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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Army

*Justification Book of
Procurement of Ammunition, Army*

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Army • Budget Estimates FY 2020 • Procurement

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Cost Statement

The following Justification Books were prepared at a cost of \$366,803.08: Aircraft (ACFT), Missile (MSLS), Weapons & Tracked Combat Vehicles (WTCV), Ammunition (AMMO), Other Procurement Army (OPA) 1 - Tactical & Support Vehicles, Other Procurement Army (OPA) 2 – Communications & Electronics, Other Procurement Army (OPA) 3 & 4 - Other Support Equipment & Spares, Research, Development, Test and Evaluation (RDTE) for: Budget Activity 1, Budget Activity 2, Budget Activity 3, Budget Activity 4, Budget Activity 5A, Budget Activity 5B, Budget Activity 6, and Budget Activity 7.

PROCUREMENT OF AMMUNITION, ARMY

Appropriation Language

For construction, procurement, production, modification, and modernization of ammunition, and accessories therefore; specialized equipment and training devices; expansion of public and private plants, including ammunition facilities, authorized by Sec 2854 of Title 10, United States Code, and land necessary therefore, for the foregoing purposes, and such lands and interest therein, may be acquired, and construction prosecuted thereon prior to approval of title; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway; and other expenses necessary for the foregoing purposes, \$2,843,230,000 in fiscal year 2020 to remain available for obligation until September 30, 2022.

FY 2020 Overseas Contingency Operations funding can be separated into the following categories:

- OCO for Direct War Costs (\$103,782,000): Direct War costs are those combat or direct combat support costs that will not continue to be expended once combat operations end as major contingency locations.
- OCO for Enduring Requirements (\$44,900,000): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO.
- OCO for Base Requirements (\$2,694,548,000): OCO for Base Requirements is funding to pay for base budget requirements for readiness and other support activities that are financed in the OCO budget in order for the Department to comply with the Budget Control Act of 2011.

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Department of the Army
 FY 2020 President's Budget
 Exhibit P-1 FY 2020 President's Budget
 Total Obligational Authority
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<u>Appropriation</u>	<u>FY 2018 (Base + OCO)</u>	<u>FY 2019 Base Enacted</u>	<u>FY 2019 OCO Enacted</u>	<u>FY 2019 Total Enacted</u>
Procurement of Ammunition, Army	2,740,576	2,276,330	299,075	2,575,405
Total Department of the Army	2,740,576	2,276,330	299,075	2,575,405

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<u>Appropriation</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO for Base Requirements</u>	<u>FY 2020 OCO for Direct War and Enduring Costs</u>	<u>FY 2020 Total OCO</u>
Procurement of Ammunition, Army		2,694,548	148,682	2,843,230
Total Department of the Army		2,694,548	148,682	2,843,230

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<u>Appropriation</u>	<u>FY 2020 Total (Base + OCO)</u>
Procurement of Ammunition, Army	2,843,230
Total Department of the Army	2,843,230

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Appropriation: Procurement of Ammunition, Army

<u>Budget Activity</u>	<u>FY 2018 (Base + OCO)</u>	<u>FY 2019 Base Enacted</u>	<u>FY 2019 OCO Enacted</u>	<u>FY 2019 Total Enacted</u>
01. Ammunition	2,053,391	1,664,077	299,075	1,963,152
02. Ammunition Production Base Support	687,185	612,253		612,253
Total Procurement of Ammunition, Army	2,740,576	2,276,330	299,075	2,575,405

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Appropriation: Procurement of Ammunition, Army

Budget Activity	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO
01. Ammunition		2,013,692	148,682	2,162,374
02. Ammunition Production Base Support		680,856		680,856
Total Procurement of Ammunition, Army		2,694,548	148,682	2,843,230

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06 Mar 2019

Appropriation: Procurement of Ammunition, Army

Budget Activity	FY 2020 Total (Base + OCO)
01. Ammunition	2,162,374
02. Ammunition Production Base Support	680,856
Total Procurement of Ammunition, Army	2,843,230

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Appropriation: 2034A Procurement of Ammunition, Army

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO)		FY 2019 Base Enacted		FY 2019 OCO Enacted		FY 2019 Total Enacted		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Ammunition											
Small/Medium Cal Ammunition											
1	Ctg, 5.56mm, All Types	A		46,258	41,848		3,392		45,240		U
2	CTG, 7.62mm, All Types	A		61,704	86,199		40		86,239		U
3	CTG, Handgun, All Types	A		10,418	19,159		17		19,176		U
4	CTG, .50 Cal, All Types	A		71,443	65,573		189		65,762		U
5	CTG, 20mm, All Types	A		11,775	8,198		1,605		9,803		U
6	CTG, 25mm, All Types	A		40,502							U
7	CTG, 30mm, All Types	A		114,000	60,617		25,000		85,617		U
8	CTG, 40mm, All Types	A		125,380	69,781				69,781		U
Mortar Ammunition											
9	60MM Mortar, All Types			55,359	45,280		218		45,498		U
10	81MM Mortar, All Types			49,471	47,403		484		47,887		U
11	120MM Mortar, All Types	A		108,328	82,853				82,853		U
Tank Ammunition											
12	Cartridges, Tank, 105MM and 120MM, All Types	A		163,700	151,901				151,901		U
Artillery Ammunition											
13	Artillery Cartridges, 75MM & 105MM, All Types	A		44,200	34,673				34,673		U
14	Artillery Projectile, 155MM, All Types			279,449	221,442		79,400		300,842		U

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 (Dollars in Thousands)

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Appropriation: 2034A Procurement of Ammunition, Army

Line No	Item Nomenclature	Ident Code	FY 2020 Base		FY 2020 OCO for Base Requirements		FY 2020 OCO for Direct War and Enduring Costs		FY 2020 Total OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Ammunition											
Small/Medium Cal Ammunition											
1	Ctg, 5.56mm, All Types	A			68,949		567		69,516		U
2	CTG, 7.62mm, All Types	A			114,228		40		114,268		U
3	CTG, Handgun, All Types	A			17,807		17		17,824		U
4	CTG, .50 Cal, All Types	A			63,966		189		64,155		U
5	CTG, 20mm, All Types	A			35,920				35,920		U
6	CTG, 25mm, All Types	A			8,990				8,990		U
7	CTG, 30mm, All Types	A			68,813		24,900		93,713		U
8	CTG, 40mm, All Types	A			103,952				103,952		U
Mortar Ammunition											
9	60MM Mortar, All Types				50,580				50,580		U
10	81MM Mortar, All Types				59,373				59,373		U
11	120MM Mortar, All Types	A			125,452				125,452		U
Tank Ammunition											
12	Cartridges, Tank, 105MM and 120MM, All Types	A			171,284				171,284		U
Artillery Ammunition											
13	Artillery Cartridges, 75MM & 105MM, All Types	A			44,675				44,675		U
14	Artillery Projectile, 155MM, All Types				266,037				266,037		U

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Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO)		S e c
			Quantity	Cost	
<u>Budget Activity 01: Ammunition</u>					
Small/Medium Cal Ammunition					
1	Ctg, 5.56mm, All Types	A		69,516	U
2	CTG, 7.62mm, All Types	A		114,268	U
3	CTG, Handgun, All Types	A		17,824	U
4	CTG, .50 Cal, All Types	A		64,155	U
5	CTG, 20mm, All Types	A		35,920	U
6	CTG, 25mm, All Types	A		8,990	U
7	CTG, 30mm, All Types	A		93,713	U
8	CTG, 40mm, All Types	A		103,952	U
Mortar Ammunition					
9	60MM Mortar, All Types			50,580	U
10	81MM Mortar, All Types			59,373	U
11	120MM Mortar, All Types	A		125,452	U
Tank Ammunition					
12	Cartridges, Tank, 105MM and 120MM, All Types	A		171,284	U
Artillery Ammunition					
13	Artillery Cartridges, 75MM & 105MM, All Types	A		44,675	U
14	Artillery Projectile, 155MM, All Types			266,037	U

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Appropriation: 2034A Procurement of Ammunition, Army

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO)		FY 2019 Base Enacted		FY 2019 OCO Enacted		FY 2019 Total Enacted		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
15	Proj 155mm Extended Range M982	A	2841	220,234	1189	100,906	1019	72,985	2208	173,891	U
16	Artillery Propellants, Fuzes and Primers, All Mines	A		182,791		206,677		63,900		270,577	U
17	Mines & Clearing Charges, All Types			15,557		15,005				15,005	U
18	Shoulder Launched Munitions, All Types	A		30,000		9,503		11,792		21,295	U
19	Rocket, Hydra 70, All Types	A		296,375		235,711		39,974		275,685	U
20	CAD/PAD, All Types	A		7,441		8,928				8,928	U
21	Demolition Munitions, All Types	A		19,345		44,656		5		44,661	U
22	Grenades, All Types	A		32,615		39,896		8		39,904	U
23	Signals, All Types	A		3,096		8,121				8,121	U
24	Simulators, All Types	A		13,084		11,464				11,464	U
25	Ammo Components, All Types	A		10,275		5,224				5,224	U
26	Non-Lethal Ammunition, All Types	A		1,500		2,810				2,810	U
27	Items Less Than \$5 Million (AMMO)	A		10,730		11,193		66		11,259	U
28	Ammunition Peculiar Equipment	A		13,140		10,500				10,500	U
29	First Destination Transportation (AMMO)	A		15,221		18,456				18,456	U

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Line No	Item Nomenclature	Ident Code	FY 2020 Base		FY 2020 OCO for Base Requirements		FY 2020 OCO for Direct War and Enduring Costs		FY 2020 Total OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
15	Proj 155mm Extended Range M982	A			441	57,434	304	36,052	745	93,486	U
16	Artillery Propellants, Fuzes and Primers, All Mines	A				271,602		7,271		278,873	U
17	Mines & Clearing Charges, All Types					55,433				55,433	U
18	Rockets										
18	Shoulder Launched Munitions, All Types	A				74,878		176		75,054	U
19	Rocket, Hydra 70, All Types	A				175,994		79,459		255,453	U
20	Other Ammunition										
20	CAD/PAD, All Types	A				7,595				7,595	U
21	Demolition Munitions, All Types	A				51,651				51,651	U
22	Grenades, All Types	A				40,592				40,592	U
23	Signals, All Types	A				18,609				18,609	U
24	Simulators, All Types	A				16,054				16,054	U
25	Miscellaneous										
25	Ammo Components, All Types	A				5,261				5,261	U
26	Non-Lethal Ammunition, All Types	A				715				715	U
27	Items Less Than \$5 Million (AMMO)	A				9,213		11		9,224	U
28	Ammunition Peculiar Equipment	A				10,044				10,044	U
29	First Destination Transportation (AMMO)	A				18,492				18,492	U

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Appropriation: 2034A Procurement of Ammunition, Army

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO)		S e c
			Quantity	Cost	
15	Proj 155mm Extended Range M982	A	745	93,486	U
16	Artillery Propellants, Fuzes and Primers, All	A		278,873	U
Mines					
17	Mines & Clearing Charges, All Types			55,433	U
Rockets					
18	Shoulder Launched Munitions, All Types	A		75,054	U
19	Rocket, Hydra 70, All Types	A		255,453	U
Other Ammunition					
20	CAD/PAD, All Types	A		7,595	U
21	Demolition Munitions, All Types	A		51,651	U
22	Grenades, All Types	A		40,592	U
23	Signals, All Types	A		18,609	U
24	Simulators, All Types	A		16,054	U
Miscellaneous					
25	Ammo Components, All Types	A		5,261	U
26	Non-Lethal Ammunition, All Types	A		715	U
27	Items Less Than \$5 Million (AMMO)	A		9,224	U
28	Ammunition Peculiar Equipment	A		10,044	U
29	First Destination Transportation (AMMO)	A		18,492	U

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Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO)		FY 2019 Base Enacted		FY 2019 OCO Enacted		FY 2019 Total Enacted		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
30	Closeout Liabilities					100				100	U
Total Ammunition				2,053,391		1,664,077		299,075		1,963,152	
Budget Activity 02: Ammunition Production Base Support											
Production Base Support											
31	Industrial Facilities			432,641		450,947				450,947	U
32	Conventional Munitions Demilitarization			250,825		157,535				157,535	U
33	Arms Initiative			3,719		3,771				3,771	U
Total Ammunition Production Base Support				687,185		612,253				612,253	
Total Procurement of Ammunition, Army				2,740,576		2,276,330		299,075		2,575,405	

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Line No	Item Nomenclature	Ident Code	FY 2020 Base		FY 2020 OCO for Base Requirements		FY 2020 OCO for Direct War and Enduring Costs		FY 2020 Total OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
30	Closeout Liabilities					99				99	U
Total Ammunition						2,013,692		148,682		2,162,374	
Budget Activity 02: Ammunition Production Base Support											
Production Base Support											
31	Industrial Facilities					474,511				474,511	U
32	Conventional Munitions Demilitarization					202,512				202,512	U
33	Arms Initiative					3,833				3,833	U
Total Ammunition Production Base Support						680,856				680,856	
Total Procurement of Ammunition, Army						2,694,548		148,682		2,843,230	

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Appropriation: 2034A Procurement of Ammunition, Army

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO)		S e c
			Quantity	Cost	
30	Closeout Liabilities			99	U
Total Ammunition			2,162,374		
Budget Activity 02: Ammunition Production Base Support					
Production Base Support					
31	Industrial Facilities		474,511		U
32	Conventional Munitions Demilitarization		202,512		U
33	Arms Initiative		3,833		U
Total Ammunition Production Base Support			680,856		
Total Procurement of Ammunition, Army			2,843,230		

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Appropriation 2034A: Procurement of Ammunition, Army

Line #	BA	BSA	Line Item Number	Line Item Title	Page
1	01	30	0132E00700	CTG, 5.56MM, All Types.....	1
2	01	30	0612E02000	CTG, 7.62MM, All Types.....	49
4	01	30	1450EA3000	CTG, Handgun, All Types.....	83
5	01	30	1722E08000	CTG, .50 Cal, All Types.....	97
6	01	30	2382E08900	CTG, 20mm, All Types.....	115
7	01	30	2650E08200	CTG, 25mm, All Types.....	123
8	01	30	2938ER8120	CTG, 30mm, All Types.....	136
9	01	30	3222ER8001	CTG, 40mm, All Types.....	171
10	01	33	0050E89600	60MM Mortar, All Types.....	191
11	01	33	3584E76000	81MM Mortar, All Types.....	218
12	01	33	6780E25500	120MM Mortar, All Types.....	245
13	01	35	1120E22203	Cartridges, Tank, 105MM And 120MM, All Types.....	272
14	01	37	0530E15101	Artillery Cartridges, 75MM & 105MM, All Types.....	304
15	01	37	3102E89500	ARTILLERY PROJECTILE, 155MM, All Types.....	310
16	01	37	6600E80100	Proj 155mm Extended Range M982.....	349
17	01	37	8750E27501	Artillery Propellants, Fuzes and Primers, All.....	359

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Appropriation 2034A: Procurement of Ammunition, Army

Line #	BA	BSA	Line Item Number	Line Item Title	Page
18	01	43	0442EA0800	Mines & Clearing Charges, All Types.....	389
19	01	45	2348EA4000	Shoulder Launched Munitions, All Types.....	408
20	01	45	3246E37300	Rocket, Hydra 70, All Types.....	427
21	01	47	2420E61000	CAD/PAD, All Types.....	444
22	01	47	2790E55400	Demolition Munitions, All Types.....	451
23	01	47	4582E34000	Grenades, All Types.....	494
24	01	47	6038E46900	Signals, All Types.....	525
25	01	47	8278E51200	Simulators, All Types.....	546
26	01	50	0684EB0016	Ammo Components, All Types.....	560
27	01	50	1430E91901	Non-Lethal Ammunition, All Types.....	563
28	01	50	2624EA0055	Items Less Than \$5 Million (AMMO).....	565
29	01	50	4370EA0575	Ammunition Peculiar Equipment.....	575
30	01	50	4758EA0550	First Destination Transportation (AMMO).....	577
31	01	50	9615EA8500	Closeout Liabilities.....	578

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Line #	BA	BSA	Line Item Number	Line Item Title	Page
32	02	10	0572EP1000	Industrial Facilities.....	579
33	02	10	4099EP1700	Conventional Munitions Demilitarization.....	675
34	02	10	4150EP2500	ARMS Initiative.....	683

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60MM Mortar, All Types	0050E89600	10	01	33.....	191
81MM Mortar, All Types	3584E76000	11	01	33.....	218
ARMS Initiative	4150EP2500	34	02	10.....	683
ARTILLERY PROJECTILE, 155MM, All Types	3102E89500	15	01	37.....	310
Ammo Components, All Types	0684EB0016	26	01	50.....	560
Ammunition Peculiar Equipment	4370EA0575	29	01	50.....	575
Artillery Cartridges, 75MM & 105MM, All Types	0530E15101	14	01	37.....	304
Artillery Propellants, Fuzes and Primers, All	8750E27501	17	01	37.....	359
CAD/PAD, All Types	2420E61000	21	01	47.....	444
CTG, .50 Cal, All Types	1722E08000	5	01	30.....	97
CTG, 20mm, All Types	2382E08900	6	01	30.....	115
CTG, 25mm, All Types	2650E08200	7	01	30.....	123
CTG, 30mm, All Types	2938ER8120	8	01	30.....	136
CTG, 40mm, All Types	3222ER8001	9	01	30.....	171
CTG, 5.56MM, All Types	0132E00700	1	01	30.....	1
CTG, 7.62MM, All Types	0612E02000	2	01	30.....	49

