Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force Date: February 2018

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

3011F: Procurement of Ammunition, Air Force / BA 01: Ammunition / BSA 11:

351010 / Rockets

Rockets

ID Code (A=Service Ready), B=Not Service Ready): A Program Elements for Code B Items: N/A Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	78.734	196.504	345.911	-	345.911	153.828	84.658	129.014	129.014	-	1,117.663
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	78.734	196.504	345.911	-	345.911	153.828	84.658	129.014	129.014	-	1,117.663
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	78.734	196.504	345.911	-	345.911	153.828	84.658	129.014	129.014	-	1,117.663
(The following	Resource Sum	mary rows are fo	r informational p	urposes only. Th	ne corresponding	g budget request	s are documente	d elsewhere.)	\ <u>\</u>	*		
Initial Spares (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	-	-	-	-	-	-	-	-	-	-	-	-

# **Description:**

PY2018 funding totals include \$49.050M requested for Overseas Contingency Operations.

The Air Force uses the 2.75 inch diameter rockets system to support various missions from low collateral damage guided high explosive warhead missions to target marking and battle field illumination missions and can be employed from both high and low speed aircraft.

- The 2.75 inch diameter rocket motor (HA07) is a single stage, solid grain rocket motor used to propel guided and unguided payloads to their targets. Payloads included the illuminating flare warhead (H812), Infrared (IR) illuminating flare warhead (HA06), Signal Practice warhead (H872), and White Phosphorus (WP) warhead (H855), M-151 High Explosive warheads (H842 and H843), and also carries the WGU-59B (HB24) Advance Precision Kill Weapons System II (APKWS II) guidance section. The 2.75 inch rockets are launched from reusable pods, the LAU-131A (H149) and LAU-131 A/A (HA91) extended length launcher, carried on A-10 and F-16 aircraft. These items are procured by AFLCMC/EBH through the U.S. Army Missile Command, Joint Attack Munitions Systems (JAMS), PEO Missile and Space at Redstone Arsenal, Alabama, and Department of the Navy PMA-242 at Patuxent River Naval Air Station.
- The WP Warhead (H855) provides forward air control aircraft with target locations from a standoff distance in a hostile environment.
- 2.75 Inch IR Illuminating Rocket (HA06); used with the 2.75 inch rocket motor (HA07), provides forward air control aircraft with the target locations from a standoff distance in a hostile environment.
- The LAU-131A/A (HA91) and the LAU-68 F/A (HA94) are seven tube (capacity) extended length launchers that can accommodate both legacy length 2.75 inch diameter rockets and the extended length of the APKWS II rockets. The extended length launchers are designed to accommodate the guidance and control section within the launcher.
- WGU-59B APKWS II weapon system is employed on the A-10 and F-16 aircraft. APKWS II All Up Round (AUR) is composed of a fuze, M151/M282 Warhead, WGU-59B guidance and control section, and a MK66 rocket motor launched from an LAU-131 A/A or an LAU-68 F/A rocket launcher.
- M151 (H843 and H842)/M282 Multi-Purpose Penetrator (MPP): The M282 MPP warhead provides aircrew and ground commanders greatly enhanced weaponeering options to engage targets protected by urban and cave environments. After completing a planned product improvement initiative, the M282 will be certified for fielding with APKWS II guidance section. The M282 and M151 are low-cost fragmentation and penetrator warheads.

LI 351010 - Rockets

Air Force

Page 1 of 10

P-1 Line #1

Volume 1 - 1

	UNCL	ASSIFIED	
Exhibit P-40, Budget Line Item Justification: PB 201	9 Air Force		Date: February 2018
Appropriation / Budget Activity / Budget Sub Activit 3011F: Procurement of Ammunition, Air Force / BA 01: Rockets		<b>P-1 Line Item N</b> 351010 / Rocke	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code E	3 Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A			
Testers such as MKIII and MKIV testers, peculiar support equipment	t such as clamping and torqueing t	fixtures and tools, or othe	er assets that pertinent to assembling and testing APKWS or unguided rockets.
reduced collateral damage, and increased standoff range to enhance	e crew survivability.	, ,	age and destroy moving and transient targets. APKWS II offers greater precision,
Joint Attack Munitions Systems (JAMS), PEO Missiles and Space at	Redstone Arsenal Alabama, and/	or the U.S. Navy PMA-2	These items are procured by AFLCMC/EBH through the U.S Army Missile Command 42 at Patuxent River Naval Air Station, in accordance with Section 1815 of the nts of the Armed Forces for homeland defense missions, domestic emergency
Funding for this exhibit is contained in PE 0207599F and PE 020803	30F.		
Note: Procurement quantities can change based on negotiated optio	ons/pricing bands and available fur	nding, in accordance with	n Title 10, U.S. Code Section 2308 BUY-TO-BUDGET ACQUISITION.

