements (MDDE) Budget Amendment Justification: \$167.400 million is required to address emergency warfighting requirements and procures 42 additional ELES (total of 72 in FY 2018).</p>										

**UNCLASSIFIED**

<b>Exhibit P-40, Budget Line Item Justification:</b> PB Amended 2018 Army										<b>Date:</b> November 2017		
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 2032A: Missile Procurement, Army / BA 03: Modification of Missiles / BSA 10: Modifications							<b>P-1 Line Item Number / Title:</b> CA6700 / ATACMS MODS					
<b>ID Code</b> (A=Service Ready, B=Not Service Ready):				<b>Program Elements for Code B Items:</b> N/A				<b>Other Related Program Elements:</b> 0203802A				
<b>Line Item MDAP/MAIS Code:</b> N/A												
<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>To Complete</b>	<b>Total</b>
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	20.119	165.943	186.040	-	186.040	38.417	135.000	135.000	135.000	-	815.519
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	20.119	165.943	186.040	-	186.040	38.417	135.000	135.000	135.000	-	815.519
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority <i>(\$ in Millions)</i></b>	-	<b>20.119</b>	<b>165.943</b>	<b>186.040</b>	-	<b>186.040</b>	<b>38.417</b>	<b>135.000</b>	<b>135.000</b>	<b>135.000</b>	-	<b>815.519</b>
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Thousands)</i>	-	-	-	-	-	-	-	-	-	-	-	-
<p><b>Note:</b> FY 2018 Missile Defeat and Defense Enhancements (MDDE) Budget Amendment Justification: \$70.000 million is required to address emergency warfighting requirements and supports the modification of 79 expired ATACMS and resets their service life. ATACMS inventory shortages exist due to the aging service life of fielded ATACMS and combat expenditures. Additional ATACMS inventory losses are expected in 2019 with full implementation of the DoD Policy on Cluster Munitions</p> <p><b>Description:</b> Army Tactical Missile System (ATACMS) is the United States (U.S.) Army's primary 24/7, all weather, and surface-to-surface artillery precision missile used by current and future Combatant Commanders to shape the battle field with long-range fires against hard and soft stationary targets in open, complex, and urban environments.</p> <p>This is the follow-on procurement to the integration and testing program that was funded under Program Element (PE) 0203802A; it will not build any new missiles or add to the overall inventory. Block (BLK) I/IA missiles currently have warheads (WHs) that are non-compliant with the 2008 Department of Defense (DoD) policy on cluster munitions (CM). The modification will be performed as a Service Life Extension Program (SLEP) and will take expired assets and reset them to a 10 year service life. This effort will replace the existing M74 bomblets with a policy compliant WH, update electronics and propellants. This effort effectively brings the expired inventory back into service, while meeting the DoD CM Policy, to engage targets up to 300 kilometers (km). A Height-of-Burst capability may be introduced under this modification pending test program results under PE 0203802A.</p> <p>ATACMS modifications will be performed by Lockheed Martin Missiles and Fire Control, Grand Prairie, TX.</p>												

## UNCLASSIFIED

**Justification:**

FY18 procurement dollars in the amount of \$116.040 million supports the modification of 121 expired ATACMS and resets their 10 year service life. Additional supporting tasks include bunker storage, Follow-on Production Testing (FPT), Stockpile Reliability Program (SRP), rate tooling, Government System Engineering/Program Management (SEPM), obsolescence, and software. FY 2018 Missile Defeat and Defense Enhancements (MDDE) Budget Amendment Justification: \$70.000 million is required to address emergency warfighting requirements and supports the modification of 79 expired ATACMS and resets their service life.

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), this item is necessary for use by the active and reserve components of the Armed Forces for homeland defense missions, domestic emergency responses, and providing military support to civil authorities.

Modification costs in FY18 include components, installation costs, and checkout in the unit price at the time of contract award.