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Line Item Title	Line Item Number	Line #	BA	BSA	Page
CTG, Handgun, All Types	1450EA3000	4	01	30.....	83
Cartridges, Tank, 105MM And 120MM, All Types	1120E22203	13	01	35.....	272
Closeout Liabilities	9615EA8500	31	01	50.....	578
Conventional Munitions Demilitarization	4099EP1700	33	02	10.....	675
Demolition Munitions, All Types	2790E55400	22	01	47.....	451
First Destination Transportation (AMMO)	4758EA0550	30	01	50.....	577
Grenades, All Types	4582E34000	23	01	47.....	494
Industrial Facilities	0572EP1000	32	02	10.....	579
Items Less Than \$5 Million (AMMO)	2624EA0055	28	01	50.....	565
Mines & Clearing Charges, All Types	0442EA0800	18	01	43.....	389
Non-Lethal Ammunition, All Types	1430E91901	27	01	50.....	563
Proj 155mm Extended Range M982	6600E80100	16	01	37.....	349
Rocket, Hydra 70, All Types	3246E37300	20	01	45.....	427
Shoulder Launched Munitions, All Types	2348EA4000	19	01	45.....	408
Signals, All Types	6038E46900	24	01	47.....	525
Simulators, All Types	8278E51200	25	01	47.....	546

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Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 30: Small/Medium Cal Ammunition

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
1	A	0132E00700	CTG, 5.56MM, All Types	-	46.258	-	45.240	-	-	-	69.516	-	69.516
2	A	0612E02000	CTG, 7.62MM, All Types	-	61.704	-	86.239	-	-	-	114.268	-	114.268
4	A	1450EA3000	CTG, Handgun, All Types	-	10.418	-	19.176	-	-	-	17.824	-	17.824
5	A	1722E08000	CTG, .50 Cal, All Types	-	71.443	-	65.762	-	-	-	64.155	-	64.155
6	A	2382E08900	CTG, 20mm, All Types	-	11.775	-	9.803	-	-	-	35.920	-	35.920
7	A	2650E08200	CTG, 25mm, All Types	-	40.502	-	-	-	-	-	8.990	-	8.990
8	A	2938ER8120	CTG, 30mm, All Types	-	114.000	-	85.617	-	-	-	93.713	-	93.713
9	A	3222ER8001	CTG, 40mm, All Types	-	125.380	-	69.781	-	-	-	103.952	-	103.952
Total: Ammunition / Small/Medium Cal Ammunition				-	481.480	-	381.618	-	0.000	-	508.338	-	508.338

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Army • Budget Estimates FY 2020 • Procurement
Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 33: Mortar Ammunition**

				Cost (\$ in Millions)									
Line#	Cost Type	Line Item #	Line Item Title	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
10	A	0050E89600	60MM Mortar, All Types	-	55.359	-	45.498	-	-	-	50.580	-	50.580
11	A	3584E76000	81MM Mortar, All Types	-	49.471	-	47.887	-	-	-	59.373	-	59.373
12	A	6780E25500	120MM Mortar, All Types	-	108.328	-	82.853	-	-	-	125.452	-	125.452
Total: Ammunition / Mortar Ammunition				-	213.158	-	176.238	-	0.000	-	235.405	-	235.405

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 35: Tank Ammunition**

				Cost (\$ in Millions)									
Line#	Cost Type	Line Item #	Line Item Title	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
13	A	1120E22203	Cartridges, Tank, 105MM And 120MM, All Types	-	163.700	-	151.901	-	-	-	171.284	-	171.284

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Army • Budget Estimates FY 2020 • Procurement
Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 35: Tank Ammunition**

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
Total: Ammunition / Tank Ammunition				-	163.700	-	151.901	-	0.000	-	171.284	-	171.284

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 37: Artillery Ammunition**

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
14	A	0530E15101	Artillery Cartridges, 75MM & 105MM, All Types	-	44.200	-	34.673	-	-	-	44.675	-	44.675
15	A	3102E89500	ARTILLERY PROJECTILE, 155MM, All Types	-	279.449	-	300.842	-	-	-	266.037	-	266.037
16	A	6600E80100	Proj 155mm Extended Range M982	2,841	220.234	2,208	173.891	-	-	804	93.486	804	93.486
17	A	8750E27501	Artillery Propellants, Fuzes and Primers, All	-	182.791	-	270.577	-	-	-	278.873	-	278.873

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Army • Budget Estimates FY 2020 • Procurement
 Exhibit P-1, Procurement Program
 (Listing by Appropriation, then Line Number)

Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 37: Artillery Ammunition

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
Total: Ammunition / Artillery Ammunition				-	726.674	-	779.983	-	0.000	-	683.071	-	683.071

Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 43: Mines

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
18	A	0442EA0800	Mines & Clearing Charges, All Types	-	15.557	-	15.005	-	-	-	55.433	-	55.433
Total: Ammunition / Mines				-	15.557	-	15.005	-	0.000	-	55.433	-	55.433

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Army • Budget Estimates FY 2020 • Procurement
Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 45: Rockets**

				Cost (\$ in Millions)									
Line#	Cost Type	Line Item #	Line Item Title	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
19	A	2348EA4000	Shoulder Launched Munitions, All Types	-	30.000	-	21.295	-	-	-	75.054	-	75.054
20	A	3246E37300	Rocket, Hydra 70, All Types	-	296.375	-	275.685	-	-	-	255.453	-	255.453
Total: Ammunition / Rockets				-	326.375	-	296.980	-	0.000	-	330.507	-	330.507

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 47: Other Ammunition**

				Cost (\$ in Millions)									
Line#	Cost Type	Line Item #	Line Item Title	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
21	A	2420E61000	CAD/PAD, All Types	-	7.441	-	8.928	-	-	-	7.595	-	7.595

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Army • Budget Estimates FY 2020 • Procurement
Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 47: Other Ammunition**

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
22	A	2790E55400	Demolition Munitions, All Types	-	19.345	-	44.661	-	-	-	51.651	-	51.651
23	A	4582E34000	Grenades, All Types	-	32.615	-	39.904	-	-	-	40.592	-	40.592
24	A	6038E46900	Signals, All Types	-	3.096	-	8.121	-	-	-	18.609	-	18.609
25	A	8278E51200	Simulators, All Types	-	13.084	-	11.464	-	-	-	16.054	-	16.054
Total: Ammunition / Other Ammunition				-	75.581	-	113.078	-	0.000	-	134.501	-	134.501

**Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 50: Miscellaneous**

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
26	A	0684EB0016	Ammo Components, All Types	-	10.275	-	5.224	-	-	-	5.261	-	5.261

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Army • Budget Estimates FY 2020 • Procurement
Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

Appropriation 2034A: Procurement of Ammunition, Army
BA 01: Ammunition / BSA 50: Miscellaneous

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
27	A	1430E91901	Non-Lethal Ammunition, All Types	-	1.500	-	2.810	-	-	-	0.715	-	0.715
28	A	2624EA0055	Items Less Than \$5 Million (AMMO)	-	10.730	-	11.259	-	-	-	9.224	-	9.224
29	A	4370EA0575	Ammunition Peculiar Equipment	-	13.140	-	10.500	-	-	-	10.044	-	10.044
30	A	4758EA0550	First Destination Transportation (AMMO)	-	15.221	-	18.456	-	-	-	18.492	-	18.492
31	A	9615EA8500	Closeout Liabilities	-	-	-	0.100	-	-	-	0.099	-	0.099
Total: Ammunition / Miscellaneous				-	50.866	-	48.349	-	0.000	-	43.835	-	43.835

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Army • Budget Estimates FY 2020 • Procurement
Exhibit P-1, Procurement Program
(Listing by Appropriation, then Line Number)

Appropriation 2034A: Procurement of Ammunition, Army
BA 02: Ammunition Production Base Support / BSA 10: Production Base Support

Line#	Cost Type	Line Item #	Line Item Title	Cost (\$ in Millions)									
				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	
				Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
32	A	0572EP1000	Industrial Facilities	-	432.641	-	450.947	-	-	-	474.511	-	474.511
33	A	4099EP1700	Conventional Munitions Demilitarization	-	250.825	-	157.535	-	-	-	202.512	-	202.512
34	A	4150EP2500	ARMS Initiative	-	3.719	-	3.771	-	-	-	3.833	-	3.833
Total: Ammunition Production Base Support / Production Base Support				-	687.185	-	612.253	-	0.000	-	680.856	-	680.856

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,852.466	46.258	45.240	-	69.516	69.516	70.376	73.650	71.164	71.291	-	2,299.961
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,852.466	46.258	45.240	-	69.516	69.516	70.376	73.650	71.164	71.291	-	2,299.961
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,852.466	46.258	45.240	-	69.516	69.516	70.376	73.650	71.164	71.291	-	2,299.961

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$69.516M for Overseas Contingency Operations; of which \$68.949M and quantity 220.058 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 5.56MM ALL TYPES.

(E00901) The M199A1, 5.56mm Dummy Drill & Inert ammunition (DDI) is an inert (no energetic) dummy cartridge used as an ammunition training aid and for weapon familiarization. The M199A1 DDI ammunition is both nickel plated and fluted for easy recognition and to distinguish the dummy ammunition visually from tactical ammunition. This item is Code A, approved for service use.

(E01100) 5.56mm, M200 Blank Cartridge consists of a brass cartridge case with primer and propellant sealed with a rosette crimp. This cartridge is used for training and ceremonial purposes without blank firing attachment (BFA) and in M16A2/A4 Series Rifles and M4 Carbine fitted with BFA. This item is Code A, approved for service use.

(E01101) 5.56mm Blank M200 Linked cartridge consists of a brass cartridge case with primer and propellant sealed with a rosette crimp. This cartridge is used in the M249 Squad Automatic Weapon (SAW) Machine Gun with a Blank Firing Adapter and it is designed to simulate firing during training exercises. The M27 metallic link is merely a scaled-down version of the 7.62mm M13 one-piece link. This item is Code A, approved for service use.

(E04607) 5.56mm M855A1 Ball Cartridges and M856A1 Tracer Cartridges are linked in a 4-Ball/1-Tracer configuration with the M27 link for use in the M249 Machine Gun. The M855A1 Ball Cartridge has a steel penetrator and non-lead slug surrounded by a copper jacket. The M856A1 Tracer Cartridge is lead free and provides a visible red light signature through its trajectory. The M856A1 Tracer Cartridge provides visible signature of fire out to 900 meters. This item is Code A, approved for service use.

(E04608) 5.56mm M856A1 Tracer Bullet is lead free and provides a visible red light signature through its trajectory. The bullet is used in M16 and M4 Rifles/Carbines. This item is Code A, approved for service use.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E95200) 5.56mm, M855A1 Ball Cartridge is linked with the M27 link for use in the M249 Machine Gun. The M855A1 Ball Cartridge has a steel penetrator and non-lead slug surrounded by a copper jacket. This item is Code A, approved for service use.</p> <p>(E95400) 5.56mm, M855A1 Ball Cartridge has a steel penetrator and lead free slug surrounded by a copper jacket. The cartridge is used in M16A2/A4 Rifles and M4/M4A1 Carbines. This cartridge is packed in bandoleers in standard military can pack. This item is Code A, approved for service use.</p> <p>(E95700) 5.56mm, M855A1 Ball Cartridge has a steel penetrator and lead free slug surrounded by a copper jacket. The cartridge is used in M16A2/A4 Rifles and M4/M4A1 Carbines. This cartridge is packed without bandoleer in standard military can pack. This item is Code A, approved for service use.</p> <p>(E96110) 5.56mm, Marking Blue M1042 is used for force-on-force training engagements. The cartridge can be fired with the existing M4 Carbine and M16A2/A3/A4 Rifles with the use of a conversion bolt. The projectile leaves a mark upon impact (similar to paintball), thus enabling after action evaluation of training scenarios. However, it differs from paintball in that it is a full complete cartridge with projectile and cartridge case containing a propulsion system for a low velocity launch. This item is Code A, approved for service use.</p> <p>(E96111) 5.56mm Marking Red, M1042 is used for force-on-force training engagements. The cartridge can be fired with the existing M4 Carbine and from the M16A2/A3/A4 Rifles with the use of a conversion bolt. The projectile leaves a mark upon impact (similar to paintball), thus enabling after action evaluation of training scenarios. However, it differs from paintball in that it is a full, complete cartridge with projectile and cartridge case containing a propulsion system for a low velocity launch. This item is Code A, approved for service use.</p> <p>(E96120) 5.56mm, Marking Blue, M1071 is used for force-on-force training engagements. The cartridge can be fired with the existing M249 Squad Automatic Weapon with the use of the conversion kit. The projectile leaves a mark upon impact (similar to paintball), thus enabling after action evaluation of training scenarios. However, it differs from paintball in that it is a full complete cartridge with projectile and cartridge case containing a propulsion system for a low velocity launch. This item is Code A, approved for service use.</p> <p>(E96121) 5.56mm, Marking Red, M1071 is used for force-on-force training engagements. The cartridge can be fired with the existing M249 Squad Automatic Weapon with the use of the conversion kit. The projectile leaves a mark upon impact (similar to paintball), thus enabling after action evaluation of training scenarios. However, it differs from paintball in that it is a full complete cartridge with projectile and cartridge case containing a propulsion system for a low velocity launch. This item is Code A, approved for service use.</p> <p>(E96125) 5.56mm Short Range Training M1037 clipped cartridge will be used in live fire training scenarios. The M1037 clipped cartridge permits training in adjacent training areas due to its reduced Surface Danger Zone (SDZ) and can be fired with existing M4 weapons. This cartridge is used for Military Operations/Urban Terrain (MOUT) operational training. This item is Code A, approved for service use.</p> <p>(E96126) 5.56mm Short Range Training Ammunition (SRTA) M1037 linked cartridge will be used in live fire training scenarios. The M1037 Linked cartridge permits training in adjacent training areas due to its reduced Surface Danger Zone (SDZ) and can be fired with the existing M249 family of weapons. This item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition

P-1 Line Item Number / Title:
0132E00700 / CTG, 5.56MM, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E00901 / CTG, 5.56mm Single Round (NPF DDI), M199A1 [AB46]		A		- / 0.295	- / 0.229	- / -	- / -	- / -	- / -
P-5	E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]	P-5a, P-21	A		- / 532.451	- / 4.464	- / 3.397	- / -	- / 12.400	- / 12.400
P-5	E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]	P-5a, P-21	A		- / 209.192	- / 3.035	- / 2.582	- / -	- / 8.049	- / 8.049
P-5	E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 /1 TR M856A1 Linked [AB73]	P-5a, P-21	A		- / 56.483	- / 6.550	- / 6.604	- / -	- / 8.477	- / 8.477
P-5	E04608 / CTG, 5.56mm Tracer, M856A1 Single Round [AB74]		A		- / 9.782	- / -	- / 3.128	- / -	- / 0.435	- / 0.435
P-5	E95200 / CTG, 5.56mm EPR Ball, M855A1 w/M27 Link f/SAW [AB56]		A		- / 31.431	- / -	- / -	- / -	- / 0.073	- / 0.073
P-5	E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]	P-5a, P-21	A		- / 813.824	- / 6.650	- / 6.519	- / -	- / 11.164	- / 11.164
P-5	E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]	P-5a, P-21	A		- / 145.109	- / 22.008	- / 17.915	- / -	- / 23.668	- / 23.668
P-5	E96110 / CTG, 5.56mm Marking, M1042 (Blue) [AB09]		A		- / 25.104	- / 0.150	- / -	- / -	- / -	- / -
P-5	E96111 / CTG, 5.56mm Marking, M1042 (Red) [AB10]		A		- / 11.697	- / 0.145	- / 0.993	- / -	- / 1.270	- / 1.270
P-5	E96120 / CTG, 5.56mm Marking, M1071 (Blue) Linked f/SAW [AB16]		A		- / 4.081	- / 0.315	- / 0.778	- / -	- / 0.707	- / 0.707
P-5	E96121 / CTG, 5.56mm Marking, M1071 (Red) Linked f/SAW [AB17]		A		- / 3.853	- / 0.202	- / 0.622	- / -	- / 0.512	- / 0.512
P-5	E96125 / Ctg, 5.56mm, Short Range Training, M1037, sngl rd [AB67]		A		- / 2.314	- / 1.400	- / 2.702	- / -	- / 2.761	- / 2.761
P-5	E96126 / Ctg, 5.56mm, Short Range Training, M1037 Linked [AB66]		A		- / 6.850	- / 1.110	- / -	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 1,852.466	- / 46.258	- / 45.240	- / -	- / 69.516	- / 69.516

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD)-approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$69.516 million for Overseas Contingency Operations, with a quantity of 220.058 million for \$68.949 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$0.567 million, with a quantity of 1.249 million for OCO for Enduring Requirements.