**UNCLASSIFIED** LI 351010 - Rockets Volume 1 - 2 Page 2 of 10 P-1 Line #1 Air Force

Exhibit P-40, Budget Line Item Justification: PB 2019 Air Force

**Date:** February 2018

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

3011F: Procurement of Ammunition, Air Force / BA 01: Ammunition / BSA 11:

351010 / Rockets

Rockets

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: N/A

Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

	Exhibits Schedule				Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type		Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	(H855) WHD 2.75 RKT SMK M156 PD M427	P-5a	Α		- / -	- / 5.939	- /8.000	- / 10.290	- / -	- / 10.290
P-40a	(HA06) WARHEAD, 2.75 ILLUM				- / -	- / 9.359	- /8.000	- /5.000	- / -	- / 5.000
P-5	APKWS	P-5a	Α		- / -	- /60.000	- / 180.504	- / 325.621	- / -	- / 325.621
P-40a	ROCKETS (ITEMS LESS THAN \$5 MILLION)				- / -	- / 3.436	- / -	- /5.000	- / -	- / 5.000
P-40	Total Gross/Weapon System Cost				- 1 -	- / 78.734	- / 196.504	- / 345.911	- 1 -	- / 345.911

<sup>\*</sup>Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

## Justification:

FY2019 Purchase of rockets, launchers, warheads, and guidance sections to constitute the APKWS II all-up-round (AUR), and other marking and illuminating warheads for the 2.75 inch rockets, as well as launchers. The AUR is launched from reusable pods (launchers) carried on aircraft pylons and Triple Ejection Racks (TER).

The Air Force procures munitions to maintain appropriate operational quantity levels, as well as War Reserve Materiel (WRM) Munitions and test and training stockpiles. Active, Guard and Reserve components draw from the WRM stockpiles as required and receive test and training allocations annually based on current-year requirements.

LI 351010 - Rockets
Air Force

UNCLASSIFIED
Page 3 of 10
P-1 Line #1

Volume 1 - 3

Exhibit P-5, Cost Analysis: PB 2019 Air Force

Appropriation / Budget Activity / Budget Sub Activity:
3011F / 01 / 11

Date: February 2018

Item Number / Title [DODIC]:
(H855) WHD 2.75 RKT SMK M156 PD M427

MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2017	FY 2018	<b>FY 2019 Base</b>	FY 2019 OCO	FY 2019 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	5.939	8.000	10.290	-	10.290
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	5.939	8.000	10.290	-	10.290
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	5.939	8.000	10.290	-	10.290
(The following Resource Summary rows are for informati	onal purposes only. The co	responding budget requests	are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

TVOICE CUDIOIGIS OF TOTALS I				1			1			1						i -		
	F	Prior Years	S		FY 2017			FY 2018		F\	/ 2019 Bas	se	F١	/ 2019 OC	0	F'	Y 2019 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	<b>Qty</b> (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Hardware - Hardware End Ite	m Cost																	
Recurring Cost																		
2.75 WARHEAD WP SMOKE - H855 <sup>(†)</sup>	-	-	-	0.000	13,821	5.939	0.000	17,600	8.000	0.001	17,498	10.290	-	-	-	0.001	17,498	10.29
Subtotal: Recurring Cost	-	-	-	-	-	5.939	-	-	8.000	-	-	10.290	-	-	-	-	-	10.29
Subtotal: Hardware - Hardware End Item Cost	-	-	-	-	-	5.939	-	-	8.000	-	-	10.290	-	-	-	-	-	10.290
Gross/Weapon System Cost	-	-	-	-	-	5.939	-	-	8.000	-	-	10.290	-	-	-	-	-	10.290

### Remarks:

Unit prices are provided by the Joint Attack Munitions Systems (JAMS) Program Office, Dept of Army. Prices shown represent the efforts to produce items for the DoD Military Services and other customers purchasing the same or similar items, and to provide technical support and surveillance of the Air Force order.

Unit price variances among current and prior fiscal years are due to the total customer orders per ordering period. Costs, including overhead and production engineering are developed using a total volume matrix, with high, medium and low total quantity ranges. Other cost drivers include complex or scarce materials such as white phosphorous.