(E00901) 5.56mm, Single Cartridge (DDI), M199A1 is a training unique item not used in combat. The request supports annual training and builds a depot level in accordance with Army's procurement goals. Type Classification date: 2008

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E01100) 5.56mm, M200 Blank Cartridge is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$12.400 million supports the procurement of 67.988 million of the M200 Blank Cartridges. Type classification date: prior to 1977</p> <p>(E01101) 5.56mm, M200 Blank Linked F/SAW is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$8.049 million supports the procurement of 29.272 million of the M200 Blank Linked Cartridges. Type classification date: prior to 1977</p> <p>(E04607) 5.56mm M855A1 Ball and M856A1 Tracer Cartridges are training standard items used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$8.345 million supports the procurement of 18.241 million of the M855A1 Ball and M856A1 Tracer Cartridges. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.132 million supports the Combatant Commander (COCOM) requirement for procurement of 0.314 million of the M855A1 Ball and M856A1 Tracer Cartridges to deter potential adversaries and support the European Deterrence Initiative. Type classification date: 1982</p> <p>(E04608) 5.56mm M856A1 Tracer Bullet is lead free and is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.435M supports the COCOM requirement for procurement of 0.935 million of the M856A1 bullets to deter potential adversaries and support the European Deterrence Initiative. Type classification date: 1982</p> <p>(E95200) 5.56mm, M855A1 Ball Cartridge is linked with the M27 link and is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. OCO for Base Requirements procurement dollars in the amount of \$0.073 million supports the procurement of 0.171 million M855A1 Ball Cartridge is linked with the M27 link cartridges. This is a New Start in FY 2020. Type classification date: 1982</p> <p>(E95400) 5.56mm, M855A1 Ball Cartridge is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$11.164 million supports the procurement of 30.234 million of the M855A1 Ball Cartridges. Type classification date: 1982</p> <p>(E95700) 5.56mm, M855A1 Ball Cartridge is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$23.668 million supports the procurement of 68.597 million of the M855A1 Ball Cartridges. Type classification date: 1982</p> <p>(E96110) 5.56mm, Marking, M1042 Blue is a training unique item not used in combat. The request supports annual training and builds a depot level in accordance with the Army's procurement goals. Type classification date: May 2009</p> <p>(E96111) 5.56mm Marking, M1042 Red are training unique items not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.270 million supports the procurement of 1.865 million of the Marking Red M1042 Cartridges. Type classification date: May 2009</p> <p>(E96120) 5.56mm, Marking Blue, M1071 is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.707 million supports the procurement of 0.888 million of the Marking Blue M1071 Cartridges.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
Type classification date: May 2009		
(E96121) 5.56mm, Marking Red, M1071 is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.5120 million supports the procurement of 0.643 million of the Marking Red M1071 Cartridges. Type classification date: May 2009		
(E96125) 5.56mm Short Range Training Ammunition (SRTA) M1037 clipped cartridges is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.761 million supports the procurement of 2.160 million of the clipped SRTA M1037 Cartridges. Type classification date: July 2012		
(E96126) 5.56mm Short Range Training Ammunition (SRTA) M1037 linked cartridge is a training unique item not used in combat. The request supports annual training and builds a depot level in accordance with Army's procurement goals. Type Classification date: July 2012		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E00901 / CTG, 5.56mm Single Round (NPF DDI), M199A1 [AB46]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.295	0.229	-	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.295	0.229	-	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.295	0.229	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	0.39	756,410	0.295	1.05	202,404	0.213	-	-	-	-	-	-	-	-	-	-	-	-
BOX METAL M2A2	-	-	-	14.25	247	0.004	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	0.295	-	-	0.216	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	0.295	-	-	0.216	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.013	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	0.013	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	0.295	-	-	0.229	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	532.451	4.464	3.397	-	12.400	12.400
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	532.451	4.464	3.397	-	12.400	12.400
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	532.451	4.464	3.397	-	12.400	12.400

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	0.13	3,879,482K	504.333	0.13	24,695,355	3.210	0.14	19,128,398	2.678	-	-	-	0.16	67,987,825	10.878	0.16	67,987,825	10.878
BOX METAL M2A2 ^(†)	10.93	2,405,594	26.293	12.28	21,732	0.267	14.07	16,833	0.237	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	530.626	-	-	3.477	-	-	2.915	-	-	0.000	-	-	10.878	-	-	10.878
<i>Subtotal: Hardware Cost</i>	-	-	530.626	-	-	3.477	-	-	2.915	-	-	0.000	-	-	10.878	-	-	10.878
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Safety	-	-	-	-	-	0.574	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	0.574	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	1.686	-	-	0.403	-	-	0.471	-	-	-	-	-	1.514	-	-	1.514
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.686	-	-	0.403	-	-	0.471	-	-	0.000	-	-	1.514	-	-	1.514
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.019	-	-	0.010	-	-	0.011	-	-	-	-	-	0.008	-	-	0.008

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.019	-	-	0.010	-	-	0.011	-	-	0.000	-	-	0.008	-	-	0.008
Gross/Weapon System Cost	-	-	532.451	-	-	4.464	-	-	3.397	-	-	-	-	-	12.400	-	-	12.400

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Nov 2018	24,695,355	0.13	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	19,128,398	0.14	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	67,987,825	0.16	Y		
BOX METAL M2A2		2018	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Oct 2018	21,732	12.28	Y		
BOX METAL M2A2		2019	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Jul 2019	Sep 2019	16,833	14.07	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 AND FY 2019 LAP ARE DELIVERY ORDERS TO THE EXISTING CONTRACT. BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP).

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Exhibit P-21, Production Schedule: PB 2020 Army																Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30								P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types								Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]											

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018												Fiscal Year 2019												BALANCE							
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019																		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P						
LOAD, ASSEMBLE, PACK (LAP)																																					
Prior Years Deliveries: 3879481570																																					
	1	2018	ARMY	24.695	.000	24.695																															
	1	2018	NSOF (+)	1.069	.000	1.069																															
	1	2018	Total	25.765	.000	25.765																															
	1	2019	ARMY	19.128	.000	19.128																															
	✓ 2	2020	AF (+)	.527	.000	.527																															
	✓ 2	2020	ARMY	67.988	.000	67.988																															
	✓ 2	2020	Total OCO	68.514	.000	68.514																															

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020													Fiscal Year 2021													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
LOAD, ASSEMBLE, PACK (LAP)																																	
Prior Years Deliveries: 3879481570																																	
	1	2018	ARMY	24.695	22.637	2.058	2.058																								.000		
	1	2018	NSOF (+)	1.069	.980	.089	.089																								.000		
	1	2018	Total	25.765	23.618	2.147	2.147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000			
	1	2019	ARMY	19.128	.000	19.128	1.594	1.594	1.594	1.594	1.594	1.594	1.594	1.594	1.594	1.594															.000		
✓	2	2020	AF (+)	.527	.000	.527						A	-	-	-	-	-	-	-	-	-	.044	.044	.044	.044	.044	.044	.044	.044	.219			
✓	2	2020	ARMY	67.988	.000	67.988						A	-	-	-	-	-	-	-	-	-	5.666	5.666	5.666	5.666	5.666	5.666	5.666	5.666	28.328			
✓	2	2020	Total OCO	68.514	.000	68.514						-	-	-	-	-	-	-	-	-	-	5.710	5.710	5.710	5.710	5.710	5.710	5.710	5.710	28.548			
								O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P		

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2022												Fiscal Year 2023												BALANCE			
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P		
LOAD, ASSEMBLE, PACK (LAP)																																	
Prior Years Deliveries: 3879481570																																	
	1	2018	ARMY	24.695	24.695	.000																											.000
	1	2018	NSOF (+)	1.069	1.069	.000																											.000
	1	2018	Total	25.765	25.765	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
	1	2019	ARMY	19.128	19.128	.000																											.000
✓	2	2020	AF (+)	.527	.307	.219	.044	.044	.044	.044	.044																						.000
✓	2	2020	ARMY	67.988	39.660	28.328	5.666	5.666	5.666	5.666	5.666																						.000
✓	2	2020	Total OCO	68.514	39.967	28.548	5.710	5.710	5.710	5.710	5.710	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E01100 / CTG, 5.56mm Blank, M200, Single Round [A080]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	1,000,000	13,700,000	41,000,000	6	6	12	18	6	6	7	13
2	TO BE SELECTED - TBS01	1,000,000	13,700,000	41,000,000	6	6	12	18	6	6	7	13

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	209.192	3.035	2.582	-	8.049	8.049
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	209.192	3.035	2.582	-	8.049	8.049
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	209.192	3.035	2.582	-	8.049	8.049

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND(†)	0.22	949,314K	208.637	0.20	12,006,861	2.401	0.22	10,306,839	2.268	-	-	-	0.24	29,272,335	7.025	0.24	29,272,335	7.025
Subtotal: Recurring Cost	-	-	208.849	-	-	2.401	-	-	2.268	-	-	0.000	-	-	7.025	-	-	7.025
Subtotal: Hardware Cost	-	-	208.849	-	-	2.401	-	-	2.268	-	-	0.000	-	-	7.025	-	-	7.025
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	-	-	-	-	-	-	0.135	-	-	-	-	-	0.135	-	-	0.135
Reliability	-	-	-	-	-	0.384	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	0.384	-	-	0.135	-	-	0.000	-	-	0.135	-	-	0.135
Support - Production Engineering Cost																		
Production Engineering	-	-	0.340	-	-	0.250	-	-	0.172	-	-	-	-	-	0.881	-	-	0.881
Subtotal: Support - Production Engineering Cost	-	-	0.340	-	-	0.250	-	-	0.172	-	-	0.000	-	-	0.881	-	-	0.881
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.003	-	-	-	-	-	0.008	-	-	-	-	-	0.008	-	-	0.008
Subtotal: Support - Quality Assurance Cost	-	-	0.003	-	-	-	-	-	0.008	-	-	0.000	-	-	0.008	-	-	0.008
Gross/Weapon System Cost	-	-	209.192	-	-	3.035	-	-	2.582	-	-	-	-	-	8.049	-	-	8.049

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
^(†) indicates the presence of a P-5a		

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Oct 2019	12,006,861	0.20	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	10,306,839	0.22	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Oct 2020	29,272,335	0.24	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018 AND FY 2019 COMPLETE ROUND IS A DELIVERY ORDER TO THE EXISTING CONTRACT. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP).

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Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30				P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]			

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E				
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P			
COMPLETE ROUND																																		
Prior Years Deliveries: 949314069																																		
	1	2018	ARMY	12.007	.000	12.007																												12.007
	1	2019	ARMY	10.307	.000	10.307																												10.307
✓	2	2020	AF (†)	.384	.000	.384																											.384	
✓	2	2020	ARMY	29.272	.000	29.272																												29.272
✓	2	2020	Total OCO	29.656	.000	29.656																												29.656

O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P
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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types										Item Number / Title [DODIC]: E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020															Fiscal Year 2021															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T O 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
Prior Years Deliveries: 949314069																																					
	1	2018	ARMY	12.007	.000	12.007	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001																		.000		
	1	2019	ARMY	10.307	.000	10.307	.859	.859	.859	.859	.859	.859	.859	.859	.859	.859	.859																		.000		
✓	2	2020	AF (†)	.384	.000	.384												A	-	-	-	-	-	-	-	.032	.032	.032	.032	.032	.032	.032	.032	.032	.000		
✓	2	2020	ARMY	29.272	.000	29.272												A	-	-	-	-	-	-	-	2.439	2.439	2.439	2.439	2.439	2.439	2.439	2.439	2.439	2.439	.000	
✓	2	2020	Total OCO	29.656	.000	29.656												-	-	-	-	-	-	-	-	2.471	2.471	2.471	2.471	2.471	2.471	2.471	2.471	2.471	2.471	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E01101 / CTG, 5.56mm Blank, M200 Linked f/SAW [A075]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	1,600	14,100,000	48,700,000	6	6	12	18	6	6	7	13
2	TO BE SELECTED - TBS01	1,600	14,100,000	48,700,000	6	6	12	18	6	6	7	13

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	56.483	6.550	6.604	-	8.477	8.477
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	56.483	6.550	6.604	-	8.477	8.477
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	56.483	6.550	6.604	-	8.477	8.477

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	0.31	174,585K	54.121	0.34	16,110,654	5.478	0.38	16,192,589	6.153	-	-	-	0.42	18,555,087	7.793	0.42	18,555,087	7.793
Subtotal: Recurring Cost	-	-	54.121	-	-	5.478	-	-	6.153	-	-	0.000	-	-	7.793	-	-	7.793
Subtotal: Hardware Cost	-	-	54.121	-	-	5.478	-	-	6.153	-	-	0.000	-	-	7.793	-	-	7.793
Support - Data Cost																		
Depository	-	-	-	-	-	0.385	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Data Cost	-	-	-	-	-	0.385	-	-	-	-	-	-	-	-	-	-	-	-
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	-	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Non-Recurring Support Cost	-	-	-	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Safety	-	-	0.056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reliability	-	-	-	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	0.056	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	2.289	-	-	0.649	-	-	0.447	-	-	-	-	-	0.680	-	-	0.680

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	2.289	-	-	0.649	-	-	0.447	-	-	0.000	-	-	0.680	-	-	0.680
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.017	-	-	0.019	-	-	0.004	-	-	-	-	-	0.004	-	-	0.004
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.017	-	-	0.019	-	-	0.004	-	-	0.000	-	-	0.004	-	-	0.004
Gross/Weapon System Cost	-	-	56.483	-	-	6.550	-	-	6.604	-	-	-	-	-	8.477	-	-	8.477

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Oct 2018	16,110,654	0.34	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	16,192,589	0.38	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	18,555,087	0.42	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018 AND FY 2019 COMPLETE ROUND ARE DELIVERY ORDERS TO THE EXISTING CONTRACT. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP)

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019									
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types										Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]				

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018															Fiscal Year 2019													B A L A N C E	
O C C O	M F R #	F Y	S E R V I C E	P R O C Q T Y	A C C E P T P R I O R T O 1 O C T 2 0 1 7	B A L D U E A S O F 1 O C T	Calendar Year 2018															Calendar Year 2019													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

COMPLETE ROUND																																																																		
Prior Years Deliveries: 174585049																																																																		
1	2018	ARMY	16.111	.000	16.111																A	-	-	-	-	-	-	-	-	1.343	1.343	1.343	1.343	1.343	1.343	1.343	1.343	1.343	1.343	.000																										
1	2019	ARMY	16.193	.000	16.193																													-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.193																
1	2019	NSOF ^(*)	.177	.000	.177																													A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.177															
1	2019	Total	16.370	.000	16.370																													-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.370														
✓	2	2020	ARMY	18.555	.000	18.555																																										-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.555

O C C O	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P
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Exhibit P-21, Production Schedule: PB 2020 Army																		Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types										Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020													Fiscal Year 2021													BALANCE		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T O 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
COMPLETE ROUND																																	
Prior Years Deliveries: 174585049																																	
	1	2018	ARMY	16.111	16.111	.000																								.000			
	1	2019	ARMY	16.193	.000	16.193	1.349	1.349	1.349	1.349	1.349	1.349	1.349	1.349	1.349	1.349	1.349													.000			
	1	2019	NSOF (‡)	.177	.000	.177	.015	.015	.015	.015	.015	.015	.015	.015	.015	.015	.015												.000				
	1	2019	Total	16.370	.000	16.370	1.364	1.364	1.364	1.364	1.364	1.364	1.364	1.364	1.364	1.364	1.364	-	-	-	-	-	-	-	-	-	-	-	-	.000			
✓	2	2020	ARMY	18.555	.000	18.555																							7.731				
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30				P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]			

Cost Elements <i>(Units in Millions, * = < 500)</i>				Fiscal Year 2022														Fiscal Year 2023														B A L A N C E					
O C C O	M F R #	F Y	S E R V I C E	P R O C Q T Y	A C C E P T P R I O R T O 1 O C T 2 0 2 1	B A L D U E A S O F 1 O C T	Calendar Year 2022														Calendar Year 2023																
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
Prior Years Deliveries: 174585049																																					
	1	2018	ARMY	16.111	16.111	.000																															.000
	1	2019	ARMY	16.193	16.193	.000																															.000
	1	2019	NSOF (†)	.177	.177	.000																														.000	
	1	2019	Total	16.370	16.370	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
✓	2	2020	ARMY	18.555	10.824	7.731	1.546	1.546	1.546	1.546	1.546																									.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E04607 / CTG, 5.56mm 4 Ball EPR, M855A1 / 1 TR M856A1 Linked [AB73]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	1,600	5,143,040	9,771,776	6	6	12	18	6	6	7	13
2	TO BE SELECTED - TBS01	1,600	5,143,040	9,771,776	6	6	12	18	6	6	6	12

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E04608 / CTG, 5.56mm Tracer, M856A1 Single Round [AB74]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	9.782	-	3.128	-	0.435	0.435
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	9.782	-	3.128	-	0.435	0.435
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	9.782	-	3.128	-	0.435	0.435

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	0.37	24,435,313	9.041	-	-	-	0.40	7,087,357	2.835	-	-	-	0.41	934,590	0.383	0.41	934,590	0.383
BOX METAL M2A2	10.38	2,608	0.027	-	-	-	14.07	8,647	0.122	-	-	-	14.34	1,140	0.016	14.34	1,140	0.016
<i>Subtotal: Recurring Cost</i>	-	-	<i>9.068</i>	-	-	-	-	-	<i>2.957</i>	-	-	<i>0.000</i>	-	-	<i>0.400</i>	-	-	<i>0.400</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>9.068</i>	-	-	-	-	-	<i>2.957</i>	-	-	<i>0.000</i>	-	-	<i>0.400</i>	-	-	<i>0.400</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	0.714	-	-	-	-	-	0.168	-	-	-	-	-	0.035	-	-	0.035
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.714</i>	-	-	-	-	-	<i>0.168</i>	-	-	<i>0.000</i>	-	-	<i>0.035</i>	-	-	<i>0.035</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	<i>0.003</i>	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	9.782	-	-	-	-	-	3.128	-	-	-	-	-	0.435	-	-	0.435

Remarks:

BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E95200 / CTG, 5.56mm EPR Ball, M855A1 w/M27 Link f/SAW [AB56]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	31.431	-	-	-	0.073	0.073
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	31.431	-	-	-	0.073	0.073
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	31.431	-	-	-	0.073	0.073

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total			
	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 Cost																			
Recurring Cost																			
Complete Round	0.35	78,878,800	27.608	-	-	-	-	-	-	-	-	-	0.39	171,156	0.067	0.39	171,156	0.067	
<i>Subtotal: Recurring Cost</i>	-	-	27.608	-	-	-	-	-	-	-	-	-	0.000	-	-	0.067	-	-	0.067
Subtotal: Hardware Cost	-	-	27.608	-	-	-	-	-	-	-	-	-	0.000	-	-	0.067	-	-	0.067
Support - Non-Recurring Support Cost																			
Value Engineering	-	-	0.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	0.680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																			
Production Engineering	-	-	3.117	-	-	-	-	-	-	-	-	-	-	-	0.006	-	-	0.006	
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	3.117	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.006	
Support - Quality Assurance Cost																			
Quality Assurance	-	-	0.026	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.000	
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.026	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.000	
Gross/Weapon System Cost	-	-	31.431	-	-	-	-	-	-	-	-	-	-	-	0.073	-	-	0.073	

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	813.824	6.650	6.519	-	11.164	11.164
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	813.824	6.650	6.519	-	11.164	11.164
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	813.824	6.650	6.519	-	11.164	11.164

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	0.45	1,776,129K	799.497	0.50	12,154,507	6.077	0.34	15,709,803	5.341	-	-	-	0.32	30,233,573	9.675	0.32	30,233,573	9.675
BOX METAL M2A2 ^(†)	11.07	67,773	0.750	-	-	-	14.07	18,695	0.263	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>800.008</i>	-	-	<i>6.077</i>	-	-	<i>5.604</i>	-	-	<i>0.000</i>	-	-	<i>9.675</i>	-	-	<i>9.675</i>
Subtotal: Hardware Cost	-	-	800.008	-	-	6.077	-	-	5.604	-	-	0.000	-	-	9.675	-	-	9.675
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.000
Acceptance Test	-	-	-	-	-	0.118	-	-	-	-	-	-	-	-	0.118	-	-	0.118
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	<i>0.118</i>	-	-	-	-	-	<i>0.000</i>	-	-	<i>0.118</i>	-	-	<i>0.118</i>
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	0.160	-	-	-	-	-	0.495	-	-	-	-	-	0.495	-	-	0.495
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	<i>0.160</i>	-	-	-	-	-	<i>0.495</i>	-	-	<i>0.000</i>	-	-	<i>0.495</i>	-	-	<i>0.495</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	13.640	-	-	0.452	-	-	0.415	-	-	-	-	-	0.870	-	-	0.870
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>13.640</i>	-	-	<i>0.452</i>	-	-	<i>0.415</i>	-	-	<i>0.000</i>	-	-	<i>0.870</i>	-	-	<i>0.870</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.016	-	-	0.003	-	-	0.005	-	-	-	-	-	0.007	-	-	0.007

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.016	-	-	0.003	-	-	0.005	-	-	0.000	-	-	0.007	-	-	0.007
Gross/Weapon System Cost	-	-	813.824	-	-	6.650	-	-	6.519	-	-	-	-	-	11.164	-	-	11.164

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]					

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Feb 2018	Oct 2018	12,154,507	0.50	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	14,138,823	0.34	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	1,570,980	0.34	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Oct 2020	3,023,358	0.32	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	27,210,215	0.32	Y		
BOX METAL M2A2		2019	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	May 2019	Sep 2019	18,695	14.07	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 AND FY 2019 LAP ARE DELIVERY ORDERS TO AN EXISTING CONTRACT. FY 2019 AND FY 2020 LAP IS AN AVERAGE UNIT COST BETWEEN TWO CONTRACTORS. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP). BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types										Item Number / Title [DODIC]: E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020															Fiscal Year 2021															BALANCE		
OCO #	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP							
LOAD, ASSEMBLE, PACK (LAP)																																					
Prior Years Deliveries: 1776129297																																					
	2	2018	ARMY	12.155	12.155	.000																												.000			
	1	2019	AF (†)	25.144	.000	25.144	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	2.095	.000			
	1	2019	ARMY	14.139	.000	14.139	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	1.178	.000				
	1	2019	MC (†)	12.352	.000	12.352	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	1.029	.000				
	1	2019	NSOF (†)	.091	.000	.091	.045	.045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000				
	1	2019	Total	51.726	.000	51.726	4.348	4.348	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	4.303	.000				
	2	2019	AF (†)	2.794	.000	2.794	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.233	.000				
	2	2019	ARMY	1.571	.000	1.571	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.131	.000				
	2	2019	MC (†)	1.372	.000	1.372	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.114	.000				
	2	2019	NSOF (†)	.010	.000	.010	.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000				
	2	2019	Total	5.747	.000	5.747	.488	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.478	.000				
✓	2	2020	AF (†)	2.307	.000	2.307														.192	.192	.192	.192	.192	.192	.192	.192	.192	.192	.192	.192	.000					
✓	2	2020	ARMY	3.023	.000	3.023														.252	.252	.252	.252	.252	.252	.252	.252	.252	.252	.252	.252	.000					
✓	2	2020	MC (†)	1.234	.000	1.234														.103	.103	.103	.103	.103	.103	.103	.103	.103	.103	.103	.103	.000					
✓	2	2020	Total OCO	6.564	.000	6.564														.547	.547	.547	.547	.547	.547	.547	.547	.547	.547	.547	.547	.000					
✓	3	2020	AF (†)	20.761	.000	20.761														-	-	-	-	-	-	1.730	1.730	1.730	1.730	1.730	1.730	8.651					
✓	3	2020	ARMY	27.210	.000	27.210															-	-	-	-	-	2.268	2.268	2.268	2.268	2.268	2.268	11.338					
✓	3	2020	MC (†)	11.105	.000	11.105															-	-	-	-	-	.925	.925	.925	.925	.925	.925	4.627					
✓	3	2020	Total OCO	59.077	.000	59.077															4.923	4.923	4.923	4.923	4.923	4.923	4.923	4.923	4.923	4.923	24.615						

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30				P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]			

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2022													Fiscal Year 2023													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
LOAD, ASSEMBLE, PACK (LAP)																																	
Prior Years Deliveries: 1776129297																																	
	2	2018	ARMY	12.155	12.155	.000																								.000			
	1	2019	AF (†)	25.144	25.144	.000																								.000			
	1	2019	ARMY	14.139	14.139	.000																								.000			
	1	2019	MC (†)	12.352	12.352	.000																								.000			
	1	2019	NSOF (†)	.091	.091	.000																								.000			
	1	2019	Total	51.726	51.726	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000			
	2	2019	AF (†)	2.794	2.794	.000																								.000			
	2	2019	ARMY	1.571	1.571	.000																								.000			
	2	2019	MC (†)	1.372	1.372	.000																								.000			
	2	2019	NSOF (†)	.010	.010	.000																								.000			
	2	2019	Total	5.747	5.747	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000			
✓	2	2020	AF (†)	2.307	2.307	.000																								.000			
✓	2	2020	ARMY	3.023	3.023	.000																								.000			
✓	2	2020	MC (†)	1.234	1.234	.000																								.000			
✓	2	2020	Total OCO	6.564	6.564	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000			
✓	3	2020	AF (†)	20.761	12.111	8.651	1.730	1.730	1.730	1.730	1.730																			.000			
✓	3	2020	ARMY	27.210	15.873	11.338	2.268	2.268	2.268	2.268	2.268																			.000			
✓	3	2020	MC (†)	11.105	6.478	4.627	.925	.925	.925	.925	.925																			.000			
✓	3	2020	Total OCO	59.077	34.461	24.615	4.923	4.923	4.923	4.923	4.923	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000				
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E95400 / CTG, 5.56mm Ball, M855A1 EPR, Clipped Mil Pack [AB57]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	1,000,000	19,400,000	67,500,000	6	6	12	18	6	6	7	13
2	OLIN CORP WINCHESTER DIVISION - EAST ALTON, IL	500,000	5,000,000	19,500,000	6	6	12	18	6	6	7	13
3	TO BE SELECTED - TBS01	1,000,000	19,400,000	67,500,000	6	6	12	18	6	6	7	13

(†) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	145.109	22.008	17.915	-	23.668	23.668
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	145.109	22.008	17.915	-	23.668	23.668
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	145.109	22.008	17.915	-	23.668	23.668

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	0.31	447,509K	138.728	0.25	76,889,165	19.222	0.27	56,223,956	15.180	-	-	-	0.31	68,596,612	21.265	0.31	68,596,612	21.265
BOX METAL M2A2 ^(†)	10.93	68,163	0.745	12.28	85,347	1.048	14.07	62,409	0.878	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	139.473	-	-	20.270	-	-	16.059	-	-	0.000	-	-	21.265	-	-	21.265
<i>Subtotal: Hardware Cost</i>	-	-	139.473	-	-	20.270	-	-	16.059	-	-	0.000	-	-	21.265	-	-	21.265
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.095	-	-	0.175	-	-	-	-	-	0.275	-	-	0.275
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.095	-	-	0.175	-	-	0.000	-	-	0.275	-	-	0.275
Support - Product Improvement Cost																		
Reliability	-	-	0.625	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental Initiatives	-	-	-	-	-	-	-	-	0.095	-	-	-	-	-	0.270	-	-	0.270
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.625	-	-	-	-	-	0.095	-	-	0.000	-	-	0.270	-	-	0.270
Support - Production Engineering Cost																		
Production Engineering	-	-	4.987	-	-	1.632	-	-	1.579	-	-	-	-	-	1.850	-	-	1.850
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	4.987	-	-	1.632	-	-	1.579	-	-	0.000	-	-	1.850	-	-	1.850
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.025	-	-	0.011	-	-	0.008	-	-	-	-	-	0.008	-	-	0.008

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.025	-	-	0.011	-	-	0.008	-	-	0.000	-	-	0.008	-	-	0.008
Gross/Weapon System Cost	-	-	145.109	-	-	22.008	-	-	17.915	-	-	-	-	-	23.668	-	-	23.668

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types				Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Jan 2019	76,889,165	0.25	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	56,223,956	0.27	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	68,596,612	0.31	Y		
BOX METAL M2A2		2018	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Oct 2018	85,347	12.28	Y		
BOX METAL M2A2		2019	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Jul 2019	Sep 2019	62,409	14.07	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 AND FY 2019 LAP IS A DELIVERY ORDER TO THE EXISTING CONTRACT. BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP).

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Exhibit P-21, Production Schedule: PB 2020 Army			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]

Cost Elements (Units in Millions, * = < 500)					Fiscal Year 2018										Fiscal Year 2019										B A L A N C E										
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018										Calendar Year 2019																		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R		A P R	M A Y	J U N	J U L	A U G	S E P				
LOAD, ASSEMBLE, PACK (LAP)																																			
Prior Years Deliveries: 447508653																																			
✓	1	2018	ARMY	76.889	.000	76.889																												.000	
✓	1	2019	ARMY	56.224	.000	56.224																													56.224
✓	2	2020	ARMY	68.597	.000	68.597																													68.597

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types										Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020													Fiscal Year 2021													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T O 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

LOAD, ASSEMBLE, PACK (LAP)

Prior Years Deliveries: 447508653																														
	1	2018	ARMY	76.889	76.889	.000																							.000	
	1	2019	ARMY	56.224	.000	56.224	4.685	4.685	4.685	4.685	4.685	4.685	4.685	4.685	4.685	4.685													.000	
✓	2	2020	ARMY	68.597	.000	68.597																							28.582	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019																
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types										Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]											

Cost Elements <i>(Units in Millions, * = < 500)</i>				Fiscal Year 2022													Fiscal Year 2023												BALANCE			
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P	

LOAD, ASSEMBLE, PACK (LAP)																																		
Prior Years Deliveries: 447508653																																		
	1	2018	ARMY	76.889	76.889	.000																												.000
	1	2019	ARMY	56.224	56.224	.000																												.000
	✓	2	2020	ARMY	68.597	40.015	28.582	5.716	5.716	5.716	5.716	5.716																						.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E95700 / CTG, 5.56mm Ball, M855A1 Clipped Bulk Pack [AB77]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	1,000,000	19,400,000	67,500,000	6	6	12	18	6	6	7	13
2	TO BE SELECTED - TBS01	1,000,000	19,400,000	67,500,000	6	6	12	18	6	6	6	12

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E96110 / CTG, 5.56mm Marking, M1042 (Blue) [AB09]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	25.104	0.150	-	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	25.104	0.150	-	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	25.104	0.150	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.71	31,821,970	22,593	0.61	231,155	0.141	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	22,594	-	-	0.141	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	22,594	-	-	0.141	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	2,510	-	-	0.009	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	2,510	-	-	0.009	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	25,104	-	-	0.150	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E96111 / CTG, 5.56mm Marking, M1042 (Red) [AB10]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	11.697	0.145	0.993	-	1.270	1.270
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	11.697	0.145	0.993	-	1.270	1.270
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	11.697	0.145	0.993	-	1.270	1.270

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.71	15,444,227	10.965	0.58	250,000	0.145	0.62	1,532,587	0.950	-	-	-	0.64	1,864,694	1.193	0.64	1,864,694	1.193
<i>Subtotal: Recurring Cost</i>	-	-	10.965	-	-	0.145	-	-	0.950	-	-	0.000	-	-	1.193	-	-	1.193
<i>Subtotal: Hardware Cost</i>	-	-	10.965	-	-	0.145	-	-	0.950	-	-	0.000	-	-	1.193	-	-	1.193
Support - Production Engineering Cost																		
Production Engineering	-	-	0.732	-	-	-	-	-	0.043	-	-	-	-	-	0.077	-	-	0.077
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.732	-	-	-	-	-	0.043	-	-	0.000	-	-	0.077	-	-	0.077
Gross/Weapon System Cost	-	-	11.697	-	-	0.145	-	-	0.993	-	-	-	-	-	1.270	-	-	1.270

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E96120 / CTG, 5.56mm Marking, M1071 (Blue) Linked f/SAW [AB16]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	4.081	0.315	0.778	-	0.707	0.707
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	4.081	0.315	0.778	-	0.707	0.707
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	4.081	0.315	0.778	-	0.707	0.707

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.76	3,370,076	2.561	0.68	427,443	0.291	0.73	1,018,773	0.744	-	-	-	0.75	887,987	0.666	0.75	887,987	0.666
<i>Subtotal: Recurring Cost</i>	-	-	2.561	-	-	0.291	-	-	0.744	-	-	0.000	-	-	0.666	-	-	0.666
<i>Subtotal: Hardware Cost</i>	-	-	2.561	-	-	0.291	-	-	0.744	-	-	0.000	-	-	0.666	-	-	0.666
Support - Production Engineering Cost																		
Production Engineering	-	-	1.520	-	-	0.024	-	-	0.034	-	-	-	-	-	0.041	-	-	0.041
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.520	-	-	0.024	-	-	0.034	-	-	0.000	-	-	0.041	-	-	0.041
Gross/Weapon System Cost	-	-	4.081	-	-	0.315	-	-	0.778	-	-	-	-	-	0.707	-	-	0.707

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E96121 / CTG, 5.56mm Marking, M1071 (Red) Linked f/SAW [AB17]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	3.853	0.202	0.622	-	0.512	0.512
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	3.853	0.202	0.622	-	0.512	0.512
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	3.853	0.202	0.622	-	0.512	0.512

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.77	4,221,546	3.251	0.68	272,944	0.186	0.73	814,494	0.595	-	-	-	0.75	643,068	0.482	0.75	643,068	0.482
<i>Subtotal: Recurring Cost</i>	-	-	3.251	-	-	0.186	-	-	0.595	-	-	0.000	-	-	0.482	-	-	0.482
<i>Subtotal: Hardware Cost</i>	-	-	3.251	-	-	0.186	-	-	0.595	-	-	0.000	-	-	0.482	-	-	0.482
Support - Production Engineering Cost																		
Production Engineering	-	-	0.602	-	-	0.016	-	-	0.027	-	-	-	-	-	0.030	-	-	0.030
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.602	-	-	0.016	-	-	0.027	-	-	0.000	-	-	0.030	-	-	0.030
Gross/Weapon System Cost	-	-	3.853	-	-	0.202	-	-	0.622	-	-	-	-	-	0.512	-	-	0.512

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types	Item Number / Title [DODIC]: E96125 / Ctg, 5.56mm, Short Range Training, M1037, snl rd [AB67]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2.314	1.400	2.702	-	2.761	2.761
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2.314	1.400	2.702	-	2.761	2.761
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2.314	1.400	2.702	-	2.761	2.761

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	1.10	1,803,340	1.984	0.98	1,263,605	1.238	1.37	1,876,465	2.571	-	-	-	1.22	2,159,802	2.635	1.22	2,159,802	2.635
Subtotal: Recurring Cost	-	-	1.984	-	-	1.238	-	-	2.571	-	-	0.000	-	-	2.635	-	-	2.635
Subtotal: Hardware Cost	-	-	1.984	-	-	1.238	-	-	2.571	-	-	0.000	-	-	2.635	-	-	2.635
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.330	-	-	0.091	-	-	0.131	-	-	-	-	-	0.126	-	-	0.126
Subtotal: Support - Production Engineering Cost	-	-	0.330	-	-	0.091	-	-	0.131	-	-	0.000	-	-	0.126	-	-	0.126
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.065	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Quality Assurance Cost	-	-	-	-	-	0.065	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	2.314	-	-	1.400	-	-	2.702	-	-	-	-	-	2.761	-	-	2.761

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0132E00700 / CTG, 5.56MM, All Types
		Item Number / Title [DODIC]: E96126 / Ctg, 5.56mm, Short Range Training, M1037 Linked [AB66]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	6.850	1.110	-	-	-	-
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	6.850	1.110	-	-	-	-
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	6.850	1.110	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	1.16	2,679,669	3.108	1.25	860,125	1.075	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	3.108	-	-	1.075	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	3.108	-	-	1.075	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	3.735	-	-	0.035	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	3.735	-	-	0.035	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	6.850	-	-	1.110	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,295.742	61.704	86.239	-	114.268	114.268	148.353	168.787	159.389	105.502	-	3,139.984
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2,295.742	61.704	86.239	-	114.268	114.268	148.353	168.787	159.389	105.502	-	3,139.984
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2,295.742	61.704	86.239	-	114.268	114.268	148.353	168.787	159.389	105.502	-	3,139.984

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$114.268M for Overseas Contingency Operations (OCO); of which \$114.228M and a quantity of 97.787 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 7.62mm ALL TYPES.

(E01902) 7.62mm Blank, M82 w/M13 Link is linked in 100 round belts for training use in M240 family of machine weapons. The M82 is a blank cartridge (no projectile) designed to mimic the sound and function of combat ammunition with the use of a blank firing adaptor. It can be identified by its long neck and rosette crimped mouth. It is intended for training use only and not suitable for combat. This item is Code A, approved for service use.

(E02002) 7.62mm 4 Ball M80/1 Tracer M62, w/M13 Link consists of M80 Ball and M62 Tracer rounds linked four-to-one and is used in the M240 Machine Gun. It is intended for use against personnel and non-armored targets. Bullet consisting of copper alloy clad steel jacket with lead antimony slug. This item is Code A, approved for service use.