(†) indicates the presence of a P-5a

LI 351010 - Rockets

Air Force

ID Code (A=Service Ready, B=Not Service Ready): A

**UNCLASSIFIED** 

Page 4 of 10 P-1 Line #1

Exhibit P-5a, Procurement History and Planning: PB 2019	Air Force	Date: February 2018
Appropriation / Budget Activity / Budget Sub Activity: 3011F / 01 / 11	P-1 Line Item Number / Title: 351010 / Rockets	Item Number / Title [DODIC]: (H855) WHD 2.75 RKT SMK M156 PD M427

Cost Elements	0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.75 WARHEAD WP SMOKE - H855		2017	GENERAL DYNAMICS / REDSTONE ARSENAL	MIPR	Redstone Arsenal, AL	Jun 2017	Jun 2018	13,821	0.000	Y		
2.75 WARHEAD WP SMOKE - H855		2018	GENERAL DYNAMICS / REDSTONE ARSENAL	MIPR	Redstone Arsenal, AL	Jun 2018	Jun 2019	17,600	0.000	Y		
2.75 WARHEAD WP SMOKE - H855		2019	GENERAL DYNAMICS / REDSTONE ARSENAL	MIPR	Redstone Arsenal, AL	Jun 2019	Jun 2020	17,498	0.001	Y		

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air ForceDate: February 2018Appropriation / Budget Activity / Budget Sub Activity:<br/>3011F / 01 / 11P-1 Line Item Number / Title:<br/>351010 / RocketsAggregated Items Title:<br/>(HA06) WARHEAD, 2.75 ILLUM

															١,	,				
			P	rior Year	S		FY 2017			FY 2018		FY	2019 Bas	se	FY	/ 2019 OC	0	FY	2019 Tot	al
Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	<b>Qty</b> (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	<b>Qty</b> (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Uncategorized																				
(HA06) WARHEAD, 2.75 ILLUM	А		-	-	-	0.003	3,689	9.359	0.003	2,905	8.000	0.003	1,714	5.000	-	-	-	0.003	1,714	5.000
Subtotal: Uncategorized			-	-	-	-	-	9.359	-	-	8.000	-	-	5.000	-	-	-	-	-	5.000
Total			-	-	-	-	-	9.359	-	-	8.000	-	-	5.000	-	-	-	-	-	5.000

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

LI 351010 - Rockets Air Force UNCLASSIFIED
Page 6 of 10

Exhibit P-5, Cost Analysis: PB 2019 Air Force

Appropriation / Budget Activity / Budget Sub Activity:

3011F / 01 / 11

Date: February 2018

Item Number / Title [DODIC]:

APKWS

ID Code (A=Service Ready, B=Not Service Ready): A		I	MDAP/MAIS Code:			
Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	60.00	00 180.504	325.621	-	325.621
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	60.00	00 180.504	325.621	-	325.621
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	60.00	180.504	325.621	-	325.621
(The following Resource Summary rows are for informat	ional purposes only. The corr	esponding budget requ	ests are documented elsewhe	ere.)		3
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	_		_	_	_	_

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

	Pi	rior Years	5		FY 2017			FY 2018		FY	2019 Bas	e	FY	2019 OC	0	FY	2019 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Hardware - Advanced Precisi	on Kill Weapon	System (APK	(WS) Cost															
Recurring Cost																		
Guidance Section <sup>(†)</sup>	-	-	-	0.011	4,500	51.237	0.023	7,279	167.599	0.025	7,279	183.461	-	-	-	0.025	7,279	183.4
(HA07) ROCKET MOTOR MK-66	-	-	-	0.000	1,000	0.495	-	-	-	0.001	182,109	111.968	-	-	-	0.001	182,109	111.9
(HA91) LAU-131A/ A ROCKET LAUNCHER <sup>(†)</sup>	-	-	-	0.019	100	1.900	0.015	146	2.165	0.012	402	4.800	-	-	-	0.012	402	4.8
Warhead M151 <sup>(†)</sup>	-	-	-	0.001	875	1.309	0.001	1,822	1.940	0.000	17,059	5.000	-	-	-	0.000	17,059	5.0
Warhead M282 <sup>(†)</sup>	-	-	-	0.004	875	3.079	0.005	1,820	8.443	0.003	2,583	8.022	-	-	-	0.003	2,583	8.02
WGU-59 Single Variant Development	-	-	-	-	-	-	-	-	-	-	-	11.000	-	-	-	-	-	11.00
Rocket Launcher Tester (AN/USM-715)	-	-	-	-	-	-	-	-	-	0.015	67	1.020	-	-	-	0.015	67	1.0
Subtotal: Recurring Cost	-	-	-	-	-	58.020	-	-	180.148	-	-	325.271	-	-	-	-	-	325.2
Subtotal: Hardware - Advanced Precision Kill Weapon System (APKWS) Cost	-	-	-	-	-	58.020	-	-	180.148	-	-	325.271	-	-	-	-	-	325.27
Support - APKWS Cost							·'											
Production Support	-	-	-	-	-	1.980	-	-	0.356	-	-	0.350	-	-	-	-	-	0.35
Subtotal: Support - APKWS Cost	-	-	-	-	-	1.980	-	-	0.356	-	-	0.350	-	-	-	-	-	0.38