(E02003) 7.62mm Ball M80 Linked/M13 is for use in the in the M60 and M240 Machine Gun. The bullet consists of a gilding-metal jacket with a lead-antimony slug. The cartridge case is brass and the bullet is unpainted. This item is Code A, approved for service use.

(E02007) 7.62mm 4 BALL/1 TRACER F/OHF consists of a M80 Overhead Fire (OHF) ball and a M62 OHF tracer cartridges linked four to one and is used for overhead fire in the M240 Machine Gun family of weapons. Manufactured with unique bullet jackets and no base closure seals to reduce fragmentation or shrapnel risks to soldiers training underneath the flight path of these bullets. This item is Code A, approved for service use.

(E02011) 7.62mm M80A1 Enhanced Performance Round (EPR) Ball is linked in a 100 cartridge belt with the M13 link for use in the M240 Machine Gun family of weapons. The M80A1 Ball Cartridge has a steel penetrator and non-lead slug surrounded by a copper jacket. They are intended for use against personnel and light-armored targets. This Item is Code A, approved for service use.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E02012) 7.62mm M80A1 Enhanced Performance Round (EPR) Ball Cartridges and M62A1 Tracer Cartridges are linked in a 100 cartridge belt in a 4 Ball/1 Tracer configuration with the M13 link for use in the M240 Machine Gun family of weapons. The M80A1 Ball Cartridge has a steel penetrator and a non-lead slug surrounded by a copper jacket. The M62A1 Tracer Cartridge also contains a lead free projectile and provides a visible red light signature through its trajectory and is a ballistic match with the M80A1 trajectory. They are intended for use against personnel and light-armored targets. This Item is Code A, approved for service use.</p> <p>(E02015) 7.62mm M82A1 Blank Bottlenose Cartridge has a bottlenose design with a paper wad closure and a red tip. The M82A1 is used in sniper training and salute ceremonies in M14 rifles without being equipped with a firing adapter. This Item is Code A, approved for service use.</p> <p>(E02501) 7.62mm, Single Round (NPF DDI), M63A1 Dummy, Drilled and Inert ammunition (DDI) is an inert dummy cartridge used as an ammunition training aid and for weapon familiarization. The 7.62mm, M63A1 DDI ammunition is both nickel plated and fluted (NPF) for easy recognition and to distinguish the dummy ammunition visually from tactical ammunition. This Item is Code A, approved for service use.</p> <p>(E89100) 7.62mm M118 Long Range cartridge is a match grade design intended for long range accuracy and is packed in a 20 cartridge cardboard carton and intended for Sniper use in the M40, M110, and MK21 Rifles. It is intended for use against personnel and non-armored targets. This Item is Code A, approved for service use.</p> <p>(F57510) 7.62mm XM1158 Advanced Armor-Piercing (ADVAP) Ball Cartridges and M62A1 Tracer Cartridges are linked in a 100 cartridge belt in a 4 Ball/1 Tracer configuration with the M13 link for use in the M240 Machine Gun family of weapons. The M1158 Ball Cartridge uses projectiles with an exposed black metal tip surrounded by a copper jacket. The M62A1 Tracer Cartridge also contains a lead free projectile and provides a visible red light signature through its trajectory and is a ballistic match with the M1158 trajectory. This item is intended for use against a broad spectrum of hard targets. This Item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
0612E02000 / CTG, 7.62MM, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E01902 / CTG, 7.62mm Blank, M82 w/M13 Link [A111]	P-5a, P-21	A		- / 355.909	- / -	- / 6.832	- / -	- / 9.840	- / 9.840
P-5	E02002 / CTG, 7.62mm 4 Ball M80 / 1 Tracer M62, w/M13 Link [A131]		A		- / 747.303	- / -	- / 0.695	- / -	- / -	- / -
P-5	E02003 / CTG 7.62MM BALL M80 LINKED/M13 [A143]		A		- / 165.880	- / -	- / 0.348	- / -	- / -	- / -
P-5	E02007 / CTG 7.62MM 4 BALL/1 TRACER F/OHF [A151]		A		- / 745.875	- / 2.800	- / -	- / -	- / -	- / -
P-5	E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]	P-5a, P-21	A		- / 37.623	- / 11.352	- / 9.319	- / -	- / 18.832	- / 18.832
P-5	E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]	P-5a, P-21	A		- / 201.513	- / 46.325	- / 41.860	- / -	- / 60.371	- / 60.371
P-5	E02015 / CTG, 7.62mm Bottlenose Blank, M82A1, Single [AB72]		A		- / 1.673	- / 0.338	- / -	- / -	- / 0.492	- / 0.492
P-5	E02501 / CTG, 7.62mm, Single Round (NPF DDI), M63A1 [AB47]		A		- / 0.990	- / -	- / 0.040	- / -	- / 0.040	- / 0.040
P-5	E89100 / CTG, 7.62mm Special Ball, M118 Long Range [AA11]		A		- / 38.976	- / 0.889	- / 2.145	- / -	- / 3.680	- / 3.680
P-5	F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158	P-5a, P-21	A		- / -	- / -	- / 25.000	- / -	- / 21.013	- / 21.013
P-40	Total Gross/Weapon System Cost				- / 2,295.742	- / 61.704	- / 86.239	- / -	- / 114.268	- / 114.268

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD)-approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 Overseas Contingency Operations funding totals include \$0.0 million for Base and \$114.268 million for Overseas Contingency Operations, with a quantity of 97.787 million for \$114.228 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 funding also includes \$0.040 million with a quantity of 0.044 million for OCO for Enduring Requirements.

(E01902) 7.62mm Blank, M82 w/M13 Link is a training unique item not used in combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$9.840 million supports the procurement of 18.873 million of the Blank M82 cartridges.
Type classification date: 1960

(E02002) 7.62mm 4 Ball M80/1 Tracer M62, w/M13 Link is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals.
Type classification date: 1962

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E02003) 7.62mm Ball M80 Linked/M13 is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. Type Classification date: 1962</p> <p>(E02007) 7.62mm 4 BALL/1 TRACER F/OHF is a training unique item and is not used in combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. TYPE CLASSIFICATION DATE: 1975</p> <p>(E02011) 7.62mm M80A1 Enhanced Performance Round (EPR) Lead Free Slug (LFS) Ball Cartridge is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$18.832 million supports the procurement of 18.989 million of the 7.62mm M80A1 1 Ball (EPR) (LFS) Cartridges. Type classification date: 1962</p> <p>(E02012) 7.62mm M80A1 Enhanced Performance Round (EPR) 4 Ball /1 Trace, Lead Free Slug (LFS) Cartridge /M62A1 LFS Tracer Cartridge is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$60.371 million supports the procurement of 53.297 million of the 7.62mm M80A1 4 Ball/1Trace (EPR) (LFS) Cartridges. Type classification date: 1962</p> <p>(E02015) 7.62mm M82A1 Blank Bottleneck Cartridge is a training unique item not used in combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.492 million supports the procurement of 0.602 million of the 7.62mm Bottleneck Blank round Type classification date: 2012</p> <p>(E02501) 7.62mm Single Round (NPF DDI) M63A1 Round is a training unique item not used in combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.040 million supports the COCOM requirement for procurement of 0.044 million of the 7.62mm Single DDI round. Type classification date: 1982</p> <p>(E89100) 7.62mm M118 Long Range Round is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.680 million supports the procurement of 4.476 million of the 7.62mm Long Range Rounds to deter potential adversaries and support the European Deterrence Initiative. Type classification date: Prior to 1997</p> <p>(F57510) 7.62mm XM1158 Advanced Armor-Piercing (ADVAP) Ball Cartridges and M62A1 Tracer Cartridges are linked in a 100 cartridge belt in a 4 Ball/1 Tracer configuration with the M13 link. This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement in the amount of \$21.013 million supports the procurement of 1.550 million 7.62mm M1158 Advanced Armor-Piercing (ADVAP) Ball Cartridges 4Ball/1 M62A1 Tracer linked Cartridges. This is a New Start in FY 2020. Type classification date: 4th Quarter 2019</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E01902 / CTG, 7.62mm Blank, M82 w/ M13 Link [A111]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	355.909	-	6.832	-	9.840	9.840
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	355.909	-	6.832	-	9.840	9.840
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	355.909	-	6.832	-	9.840	9.840

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	0.40	885,364K	354.146	-	-	-	0.40	15,559,908	6.224	-	-	-	0.47	18,872,998	8.870	0.47	18,872,998	8.870
<i>Subtotal: Recurring Cost</i>	-	-	354.146	-	-	-	-	-	6.224	-	-	0.000	-	-	8.870	-	-	8.870
<i>Subtotal: Hardware Cost</i>	-	-	354.146	-	-	-	-	-	6.224	-	-	0.000	-	-	8.870	-	-	8.870
Support - Production Engineering Cost																		
Production Engineering	-	-	1.764	-	-	-	-	-	0.596	-	-	-	-	-	0.958	-	-	0.958
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.764	-	-	-	-	-	0.596	-	-	0.000	-	-	0.958	-	-	0.958
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	0.012	-	-	-	-	-	0.011	-	-	0.011
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	0.012	-	-	0.000	-	-	0.011	-	-	0.011
Gross/Weapon System Cost	-	-	355.909	-	-	-	-	-	6.832	-	-	-	-	-	9.840	-	-	9.840

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types				Item Number / Title [DODIC]: E01902 / CTG, 7.62mm Blank, M82 w/ M13 Link [A111]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Apr 2020	15,559,908	0.40	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	18,872,998	0.47	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2019 COMPLETE ROUND IS A DELIVERY ORDER TO AN EXISTING CONTRACT. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP).

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Exhibit P-21, Production Schedule: PB 2020 Army						Date: March 2019																			
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30						P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types						Item Number / Title [DODIC]: E01902 / CTG, 7.62mm Blank, M82 w/ M13 Link [A111]													

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2019														Fiscal Year 2020														BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCE PT TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019														Calendar Year 2020														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 885363750																																			
	1	2019	ARMY	15.560	.000	15.560																							7.780						
✓	2	2020	AF (†)	.199	.000	.199																							.199						
✓	2	2020	ARMY	18.873	.000	18.873																							18.873						
✓	2	2020	Total OCO	19.072	.000	19.072																							19.072						
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E01902 / CTG, 7.62mm Blank, M82 w/ M13 Link [A111]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2021												Fiscal Year 2022												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 2 0	BAL D U E A S O F 1 O C T	Calendar Year 2021												Calendar Year 2022												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
COMPLETE ROUND																															
Prior Years Deliveries: 885363750																															
	1	2019	ARMY	15.560	7.780	7.780	1.297	1.297	1.297	1.297	1.297	1.297																	.000		
✓	2	2020	AF (†)	.199	.000	.199	-	-	-	-	-	.017	.017	.017	.017	.017	.017	.017	.017	.017	.017	.017							.000		
✓	2	2020	ARMY	18.873	.000	18.873	-	-	-	-	-	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573	1.573		.000		
✓	2	2020	Total OCO	19.072	.000	19.072	-	-	-	-	-	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	1.589	.000		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E01902 / CTG, 7.62mm Blank, M82 w/ M13 Link [A111]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	800	5,160,000	17,770,000	6	6	7	13	6	6	7	13
2	TO BE SELECTED - TBS01	800	5,160,000	17,770,000	6	6	12	18	6	6	7	13

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02002 / CTG, 7.62mm 4 Ball M80 / 1 Tracer M62, w/M13 Link [A131]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	747.303	-	0.695	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	747.303	-	0.695	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	747.303	-	0.695	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.79	945,844K	747.217	-	-	-	0.58	1,198,275	0.695	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	747.217	-	-	-	-	-	0.695	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	747.217	-	-	-	-	-	0.695	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	747.303	-	-	-	-	-	0.695	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02003 / CTG 7.62MM BALL M80 LINKED/M13 [A143]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	165.880	-	0.348	-	-	-
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	165.880	-	0.348	-	-	-
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	165.880	-	0.348	-	-	-
<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>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.74	223,856K	165.653	-	-	-	0.55	630,434	0.347	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	165.653	-	-	-	-	-	0.347	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	165.653	-	-	-	-	-	0.347	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.227	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.227	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	165.880	-	-	-	-	-	0.348	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02007 / CTG 7.62MM 4 BALL/1 TRACER F/OHF [A151]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	745.875	2.800	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	745.875	2.800	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	745.875	2.800	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.55	1,356,136K	745.875	0.52	4,980,342	2.590	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	745.875	-	-	2.590	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	745.875	-	-	2.590	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.203	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	0.203	-	-	-	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	745.875	-	-	2.800	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	37.623	11.352	9.319	-	18.832	18.832
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	37.623	11.352	9.319	-	18.832	18.832
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	37.623	11.352	9.319	-	18.832	18.832

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	0.78	46,286,367	36.103	0.82	13,052,698	10.703	0.90	9,288,174	8.359	-	-	-	0.90	18,989,135	17.090	0.90	18,989,135	17.090
Subtotal: Recurring Cost	-	-	36.103	-	-	10.703	-	-	8.359	-	-	0.000	-	-	17.090	-	-	17.090
Subtotal: Hardware Cost	-	-	36.103	-	-	10.703	-	-	8.359	-	-	0.000	-	-	17.090	-	-	17.090
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	0.115	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	0.115	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	-	-	-	-	-	-	0.150	-	-	-	-	-	0.392	-	-	0.392
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	-	-	-	0.150	-	-	0.000	-	-	0.392	-	-	0.392
Support - Production Engineering Cost																		
Production Engineering	-	-	1.506	-	-	0.634	-	-	0.690	-	-	-	-	-	1.341	-	-	1.341
Subtotal: Support - Production Engineering Cost	-	-	1.506	-	-	0.634	-	-	0.690	-	-	0.000	-	-	1.341	-	-	1.341
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.013	-	-	0.012	-	-	0.004	-	-	-	-	-	0.008	-	-	0.008
Subtotal: Support - Quality Assurance Cost	-	-	0.013	-	-	0.012	-	-	0.004	-	-	0.000	-	-	0.008	-	-	0.008

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	37.623	-	-	11.352	-	-	9.319	-	-	-	-	-	18.832	-	-	18.832

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types				Item Number / Title [DODIC]: E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Jan 2018	Apr 2018	13,052,698	0.82	Y		
COMPLETE ROUND ^(†)		2019	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	9,288,174	0.90	Y		
COMPLETE ROUND ^(†)	✓	2020	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Oct 2020	18,989,135	0.90	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018, FY 2019 AND FY 2020 COMPLETE ROUND IS A DELIVERY ORDER TO THE EXISTING CONTRACT.

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types										Item Number / Title [DODIC]: E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]									

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018														Fiscal Year 2019														B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018														Calendar Year 2019														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 46286367																																			
	1	2018	ARMY	13.053	.000	13.053				A -	-	-	-	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	.000				
	1	2019	ARMY	9.288	.000	9.288																					A -	-	-	-	-	-	9.288		
✓	1	2020	ARMY	18.989	.000	18.989																										18.989			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army														Date: March 2019																											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30														P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types														Item Number / Title [DODIC]: E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]													

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2020														Fiscal Year 2021														B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

COMPLETE ROUND

Prior Years Deliveries: 46286367

	1	2018	ARMY	13.053	13.053	.000																													.000	
	1	2019	ARMY	9.288	.000	9.288	.776	.776	.776	.776	.776	.776	.776	.776	.776	.765	.765													.000						
✓	1	2020	ARMY	18.989	.000	18.989											A	-	-	-	-	-	-	1.582	1.582	1.582	1.582	1.582	1.582	1.582	1.582	1.582	1.582	1.582	1.582	.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E02011 / CTG, 7.62mm Ball M80A1 LeadFree, w/M13 Link [AB79]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	OLIN CORP WINCHESTER DIVISION - EAST ALTON, IL	500,000	1,500,000	3,000,000	6	6	12	18	6	6	7	13

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	201.513	46.325	41.860	-	60.371	60.371
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	201.513	46.325	41.860	-	60.371	60.371
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	201.513	46.325	41.860	-	60.371	60.371

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	1.11	170,556K	189.317	1.00	43,213,241	43.213	1.01	38,375,700	38.759	-	-	-	1.05	53,296,688	55.962	1.05	53,296,688	55.962
Subtotal: Recurring Cost	-	-	189.317	-	-	43.213	-	-	38.759	-	-	0.000	-	-	55.962	-	-	55.962
Subtotal: Hardware Cost	-	-	189.317	-	-	43.213	-	-	38.759	-	-	0.000	-	-	55.962	-	-	55.962
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.185	-	-	-	-	-	0.164	-	-	-	-	-	0.105	-	-	0.105
Subtotal: Support - Acceptance Testing Cost	-	-	0.185	-	-	-	-	-	0.164	-	-	0.000	-	-	0.105	-	-	0.105
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	0.700	-	-	-	-	-	0.480	-	-	-	-	-	0.480	-	-	0.480
Subtotal: Support - Product Improvement Cost	-	-	0.700	-	-	-	-	-	0.480	-	-	0.000	-	-	0.480	-	-	0.480
Support - Production Engineering Cost																		
Production Engineering	-	-	11.305	-	-	3.101	-	-	2.442	-	-	-	-	-	3.809	-	-	3.809
Subtotal: Support - Production Engineering Cost	-	-	11.305	-	-	3.101	-	-	2.442	-	-	0.000	-	-	3.809	-	-	3.809
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.006	-	-	0.011	-	-	0.016	-	-	-	-	-	0.016	-	-	0.016
Subtotal: Support - Quality Assurance Cost	-	-	0.006	-	-	0.011	-	-	0.016	-	-	0.000	-	-	0.016	-	-	0.016

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	201.513	-	-	46.325	-	-	41.860	-	-	-	-	-	60.371	-	-	60.371

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types				Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]					

Cost Elements	O C O	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
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	Aug 2020	2,489,083	1.00	Y		
COMPLETE ROUND ^(†)		2018	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Jan 2018	Sep 2018	40,724,158	1.00	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Apr 2020	19,187,850	1.01	Y		
COMPLETE ROUND ^(†)		2019	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	19,187,850	1.01	Y		
COMPLETE ROUND ^(†)	✓	2020	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Oct 2020	26,648,344	1.05	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Apr 2021	26,648,344	1.05	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 AND FY 2019 COMPLETE ROUND ARE DELIVERY ORDERS TO THE EXISTING CONTRACTS. FY 2018 - FY 2020 COMPLETE ROUND IS AN AVERAGE UNIT COST BETWEEN TWO CONTRACTORS. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP)

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
COMPLETE ROUND																															
Prior Years Deliveries: 170555849																															
	1	2018	ARMY	2.489	.000	2.489																								2.489	
	2	2018	ARMY	40.724	.000	40.724				A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
	1	2019	ARMY	19.188	.000	19.188																							19.188		
	1	2019	NSOF (+)	.066	.000	.066																							.066		
	1	2019	Total	19.253	.000	19.253																							19.253		
	2	2019	ARMY	19.188	.000	19.188																							19.188		
	2	2019	NSOF (+)	.066	.000	.066																							.066		
	2	2019	Total	19.253	.000	19.253																							19.253		
	✓ 2	2020	ARMY	26.648	.000	26.648																							26.648		
	✓ 3	2020	ARMY	26.648	.000	26.648																							26.648		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types										Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020															Fiscal Year 2021															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
Prior Years Deliveries: 170555849																																					
	1	2018	ARMY	2.489	.000	2.489	-	-	-	-	-	-	-	-	-	-	-	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.207	.000			
	2	2018	ARMY	40.724	40.724	.000																											.000				
	1	2019	ARMY	19.188	.000	19.188	-	-	-	-	-	-	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	.000				
	1	2019	NSOF (+)	.066	.000	.066	-	-	-	-	-	-	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.000					
	1	2019	Total	19.253	.000	19.253	-	-	-	-	-	-	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	.000				
	2	2019	ARMY	19.188	.000	19.188	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599															.000					
	2	2019	NSOF (+)	.066	.000	.066	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005															.000					
	2	2019	Total	19.253	.000	19.253	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	1.604	-	-	-	-	-	-	-	-	-	-	-	-	-	.000					
✓	2	2020	ARMY	26.648	.000	26.648							A -	-	-	-	-	-	-	2.221	2.221	2.221	2.221	2.221	2.221	2.221	2.221	2.221	2.221	2.221	2.221	.000					
✓	3	2020	ARMY	26.648	.000	26.648							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.324					
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2022														Fiscal Year 2023														B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022														Calendar Year 2023														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

COMPLETE ROUND																														
Prior Years Deliveries: 170555849																														
	1	2018	ARMY	2.489	2.489	.000																							.000	
	2	2018	ARMY	40.724	40.724	.000																							.000	
	1	2019	ARMY	19.188	19.188	.000																							.000	
	1	2019	NSOF (+)	.066	.066	.000																							.000	
	1	2019	Total	19.253	19.253	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
	2	2019	ARMY	19.188	19.188	.000																							.000	
	2	2019	NSOF (+)	.066	.066	.000																							.000	
	2	2019	Total	19.253	19.253	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
✓	2	2020	ARMY	26.648	26.648	.000																							.000	
✓	3	2020	ARMY	26.648	13.324	13.324	2.221	2.221	2.221	2.221	2.221	2.221																	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E02012 / CTG, 7.62mm 4 Ball M80A1/1 Trcr M62A1 LeadFree [AB86]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVN SYS - INDEPENDENCE, MO	500,000	5,000,000	10,000,000	6	6	13	19	6	6	13	19
2	OLIN CORP WINCHESTER DIVISION - EAST ALTON, IL	500,000	2,000,000	4,000,000	6	6	12	18	6	6	7	13
3	TO BE SELECTED - TBS01	500,000	5,000,000	10,000,000	6	6	13	19	6	6	13	19

(†) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E02015 / CTG, 7.62mm Bottlenose Blank, M82A1, Single [AB72]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1.673	0.338	-	-	0.492	0.492
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1.673	0.338	-	-	0.492	0.492
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1.673	0.338	-	-	0.492	0.492

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.70	2,261,316	1.583	0.69	438,502	0.303	-	-	-	-	-	-	0.76	601,890	0.457	0.76	601,890	0.457
<i>Subtotal: Recurring Cost</i>	-	-	1.583	-	-	0.303	-	-	-	-	-	0.000	-	-	0.457	-	-	0.457
Subtotal: Hardware Cost	-	-	1.583	-	-	0.303	-	-	-	-	-	0.000	-	-	0.457	-	-	0.457
Support - Production Engineering Cost																		
Production Engineering	-	-	0.084	-	-	0.035	-	-	-	-	-	-	-	-	0.035	-	-	0.035
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.084	-	-	0.035	-	-	-	-	-	0.000	-	-	0.035	-	-	0.035
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	1.673	-	-	0.338	-	-	-	-	-	-	-	-	0.492	-	-	0.492

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: E02501 / CTG, 7.62mm, Single Round (NPF DDI), M63A1 [AB47]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.990	-	0.040	-	0.040	0.040
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.990	-	0.040	-	0.040	0.040
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.990	-	0.040	-	0.040	0.040

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP)	0.81	913,789	0.740	-	-	-	0.83	46,512	0.039	-	-	-	0.84	44,336	0.037	0.84	44,336	0.037
BOX METAL M2A2	12.91	1,968	0.025	-	-	-	14.07	101	0.001	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	0.766	-	-	-	-	-	0.040	-	-	0.000	-	-	0.037	-	-	0.037
<i>Subtotal: Hardware Cost</i>	-	-	0.766	-	-	-	-	-	0.040	-	-	0.000	-	-	0.037	-	-	0.037
Support - Product Improvement Cost																		
Reliability	-	-	0.180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.044	-	-	-	-	-	-	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.044	-	-	-	-	-	-	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	0.990	-	-	-	-	-	0.040	-	-	-	-	-	0.040	-	-	0.040

Remarks:

BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: E89100 / CTG, 7.62mm Special Ball, M118 Long Range [AA11]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	38.976	0.889	2.145	-	3.680	3.680
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	38.976	0.889	2.145	-	3.680	3.680
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	38.976	0.889	2.145	-	3.680	3.680

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	1.06	33,418,141	35.423	0.58	1,333,032	0.773	0.64	2,891,287	1.850	-	-	-	0.76	4,475,949	3.402	0.76	4,475,949	3.402
BOX METAL M2A2	10.38	1,204	0.012	12.28	2,906	0.036	14.07	6,286	0.088	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	35.436	-	-	0.809	-	-	1.939	-	-	0.000	-	-	3.402	-	-	3.402
<i>Subtotal: Hardware Cost</i>	-	-	35.436	-	-	0.809	-	-	1.939	-	-	0.000	-	-	3.402	-	-	3.402
Support - Product Improvement Cost																		
Reliability	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	3.516	-	-	0.077	-	-	0.202	-	-	-	-	-	0.275	-	-	0.275
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	3.516	-	-	0.077	-	-	0.202	-	-	0.000	-	-	0.275	-	-	0.275
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.009	-	-	0.004	-	-	0.004	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.009	-	-	0.004	-	-	0.004	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	38.976	-	-	0.889	-	-	2.145	-	-	-	-	-	3.680	-	-	3.680

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	25.000	-	21.013	21.013
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	-	25.000	-	21.013	21.013
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	25.000	-	21.013	21.013

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	-	-	-	-	-	-	12.98	1,675,411	21.747	-	-	-	12.74	1,550,000	19.747	12.74	1,550,000	19.747
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	21.747	-	-	0.000	-	-	19.747	-	-	19.747
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	21.747	-	-	0.000	-	-	19.747	-	-	19.747
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.467	-	-	0.467
Subtotal: Support - Non-Recurring Support Cost	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.467	-	-	0.467
Support - Product Improvement Cost																		
Production Qualification Test	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	-	-	-	-
Production Verification Test	-	-	-	-	-	-	-	-	0.500	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	-	-	-	1.000	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	2.251	-	-	-	-	-	0.790	-	-	0.790
Subtotal: Support - Production Engineering Cost	-	-	-	-	-	-	-	-	2.251	-	-	0.000	-	-	0.790	-	-	0.790
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	0.003	-	-	-	-	-	0.009	-	-	0.009

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types	Item Number / Title [DODIC]: F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	0.003	-	-	0.000	-	-	0.009	-	-	0.009
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	25.000	-	-	-	-	-	21.013	-	-	21.013

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types				Item Number / Title [DODIC]: F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2019	US ARMY ARDEC RDECOM / PICATINNY ARSENAL, NJ	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	1,425,411	12.98	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	250,000	12.98	Y		
COMPLETE ROUND ^(†)	✓	2020	US ARMY ARDEC RDECOM / PICATINNY ARSENAL, NJ	/	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	1,000,000	12.74	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS02	/	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	550,000	12.74	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2019 IS AN OPTION TO AN EXISTING CONTRACT. FY 2019 COMPLETE ROUND IS AN AVERAGE UNIT COST BETWEEN TWO CONTRACTORS.

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2019													Fiscal Year 2020													B A L A N C E									
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 8	BAL D U E A S O F 1 O C T	Calendar Year 2019													Calendar Year 2020																				
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P										
COMPLETE ROUND																																								
	1	2019	ARMY	1.425	.000	1.425																									.119	.119	.119	.119	.119	.119	.119	.119	.594	
	2	2019	ARMY	.250	.000	.250																											.021	.021	.021	.021	.021	.021	.021	.104
✓	1	2020	ARMY	1.000	.000	1.000																											A -	-	-	-	-	-	-	1.000
✓	3	2020	ARMY	.550	.000	.550																											A -	-	-	-	-	-	-	.550

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types										Item Number / Title [DODIC]: F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2021															Fiscal Year 2022										B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021															Calendar Year 2022										
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P	
COMPLETE ROUND																																
	1	2019	ARMY	1.425	.831	.594	.119	.119	.119	.119	.119																		.000			
	2	2019	ARMY	.250	.146	.104	.021	.021	.021	.021	.021																		.000			
✓	1	2020	ARMY	1.000	.000	1.000	-	-	-	-	-	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083		.000			
✓	3	2020	ARMY	.550	.000	.550	-	-	-	-	-	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046	.046		.000			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P		

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 0612E02000 / CTG, 7.62MM, All Types
		Item Number / Title [DODIC]: F57510 / CTG, 7.62mm Advanced Armor Piercing, XM1158

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	US ARMY ARDEC RDECOM - PICATINNY ARSENAL, NJ	400,000	800,000	1,500,000	6	6	12	18	6	6	12	18
2	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	450,000	600,000	1,800,000	6	6	12	18	6	6	12	18
3	TO BE SELECTED - TBS02	1,125,000	1,500,000	3,000,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	139.216	10.418	19.176	-	17.824	17.824	7.617	8.681	8.584	9.370	-	220.886
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	139.216	10.418	19.176	-	17.824	17.824	7.617	8.681	8.584	9.370	-	220.886
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	139.216	10.418	19.176	-	17.824	17.824	7.617	8.681	8.584	9.370	-	220.886

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$17.824M for Overseas Contingency Operations (OCO); of which \$17.807M and quantity of 85.193 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes CTG, Handgun, ALL TYPES.

(E05210) CTG, 9MM BALL M882 (Combat Pack) cartridge contains a bullet comprised of a copper alloy jacket and a lead alloy core. The cartridge is identified by the plain bullet tip. The ammunition complies with NATO STANAG 4090 and is packed in military type packaging. It is used in M9 and M11 pistols. This item is Code A, approved for service use.

(E05218) CTG, MODULAR HANDGUN SYSTEM (MHS) AMMUNITION for the XM17 and XM18 (compact version) of the MHS consists of four new 9MM cartridges - Ball XM1152, Special Purpose XM1153, Drilled Dummy Inert (DDI) XM1156 and Blank XM1157. The Ball cartridge is intended for use against enemy personnel, for training, and for force protection. The Special Purpose cartridge is required for use in situations where limited over-penetration of targets is necessary to reduce collateral damage. DDI cartridges are completely inert, plated and drilled for easy identification and used for training and weapon familiarization. Blank cartridges are used for K-9 training. These items are not yet type classified or approved for service use. The Modular Handgun System will also utilize three M1041 cartridges - Blue, Red and Yellow through the use of a weapon adapter kit. This item is Code B, not approved for service use.

(E96105) CTG, 9MM MARKING, M1041 (BLUE) is used for force on force training engagements. The cartridge can be fired with existing M9/M11 pistols and M4 rifles with use of a conversion kit. The M9 kit consists of a replacement barrel only. The M11 kit consists of a replacement barrel and recoil spring guide. The M4 kit consist of a replacement upper receiver for 9mm. A blue enameled portion of the M9, M11, and M4 barrels is visible through the ejection port of the weapons. The projectile leaves a mark upon impact (similar to paintball), enabling after action evaluation of training scenarios. It differs from paintball in that it is a full complete cartridge with projectile and cartridge case containing a propulsion system for a low velocity launch. The M1041 is required to hit targets accurately out to 12 meters. The cartridge has been safety certified to be fired in close proximity at properly protected human subjects. This item is Code A, approved for service use.

(E96107) CTG, 9MM MARKING, M1041 (RED) is used for force on force training engagements. The cartridge can be fired with existing M9/M11 pistols, and M4 rifles with use of a conversion kit. The M9 kit consists of a replacement barrel only. The M11 kit consists of a replacement barrel and recoil spring guide. The M4 kit consist of a replacement upper receiver for 9mm. A blue enameled portion of the M9, M11 and M4 barrels is visible through the ejection port of the weapons. The projectile leaves a mark upon impact (similar to paintball), enabling after action evaluation of training scenarios. It differs from paintball in

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>that it is a full complete cartridge with projectile and cartridge case containing a propulsion system for a low velocity launch. The M1041 is required to hit targets accurately out to 12 meters. The cartridge has been safety certified to be fired in close proximity at properly protected human subjects. This item is Code A, approved for service use.</p> <p>(E99900) CTG, 9MM BALL M882 (Commercial Pack) cartridge contains a bullet comprised of a copper alloy jacket and a lead alloy core. The cartridge is identified by the plain bullet tip. It is packed in commercial type packaging and is not intended for OCONUS shipment. It is used in the M9 and M11 pistols. This item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
1450EA3000 / CTG, Handgun, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E05210 / CTG, 9mm Ball, M882 (Combat Pack) [A363]		A		- / 80.601	- / 2.005	- / 4.009	- / -	- / 1.717	- / 1.717
P-5	E05218 / CTG, Modular Handgun Ammo [AC21]	P-5a	B		- / 4.132	- / 4.972	- / 5.227	- / -	- / 5.225	- / 5.225
P-5	E96105 / CTG, 9mm Marking, M1041 (Blue) [AB13]		A		- / 2.035	- / 0.168	- / 0.449	- / -	- / 0.430	- / 0.430
P-5	E96107 / CTG, 9mm Marking, M1041 (Red) [AB14]		A		- / 1.560	- / 0.037	- / 0.515	- / -	- / 0.234	- / 0.234
P-5	E99900 / CTG, 9mm Ball, M882 (Commercial Pack) [AA49]	P-5a, P-21	A		- / 50.888	- / 3.236	- / 8.976	- / -	- / 10.218	- / 10.218
P-40	Total Gross/Weapon System Cost				- / 139.216	- / 10.418	- / 19.176	- / -	- / 17.824	- / 17.824

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$17.824 million for Overseas Contingency Operations, with a quantity of 85.193 million for \$17.807 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$0.017 million with a quantity of 0.090 million for OCO for Enduring Requirements.