UNCLASSIFIED
Page 7 of 10

Exhibit P-5, Cost Analysis: PB 2019 Air Force

Appropriation / Budget Activity / Budget Sub Activity:

3011F / 01 / 11

Date: February 2018

Item Number / Title [DODIC]:

351010 / Rockets

APKWS

ID Code (A=Service Ready, B=Not Service Ready): A MDAP/MAIS Code:

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

					•													
	Prior Years				FY 2017			FY 2018		F	1 2019 Bas	se	F'	Y 2019 OC	0	F'	Y 2019 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Gross/Weapon System Cost	-	-	-	-	-	60.000	-	-	180.504	-	-	325.621	-	-	-	-	-	325.621

<sup>(†)</sup> indicates the presence of a P-5a

LI 351010 - Rockets Air Force UNCLASSIFIED
Page 8 of 10

Exhibit P-5a, Procurement History and Planning: PB 2019 Air Force

Appropriation / Budget Activity / Budget Sub Activity:

3011F / 01 / 11

Date: February 2018

Item Number / Title [DODIC]:

351010 / Rockets

APKWS

	_								1			ı
	0			Method/Type			Date			Specs		DED .
Cost Elements	C	FY	Contractor and Location	or Funding Vehicle	Location of PCO	Award Date	of First Delivery	<b>Qty</b> (Each)	Unit Cost	Avail Now?	Revision Available	RFP Issue Date
Guidance Section		2017	BAE / Nashua, NH	SS / FFP	NAVAIR	Apr 2017	Dec 2017	4,500	0.011	Y		
Guidance Section		2018	BAE / Nashua, NH	SS / FFP	NAVAIR	Apr 2018	Dec 2018	7,279	0.023	Y		
Guidance Section		2019	BAE / Nashua, NH	SS / FFP	NAVAIR	Apr 2019	Apr 2020	7,279	0.025	Y		
(HA91) LAU-131A/A ROCKET LAUNCHER		2017	Arnold Defense / St. Louis, MO	SS / FFP	TBD	Jun 2017	Jun 2018	100	0.019	Y		
(HA91) LAU-131A/A ROCKET LAUNCHER		2018	Arnold Defense / St. Louis. MO	SS / FFP	NAVAIR	Jun 2018	Jun 2019	146	0.015	Y		
(HA91) LAU-131A/A ROCKET LAUNCHER		2019	Arnold Defense / St. Louis, MO	SS / FFP	NAVAIR	Jun 2019	Jun 2020	402	0.012	Y		
Warhead M151		2017	General Dynamics / Burlington, VT	C / FFP	Redstone Arsenal, AL	Apr 2017	Apr 2018	875	0.001	Y		
Warhead M151		2018	General Dynamics / Burlington, VT	C / FFP	Redstone Arsenal, AL	Apr 2018	Apr 2019	1,822	0.001	Y		
Warhead M151		2019	General Dynamics / Burlington, VT	C / FFP	Redstone Arsenal, AL	Apr 2019	Apr 2020	17,059	0.000	Y		
Warhead M282		2017	General Dynamics / Burlington, VT	C / FFP	Redstone Arsenal, AL	Apr 2017	Apr 2018	875	0.004	Y		
Warhead M282		2018	NAMMO / Raufoss, Norway	C / FFP	TBD	Apr 2018	Apr 2019	1,820	0.005	Y		

LI 351010 - Rockets
Air Force

UNCLASSIFIED
Page 9 of 10

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2019 Air Force

Date: February 2018

Appropriation / Budget Activity / Budget Sub Activity: 3011F / 01 / 11

P-1 Line Item Number / Title:

351010 / Rockets

Aggregated Items Title: ROCKETS (ITEMS LESS THAN \$5

MILLION)

								=,													
	ID	MDAP/ MAIS Code	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total			
Item Number / Title [DODIC]			Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	
Uncategorized			,		,		,				,										
(H812) WHD ILLUM M257	А		-	-	-	-	-	-	-	-	-	0.003	1,748	5.000	-	-	-	0.003	1,748	5.000	
(H149) LAUNCHER LAU-131A F/2.75	А		-	-	-	0.011	323	3.436	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Uncategorized			-	-	-	-	-	3.436	-	-	-	-	-	5.000	-	-	-	-	-	5.00	
Total			-	-	-	_	_	3.436	_	_	_	-		5.000	_	_	_	_	-	5.00	

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

LI 351010 - Rockets Air Force