(E05210) CTG 9MM BALL, M882 (Combat Pack) is a training standard item used in both training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.700 million supports the procurement of 8.192 million M882 Ball cartridges. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.017 million supports the procurement of 0.090 million, M882 Ball cartridges to deter potential adversaries and support the European Deterrence Initiative. Type Classification Date: 1985

(E05218) CTG MODULAR HANDGUN SYSTEM AMMUNITION is a training standard item used in both training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.225 million supports the procurement of 23.812 million Modular Handgun cartridges. Type Classification Date: Pending

(E96105) CTG 9MM MARKING, M1041 (BLUE) is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.430 million supports the procurement of 0.663 million M1041 (Blue) cartridges. Type Classification Date: 2009

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E96107) CTG, 9MM MARKING, M1041 (RED) is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.234 million supports the procurement of 0.357 million M1041 (Red) cartridges. Type Classification Date: 2009</p> <p>(E99900) CTG 9MM BALL M882 (Commercial Pack) is a training standard item packed commercially for training. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$10.218 million supports the procurement of 52.169 million M882 Ball cartridges. Type Classification Date: 1985</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types	Item Number / Title [DODIC]: E05210 / CTG, 9mm Ball, M882 (Combat Pack) [A363]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	80.601	2.005	4.009	-	1.717	1.717
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	80.601	2.005	4.009	-	1.717	1.717
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	80.601	2.005	4.009	-	1.717	1.717

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.16	501,376K	80.220	0.17	10,668,198	1.814	0.19	18,866,954	3.585	-	-	-	0.18	8,192,187	1.475	0.18	8,192,187	1.475
Subtotal: Recurring Cost	-	-	80.220	-	-	1.814	-	-	3.585	-	-	0.000	-	-	1.475	-	-	1.475
Subtotal: Hardware Cost	-	-	80.220	-	-	1.814	-	-	3.585	-	-	0.000	-	-	1.475	-	-	1.475
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.008	-	-	0.008
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.008	-	-	0.008
Support - Production Engineering Cost																		
Production Engineering	-	-	0.378	-	-	0.189	-	-	0.419	-	-	-	-	-	0.216	-	-	0.216
Subtotal: Support - Production Engineering Cost	-	-	0.378	-	-	0.189	-	-	0.419	-	-	0.000	-	-	0.216	-	-	0.216
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.002	-	-	0.002	-	-	0.005	-	-	-	-	-	0.002	-	-	0.002
Subtotal: Support - Quality Assurance Cost	-	-	0.002	-	-	0.002	-	-	0.005	-	-	0.000	-	-	0.002	-	-	0.002
Gross/Weapon System Cost	-	-	80.601	-	-	2.005	-	-	4.009	-	-	-	-	-	1.717	-	-	1.717

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types	Item Number / Title [DODIC]: E05218 / CTG, Modular Handgun Ammo [AC21]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	4.132	4.972	5.227	-	5.225	5.225
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	4.132	4.972	5.227	-	5.225	5.225
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	4.132	4.972	5.227	-	5.225	5.225

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	0.16	5,443,750	0.871	0.18	27,261,028	4.907	0.19	23,947,368	4.550	-	-	-	0.20	23,812,328	4.762	0.20	23,812,328	4.762
Subtotal: Recurring Cost	-	-	0.871	-	-	4.907	-	-	4.550	-	-	0.000	-	-	4.762	-	-	4.762
Subtotal: Hardware Cost	-	-	0.871	-	-	4.907	-	-	4.550	-	-	0.000	-	-	4.762	-	-	4.762
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.001	-	-	0.001	-	-	0.001	-	-	-	-	-	0.001	-	-	0.001
Subtotal: Support - Acceptance Testing Cost	-	-	0.001	-	-	0.001	-	-	0.001	-	-	0.000	-	-	0.001	-	-	0.001
Support - Production Engineering Cost																		
Production Engineering	-	-	3.260	-	-	0.034	-	-	0.664	-	-	-	-	-	0.453	-	-	0.453
Subtotal: Support - Production Engineering Cost	-	-	3.260	-	-	0.034	-	-	0.664	-	-	0.000	-	-	0.453	-	-	0.453
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.030	-	-	0.012	-	-	-	-	-	0.008	-	-	0.008
Subtotal: Support - Quality Assurance Cost	-	-	-	-	-	0.030	-	-	0.012	-	-	0.000	-	-	0.008	-	-	0.008
Gross/Weapon System Cost	-	-	4.132	-	-	4.972	-	-	5.227	-	-	-	-	-	5.225	-	-	5.225

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types				Item Number / Title [DODIC]: E05218 / CTG, Modular Handgun Ammo [AC21]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND		2018	SIG SAUER, INC. / NEWINGTON, NH	C / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Aug 2018	27,261,028	0.18	Y		
COMPLETE ROUND		2019	SIG SAUER, INC. / NEWINGTON, NH	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2019	23,947,368	0.19	Y		
COMPLETE ROUND	✓	2020	SIG SAUER, INC. / NEWINGTON, NH	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Sep 2020	23,812,328	0.20	Y		

Remarks:
FY 2018 - FY 2020 COMPLETE ROUND IS A DELIVERY ORDER TO THE EXISTING CONTRACT.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types	Item Number / Title [DODIC]: E96105 / CTG, 9mm Marking, M1041 (Blue) [AB13]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2.035	0.168	0.449	-	0.430	0.430
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2.035	0.168	0.449	-	0.430	0.430
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2.035	0.168	0.449	-	0.430	0.430

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.57	3,546,140	2.021	0.58	276,049	0.160	0.60	712,461	0.427	-	-	-	0.61	662,862	0.404	0.61	662,862	0.404
<i>Subtotal: Recurring Cost</i>	-	-	2.021	-	-	0.160	-	-	0.427	-	-	0.000	-	-	0.404	-	-	0.404
<i>Subtotal: Hardware Cost</i>	-	-	2.021	-	-	0.160	-	-	0.427	-	-	0.000	-	-	0.404	-	-	0.404
Support - Production Engineering Cost																		
Production Engineering	-	-	0.014	-	-	0.008	-	-	0.022	-	-	-	-	-	0.026	-	-	0.026
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.014	-	-	0.008	-	-	0.022	-	-	0.000	-	-	0.026	-	-	0.026
Gross/Weapon System Cost	-	-	2.035	-	-	0.168	-	-	0.449	-	-	-	-	-	0.430	-	-	0.430

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types	Item Number / Title [DODIC]: E96107 / CTG, 9mm Marking, M1041 (Red) [AB14]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1.560	0.037	0.515	-	0.234	0.234
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1.560	0.037	0.515	-	0.234	0.234
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1.560	0.037	0.515	-	0.234	0.234

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.57	2,552,630	1.455	0.58	55,648	0.032	0.60	817,197	0.490	-	-	-	0.62	357,222	0.221	0.62	357,222	0.221
<i>Subtotal: Recurring Cost</i>	-	-	1.455	-	-	0.032	-	-	0.490	-	-	0.000	-	-	0.221	-	-	0.221
<i>Subtotal: Hardware Cost</i>	-	-	1.455	-	-	0.032	-	-	0.490	-	-	0.000	-	-	0.221	-	-	0.221
Support - Production Engineering Cost																		
Production Engineering	-	-	0.105	-	-	0.005	-	-	0.025	-	-	-	-	-	0.013	-	-	0.013
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.105	-	-	0.005	-	-	0.025	-	-	0.000	-	-	0.013	-	-	0.013
Gross/Weapon System Cost	-	-	1.560	-	-	0.037	-	-	0.515	-	-	-	-	-	0.234	-	-	0.234

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types	Item Number / Title [DODIC]: E99900 / CTG, 9mm Ball, M882 (Commercial Pack) [AA49]

ID Code (A=Service Ready, B=Not Service Ready) : A				MDAP/MAIS Code:			
Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		50.888	3.236	8.976	-	10.218	10.218
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		50.888	3.236	8.976	-	10.218	10.218
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		50.888	3.236	8.976	-	10.218	10.218
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>							
Initial Spares (\$ in Millions)		-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)		-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	0.18	269,896K	48.581	0.16	17,426,270	2.788	0.17	48,007,431	8.161	-	-	-	0.17	52,169,194	8.869	0.17	52,169,194	8.869
Subtotal: Recurring Cost	-	-	48.581	-	-	2.788	-	-	8.161	-	-	0.000	-	-	8.869	-	-	8.869
Subtotal: Hardware Cost	-	-	48.581	-	-	2.788	-	-	8.161	-	-	0.000	-	-	8.869	-	-	8.869
Support - Production Engineering Cost																		
Production Engineering	-	-	2.285	-	-	0.448	-	-	0.806	-	-	-	-	-	1.341	-	-	1.341
Subtotal: Support - Production Engineering Cost	-	-	2.285	-	-	0.448	-	-	0.806	-	-	0.000	-	-	1.341	-	-	1.341
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.022	-	-	-	-	-	0.008	-	-	-	-	-	0.008	-	-	0.008
Subtotal: Support - Quality Assurance Cost	-	-	0.022	-	-	-	-	-	0.008	-	-	0.000	-	-	0.008	-	-	0.008
Gross/Weapon System Cost	-	-	50.888	-	-	3.236	-	-	8.976	-	-	-	-	-	10.218	-	-	10.218

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types				Item Number / Title [DODIC]: E99900 / CTG, 9mm Ball, M882 (Commercial Pack) [AA49]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Feb 2018	Feb 2019	17,426,270	0.16	Y		
COMPLETE ROUND ^(†)		2019	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Oct 2019	48,007,431	0.17	Y		
COMPLETE ROUND ^(†)	✓	2020	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Oct 2020	52,169,194	0.17	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018, FY 2019 AND FY 2020 COMPLETE ROUND IS A DELIVERY ORDER TO THE EXISTING CONTRACT.

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army																						Date: March 2019																
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30											P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types											Item Number / Title [DODIC]: E99900 / CTG, 9mm Ball, M882 (Commercial Pack) [AA49]																
Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018													Fiscal Year 2019													B A L A N C E						
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 7	BAL D U E A S O F 1 O C T	Calendar Year 2018													Calendar Year 2019																		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P								
COMPLETE ROUND																																						
Prior Years Deliveries: 269896200																																						
	1	2018	ARMY	17.426	.000	17.426					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.178	2.178	2.178	2.178	2.178	2.178	2.178	2.178	.000
	1	2019	ARMY	48.007	.000	48.007																															48.007	
✓	1	2020	ARMY	52.169	.000	52.169																															52.169	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P								

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Exhibit P-21, Production Schedule: PB 2020 Army																Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types										Item Number / Title [DODIC]: E99900 / CTG, 9mm Ball, M882 (Commercial Pack) [AA49]									

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2020													Fiscal Year 2021													BALANCE			
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 269896200																																			
	1	2018	ARMY	17.426	17.426	.000																													.000
	1	2019	ARMY	48.007	.000	48.007	10.000	10.000	10.000	3.007	2.500	2.500	2.500	2.500	2.500																				.000
✓	1	2020	ARMY	52.169	.000	52.169																													.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 1450EA3000 / CTG, Handgun, All Types
Item Number / Title [DODIC]: E99900 / CTG, 9mm Ball, M882 (Commercial Pack) [AA49]		

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	OLIN CORP WINCHESTER DIVISION - EAST ALTON, IL	500,000	2,500,000	10,000,000	7	7	7	14	6	6	7	13

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,681.205	71.443	65.762	-	64.155	64.155	83.879	67.480	94.552	95.111	-	2,223.587
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,681.205	71.443	65.762	-	64.155	64.155	83.879	67.480	94.552	95.111	-	2,223.587
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,681.205	71.443	65.762	-	64.155	64.155	83.879	67.480	94.552	95.111	-	2,223.587

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$64.155M for Overseas Contingency Operations (OCO); of which \$63.966M and quantity of 25.579 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes .50 CAL ALL TYPES.

(E06700) CTG .50 Caliber M8, Armor Piercing Incendiary (API) Cartridge, packed single round, is used in the M107 and M82A1 Long Range Sniper Rifles. This cartridge is identified with a gray bullet tip. This is used in .50 Caliber Sniper training, a cost effective training round over the more expensive MK211 Long Range Sniper ammunition and minimizes training range limitations. This item is Code A, approved for service use.

(E07100) CTG .50 Caliber Cartridge Ball M33 is linked in 100 cartridge belts with the M9 link, for use in the M2, M2A1 and M3 Machine Gun. M33 is identified with a plain bullet tip. This item is Code A, approved for service use.

(E07200) CTG .50 Caliber Cartridge, Ball M33 and Cartridge, Tracer M17 linked 4 to 1 in a 100 cartridge belt with the M9 link for use in M2, M2A1 and M3 Machine Gun against unarmored targets. The tracer cartridge permits observation of the bullet's trajectory to the point of impact. M17 is identified with a brown bullet tip. M33 is identified with a plain bullet tip. This item is Code A, approved for service use.

(E07302) CTG .50 Caliber Blank Cartridge, M1A1 linked in a 100 cartridge belt with the M9 link for use in the M2 and M2A1 Machine Gun. This cartridge is a blank cartridge with a rosette crimp at the mouth used to simulate firing in training exercises in conjunction with the M19 Blank Firing Attachment (BFA). This item is Code A, approved for service use.

(E07900) CTG .50 Caliber High Pressure Test, M1, used in all .50 Caliber weapons for proof testing during manufacturing, test, and repair. The cartridge has a stannic stained (silvered) case. This item is Code A, approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
1722E08000 / CTG, .50 Cal, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E06700 / CTG, .50cal API, M8, Single Round [A531]		A		- / 5.651	- / -	- / 0.013	- / -	- / 0.013	- / 0.013
P-5	E07100 / CTG, .50cal Ball, M2 w/ M33 Link [A555]	P-5a	A		- / 275.364	- / 2.380	- / 9.074	- / -	- / 0.176	- / 0.176
P-5	E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]	P-5a, P-21	A		- / 1,279.878	- / 65.312	- / 51.521	- / -	- / 58.693	- / 58.693
P-5	E07302 / CTG, .50cal Blank, M1A1 w/M9 Link [A598]	P-5a	A		- / 114.805	- / 3.751	- / 4.950	- / -	- / 5.273	- / 5.273
P-5	E07900 / CTG, .50cal High Pressure Test, M1, Single Round [A575]		A		- / 5.507	- / -	- / 0.204	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 1,681.205	- / 71.443	- / 65.762	- / -	- / 64.155	- / 64.155

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$64.155 million for Overseas Contingency Operations, with a quantity of 25.579 million for \$63.966 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$0.189 million, with a quantity of 0.073 million for OCO for Base Requirements.

(E06700) CTG .50 Caliber M8, Armor Piercing Incendiary (API) Cartridge is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.013 million supports the COCOM requirement for procurement of 0.003 million of the M8 cartridges to deter potential adversaries and support the European Deterrence Initiative.
Type classification date: 1944

(E07100) CTG .50 Caliber Cartridge Ball M33 is linked in 100 round belts with the M9 link. This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.176 million supports the COCOM requirements for procurement of 0.070 million of the Ball M33 Link Cartridges to deter potential adversaries and support the European Deterrence Initiative.
Type classification date: 1951

(E07200) CTG .50 Caliber Cartridge, Ball M33 and Cartridge, Tracer M17 linked 4 to 1 in a 100 round belt with the M9 link. This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$58.693 million supports the procurement of 22.373 million .50 Caliber Cartridge, Ball M33 and Cartridge, Tracer M17 linked Cartridges.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
Type classification date: 1968		
(E07302) CTG .50 Caliber Blank Cartridge, M1A1 linked with the M9 link. This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.273 million supports the procurement of 3.206 million .50 Caliber Blank Cartridge, M1A1 Cartridges.		
Type classification date: 1980		
(E07900) CTG .50 Caliber High Pressure Test, M1 (HPT) cartridge is a testing cartridge used exclusively for acceptance testing of .50 Cal weapons. The request supports annual training and builds a depot level in accordance with Army's procurement goals.		
Type classification date: 1926		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E06700 / CTG, .50cal API, M8, Single Round [A531]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	5.651	-	0.013	-	0.013	0.013
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5.651	-	0.013	-	0.013	0.013
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5.651	-	0.013	-	0.013	0.013

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	2.76	1,866,998	5.153	-	-	-	2.00	6,128	0.012	-	-	-	2.48	3,386	0.008	2.48	3,386	0.008
BOX METAL M2A2	-	-	-	-	-	-	14.07	51	0.001	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	5.153	-	-	-	-	-	0.013	-	-	0.000	-	-	0.008	-	-	0.008
<i>Subtotal: Hardware Cost</i>	-	-	5.153	-	-	-	-	-	0.013	-	-	0.000	-	-	0.008	-	-	0.008
Support - Production Engineering Cost																		
Production Engineering	-	-	0.498	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	0.001
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.498	-	-	-	-	-	-	-	-	0.000	-	-	0.001	-	-	0.001
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.004	-	-	0.004
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.004	-	-	0.004
Gross/Weapon System Cost	-	-	5.651	-	-	-	-	-	0.013	-	-	-	-	-	0.013	-	-	0.013

Remarks:

BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07100 / CTG, .50cal Ball, M2 w/ M33 Link [A555]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	275.364	2.380	9.074	-	0.176	0.176
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	275.364	2.380	9.074	-	0.176	0.176
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	275.364	2.380	9.074	-	0.176	0.176

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	2.10	130,041K	273.086	2.50	854,086	2.135	1.86	4,104,245	7.634	-	-	-	2.34	70,019	0.164	2.34	70,019	0.164
BOX METAL M2A2 ^(†)	10.93	96,617	1.056	-	-	-	14.07	41,042	0.577	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	274.142	-	-	2.135	-	-	8.211	-	-	0.000	-	-	0.164	-	-	0.164
Subtotal: Hardware Cost	-	-	274.142	-	-	2.135	-	-	8.211	-	-	0.000	-	-	0.164	-	-	0.164
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	1.217	-	-	0.239	-	-	0.858	-	-	-	-	-	0.012	-	-	0.012
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.217	-	-	0.239	-	-	0.858	-	-	0.000	-	-	0.012	-	-	0.012
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.005	-	-	0.003	-	-	0.004	-	-	-	-	-	0.000	-	-	0.000
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.005	-	-	0.003	-	-	0.004	-	-	0.000	-	-	0.000	-	-	0.000
Gross/Weapon System Cost	-	-	275.364	-	-	2.380	-	-	9.074	-	-	-	-	-	0.176	-	-	0.176

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07100 / CTG, .50cal Ball, M2 w/ M33 Link [A555]
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	
^(†) indicates the presence of a P-5a		

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types				Item Number / Title [DODIC]: E07100 / CTG, .50cal Ball, M2 w/ M33 Link [A555]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2018	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Dec 2018	854,086	2.50	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	3,693,821	1.86	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	410,424	1.86	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	70,019	2.34	Y		
BOX METAL M2A2		2019	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Jul 2019	Sep 2019	41,042	14.07	Y		

Remarks:
 FY 2018 AND FY 2019 LAP ARE DELIVERY ORDERS TO THE EXISTING CONTRACTS. FY 2019 LAP IS AN AVERAGE UNIT COST BETWEEN TWO CONTRACTORS. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP). BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1,279.878	65.312	51.521	-	58.693	58.693
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,279.878	65.312	51.521	-	58.693	58.693
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1,279.878	65.312	51.521	-	58.693	58.693

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	2.17	573,503K	1,244.501	2.47	23,889,583	59.007	2.03	22,694,506	46.070	-	-	-	2.45	22,373,365	54.815	2.45	22,373,365	54.815
BOX METAL M2A2 ^(†)	11.28	486,837	5.492	12.28	117,021	1.437	14.07	226,945	3.193	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	1,249.992	-	-	60.444	-	-	49.263	-	-	0.000	-	-	54.815	-	-	54.815
<i>Subtotal: Hardware Cost</i>	-	-	1,249.992	-	-	60.444	-	-	49.263	-	-	0.000	-	-	54.815	-	-	54.815
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.357	-	-	0.328	-	-	0.098	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.357	-	-	0.328	-	-	0.098	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	0.638	-	-	-	-	-	0.487	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.638	-	-	-	-	-	0.487	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	28.829	-	-	4.529	-	-	1.658	-	-	-	-	-	3.862	-	-	3.862
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	28.829	-	-	4.529	-	-	1.658	-	-	0.000	-	-	3.862	-	-	3.862
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.062	-	-	0.011	-	-	0.015	-	-	-	-	-	0.016	-	-	0.016

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.062	-	-	0.011	-	-	0.015	-	-	0.000	-	-	0.016	-	-	0.016
Gross/Weapon System Cost	-	-	1,279.878	-	-	65.312	-	-	51.521	-	-	-	-	-	58.693	-	-	58.693

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types				Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]				

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Mar 2019	9,119,461	1.69	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	May 2018	Feb 2020	14,770,122	2.47	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	20,425,055	2.03	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	OLIN CORP WINCHESTER DIVISION / EAST ALTON, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	2,269,451	2.03	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	22,373,365	2.45	Y		
BOX METAL M2A2		2018	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Oct 2018	117,021	12.28	Y		
BOX METAL M2A2		2019	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Jul 2019	Sep 2019	226,945	14.07	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 AND FY 2019 LAP ARE DELIVERY ORDERS TO THE EXISTING CONTRACTS. FY 2018 AND FY 2019 LAP IS AN AVERAGE UNIT COST BETWEEN TWO CONTRACTORS. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP). BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types
		Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
LOAD, ASSEMBLE, PACK (LAP)																															
Prior Years Deliveries: 573502679																															
1	2018		AF (+)	1.591	.000	1.591																									
1	2018		ARMY	9.119	.000	9.119																									
1	2018		NAVSEA (+)	3.854	.000	3.854																									
1	2018		NSOF (+)	1.482	.000	1.482																									
1	2018		Total	16.046	.000	16.046																									
2	2018		ARMY	14.770	.000	14.770																									
1	2019		AF (+)	.469	.000	.469																									
1	2019		ARMY	20.425	.000	20.425																									
1	2019		NAVSEA (+)	2.553	.000	2.553																									
1	2019		NSOF (+)	.350	.000	.350																									
1	2019		Total	23.797	.000	23.797																									
2	2019		AF (+)	.052	.000	.052																									
2	2019		ARMY	2.269	.000	2.269																									
2	2019		NAVSEA (+)	.284	.000	.284																									
2	2019		NSOF (+)	.039	.000	.039																									
2	2019		Total	2.644	.000	2.644																									
✓	3	2020	ARMY	22.373	.000	22.373																									
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types
		Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2020													Fiscal Year 2021													BALANCE														
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021																										
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P																
LOAD, ASSEMBLE, PACK (LAP)																																														
Prior Years Deliveries: 573502679																																														
	1	2018	AF (†)	1.591	.928	.663	.133	.133	.133	.133	.133																											.000								
	1	2018	ARMY	9.119	5.348	3.772	.754	.754	.754	.754	.754																											.000								
	1	2018	NAVSEA (†)	3.854	2.248	1.606	.321	.321	.321	.321	.321																											.000								
	1	2018	NSOF (†)	1.482	.982	.500	.500	-	-	-	-																											.000								
	1	2018	Total	16.046	9.506	6.541	1.708	1.208	1.208	1.208	1.208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		.000								
	2	2018	ARMY	14.770	.000	14.770	-	-	-	-	1.146	1.143	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248		.000							
	1	2019	AF (†)	.469	.000	.469	-	-	-	-	-	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039	.039		.000							
	1	2019	ARMY	20.425	.000	20.425	-	-	-	-	-	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702	1.702		.000							
	1	2019	NAVSEA (†)	2.553	.000	2.553	-	-	-	-	-	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213		.000							
	1	2019	NSOF (†)	.350	.000	.350	-	-	-	-	-	.350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		.000								
	1	2019	Total	23.797	.000	23.797	-	-	-	-	-	2.304	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.954	1.951	-	-	-	-	-	-	-	.000			
	2	2019	AF (†)	.052	.000	.052	-	-	-	-	-	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005		.000						
	2	2019	ARMY	2.269	.000	2.269	-	-	-	-	-	1.135	1.135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		.000							
	2	2019	NAVSEA (†)	.284	.000	.284	-	-	-	-	-	.142	.142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		.000							
	2	2019	NSOF (†)	.039	.000	.039	-	-	-	-	-	.039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		.000							
	2	2019	Total	2.644	.000	2.644	-	-	-	-	-	1.320	1.281	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.000					
✓	3	2020	ARMY	22.373	.000	22.373						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.864	1.864	1.864	1.864	1.864	1.864	1.864	1.864	9.322
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P																

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2022													Fiscal Year 2023													B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

LOAD, ASSEMBLE, PACK (LAP)																																		
Prior Years Deliveries: 573502679																																		
	1	2018	AF (+)	1.591	1.591	.000																												.000
	1	2018	ARMY	9.119	9.119	.000																												.000
	1	2018	NAVSEA (+)	3.854	3.854	.000																												.000
	1	2018	NSOF (+)	1.482	1.482	.000																												.000
	1	2018	Total	16.046	16.046	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
	2	2018	ARMY	14.770	14.770	.000																												.000
	1	2019	AF (+)	.469	.469	.000																												.000
	1	2019	ARMY	20.425	20.425	.000																												.000
	1	2019	NAVSEA (+)	2.553	2.553	.000																												.000
	1	2019	NSOF (+)	.350	.350	.000																												.000
	1	2019	Total	23.797	23.797	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
	2	2019	AF (+)	.052	.052	.000																												.000
	2	2019	ARMY	2.269	2.269	.000																												.000
	2	2019	NAVSEA (+)	.284	.284	.000																												.000
	2	2019	NSOF (+)	.039	.039	.000																												.000
	2	2019	Total	2.644	2.644	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
✓	3	2020	ARMY	22.373	13.051	9.322	1.864	1.864	1.864	1.864	1.864																						.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types
		Item Number / Title [DODIC]: E07200 / CTG, .50cal 4 Ball M33 / 1 Tracer M17 w/M9 Link [A557]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNVTN SYS - INDEPENDENCE, MO	200	1,670,000	5,000,000	6	6	12	18	6	6	12	18
2	OLIN CORP WINCHESTER DIVISION - EAST ALTON, IL	200	400,000	1,600,000	6	6	12	18	6	6	12	18
3	TO BE SELECTED - TBS01	200	5,990,000	20,770,000	6	6	12	18	6	6	12	18

(†) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07302 / CTG, .50cal Blank, M1A1 w/M9 Link [A598]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	114.805	3.751	4.950	-	5.273	5.273
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	114.805	3.751	4.950	-	5.273	5.273
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	114.805	3.751	4.950	-	5.273	5.273

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	1.02	111,079K	113.301	1.11	2,795,802	3.103	1.20	3,090,838	3.709	-	-	-	1.50	3,205,558	4.808	1.50	3,205,558	4.808
BOX METAL M2A2 ^(†)	11.36	35,383	0.402	12.28	28,098	0.345	14.07	30,908	0.435	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	113.702	-	-	3.448	-	-	4.144	-	-	0.000	-	-	4.808	-	-	4.808
Subtotal: Hardware Cost	-	-	113.702	-	-	3.448	-	-	4.144	-	-	0.000	-	-	4.808	-	-	4.808
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.062	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.062	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	-	-	-	-	-	-	0.267	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	-	-	-	0.267	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	1.039	-	-	0.301	-	-	0.536	-	-	-	-	-	0.462	-	-	0.462
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.039	-	-	0.301	-	-	0.536	-	-	0.000	-	-	0.462	-	-	0.462
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.002	-	-	0.002	-	-	0.003	-	-	-	-	-	0.003	-	-	0.003

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07302 / CTG, .50cal Blank, M1A1 w/M9 Link [A598]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.002	-	-	0.002	-	-	0.003	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	114.805	-	-	3.751	-	-	4.950	-	-	-	-	-	5.273	-	-	5.273

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types				Item Number / Title [DODIC]: E07302 / CTG, .50cal Blank, M1A1 w/M9 Link [A598]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2018	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Feb 2020	2,795,802	1.11	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	NORTHROP GRUMMAN INNVTN SYS / INDEPENDENCE, MO	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	3,090,838	1.20	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Sep 2021	3,205,558	1.50	Y		
BOX METAL M2A2		2018	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Aug 2018	Oct 2018	28,098	12.28	Y		
BOX METAL M2A2		2019	BWAY CORPORATION / ATLANTA, GA	C / FFP	ROCK ISLAND ARSENAL, IL	Jul 2019	Sep 2019	30,908	14.07	Y		

Remarks:
 FY 2018 AND FY 2019 LAP ARE DELIVERY ORDERS TO THE EXISTING CONTRACT. Northrop Grumman Innovation Systems (LCAAP) was formerly known as Alliant Techsystems (LCAAP). BEGINNING IN FY 2020 M2A2 CANS ARE NO LONGER A SEPARATE COMPONENT AND WILL BE PART OF THE COMPLETE ROUND.

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 1722E08000 / CTG, .50 Cal, All Types	Item Number / Title [DODIC]: E07900 / CTG, .50cal High Pressure Test, M1, Single Round [A575]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	5.507	-	0.204	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5.507	-	0.204	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5.507	-	0.204	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	2.73	2,012,533	5.494	-	-	-	3.10	58,510	0.181	-	-	-	-	-	-	-	-	-
BOX METAL M2A2	-	-	-	-	-	-	14.07	487	0.007	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	5.494	-	-	-	-	-	0.188	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	5.494	-	-	-	-	-	0.188	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.013	-	-	-	-	-	0.016	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.013	-	-	-	-	-	0.016	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	5.507	-	-	-	-	-	0.204	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	139.138	11.775	9.803	-	35.920	35.920	36.786	37.457	38.032	20.853	-	329.764
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	139.138	11.775	9.803	-	35.920	35.920	36.786	37.457	38.032	20.853	-	329.764
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	139.138	11.775	9.803	-	35.920	35.920	36.786	37.457	38.032	20.853	-	329.764

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$35.920M for Overseas Contingency Operations (OCO); of which \$35.920M and quantity of .557 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 20MM ALL TYPES:

(E08909) The 20MM M940 Multi-Purpose Tracer - Self-Destruct (MPT-SD) cartridge, w/ MK7 Link is an improved, fuzeless, 20mm High Explosive cartridge. The nose consists of tungsten penetrators designed to pierce incoming threats prior to initiation of the high explosive and incendiary mix. The projectile consists of a heavy walled steel body charged with an explosive mix and an incendiary mix. The M940 is currently being employed as a force protection munition in the M61 cannon of the Land Based Phalanx Weapon System (LPWS) for a Counter-Rocket, Artillery and Mortar (C-RAM) application. The projectile self-destructs if it misses its intended target, minimizing collateral surface damage when engaging airborne targets. The M940 replaced the M246 High Explosive Incendiary-Tracer, Self-Destroying (HEI-T-SD) as the primary air defense cartridge. This item is Code A, approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
2382E08900 / CTG, 20mm, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E08909 / CTG, 20mm MPT-SD, M940 w/MK7 Link [AC34]	P-5a, P-21	A		- / 139.138	- / 11.775	- / 9.803	- / -	- / 35.920	- / 35.920
P-40	Total Gross/Weapon System Cost				- / 139.138	- / 11.775	- / 9.803	- / -	- / 35.920	- / 35.920

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10, United States Code, war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$35.920 million for Overseas Contingency Operations, with a quantity of .557 million for \$35.920 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E08909) The 20MM Multi-Purpose Tracer - Self-Destruct (MPT-SD) cartridge is a training standard item used in both training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$35.920 million supports the procurement of .557 million M940 cartridges.

TYPE CLASSIFICATION DATE: 1989

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types	Item Number / Title [DODIC]: E08909 / CTG, 20mm MPT-SD, M940 w/ MK7 Link [AC34]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		139.138	11.775	9.803	-	35.920	35.920
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		139.138	11.775	9.803	-	35.920	35.920
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		139.138	11.775	9.803	-	35.920	35.920

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	30.65	4,255,254	130.424	58.90	181,556	10.694	58.90	151,080	8.899	-	-	-	60.67	557,376	33.816	60.67	557,376	33.816
BOX METAL M548 ^(†)	46.03	9,814	0.452	46.24	1,834	0.085	46.24	1,526	0.071	-	-	-	47.16	5,628	0.265	47.16	5,628	0.265
<i>Subtotal: Recurring Cost</i>	-	-	130.875	-	-	10.778	-	-	8.969	-	-	0.000	-	-	34.081	-	-	34.081
<i>Subtotal: Hardware Cost</i>	-	-	130.875	-	-	10.778	-	-	8.969	-	-	0.000	-	-	34.081	-	-	34.081
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.081	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First Article Test	-	-	0.081	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.162	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Engineering Change Proposals Cost																		
Engineering Change Proposals	-	-	2.635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	2.635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Reliability	-	-	0.500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Production Qualification Test	-	-	2.394	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types	Item Number / Title [DODIC]: E08909 / CTG, 20mm MPT-SD, M940 w/ MK7 Link [AC34]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	2.894	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	2.554	-	-	0.985	-	-	0.827	-	-	-	-	-	1.831	-	-	1.831
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	2.554	-	-	0.985	-	-	0.827	-	-	0.000	-	-	1.831	-	-	1.831
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.017	-	-	0.011	-	-	0.007	-	-	-	-	-	0.007	-	-	0.007
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.017	-	-	0.011	-	-	0.007	-	-	0.000	-	-	0.007	-	-	0.007
Gross/Weapon System Cost	-	-	139.138	-	-	11.775	-	-	9.803	-	-	-	-	-	35.920	-	-	35.920

Remarks:

LAP unit price cost growth from the prior years to the budget years FY 2018 - FY 2020 is due to the M940 JUONs enhancement. This enhancement provides improved lethality against larger rocket threats. FY 2018 and FY 2019 requirements will be executed as a tandem buy to achieve a more economical procurement.

(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types				Item Number / Title [DODIC]: E08909 / CTG, 20mm MPT-SD, M940 w/ MK7 Link [AC34]				

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	90,778	58.90	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	90,778	58.90	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	75,540	58.90	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	75,540	58.90	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	278,688	60.67	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	278,688	60.67	Y		
BOX METAL M548		2018	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Nov 2019	1,834	46.24	Y		
BOX METAL M548		2019	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Nov 2019	1,526	46.24	Y		
BOX METAL M548	✓	2020	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Nov 2020	5,628	47.16	Y		

(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. Quantity split will be determined in the year of execution between two contractors: Northrop Grumman Innovation Systems, Plymouth, MN and General Dynamics Ordnance and Tactical Systems, Marion, IL. Complete round is an average unit cost of the two contractors. FY 2020 requirements will be a delivery order to this contract.

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types
Item Number / Title [DODIC]: E08909 / CTG, 20mm MPT-SD, M940 w/ MK7 Link [AC34]	

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2019												Fiscal Year 2020												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019												Calendar Year 2020												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
LOAD, ASSEMBLE, PACK (LAP)																															
Prior Years Deliveries: 4255254																															
	1	2018	ARMY	90.778	.000	90.778																								37.820	
	2	2018	ARMY	90.778	.000	90.778																								37.820	
	1	2019	ARMY	75.540	.000	75.540																								31.474	
	2	2019	ARMY	75.540	.000	75.540																								31.474	
✓	1	2020	ARMY	278.688	.000	278.688																								278.688	
✓	2	2020	ARMY	278.688	.000	278.688																								278.688	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30				P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types				Item Number / Title [DODIC]: E08909 / CTG, 20mm MPT-SD, M940 w/ MK7 Link [AC34]			

Cost Elements <i>(Units in Thousands)</i>				Fiscal Year 2021														Fiscal Year 2022														B A L A N C E			
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021														Calendar Year 2022														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

LOAD, ASSEMBLE, PACK (LAP)																														
Prior Years Deliveries: 4255254																														
	1	2018	ARMY	90.778	52.958	37.820	7.564	7.564	7.564	7.564	7.564																		.000	
	2	2018	ARMY	90.778	52.958	37.820	7.564	7.564	7.564	7.564	7.564																		.000	
	1	2019	ARMY	75.540	44.066	31.474	6.294	6.295	6.295	6.295	6.295																		.000	
	2	2019	ARMY	75.540	44.066	31.474	6.294	6.295	6.295	6.295	6.295																		.000	
✓	1	2020	ARMY	278.688	.000	278.688	-	-	-	-	-	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	.000	
✓	2	2020	ARMY	278.688	.000	278.688	-	-	-	-	-	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	23.224	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2382E08900 / CTG, 20mm, All Types
		Item Number / Title [DODIC]: E08909 / CTG, 20mm MPT-SD, M940 w/ MK7 Link [AC34]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GENERAL DYNAMICS ORD & TAC - MARION, IL	1,000	35,000	70,000	6	6	12	18	6	6	12	18
2	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	1,000	35,000	70,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,154.468	40.502	-	-	8.990	8.990	9.120	9.163	8.958	7.852	-	1,239.053
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,154.468	40.502	-	-	8.990	8.990	9.120	9.163	8.958	7.852	-	1,239.053
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,154.468	40.502	-	-	8.990	8.990	9.120	9.163	8.958	7.852	-	1,239.053

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$8.990M for Overseas Contingency Operations (OCO); of which \$8.990M and quantity of .227 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 25MM ALL TYPES:

(E08201) 25mm HEI-T M792 is a High Explosive Incendiary Tracer (HEI-T) cartridge, fired from the M242 Bushmaster automatic cannon mounted on the Army's Bradley Fighting Vehicles (BFV) and the United States Marine Corps Light Armored Vehicles. The M792 provides lethality against structures and vehicles. The defeat mechanism of the M792 is an explosively loaded, naturally fragmenting warhead with incendiary charge. This item is Code A, approved for service use.

(E08203) The 25MM M793 Target Practice - Tracer Cartridge is a ballistically matched training round that simulates the tactical M792 25mm High Explosive Incendiary - Tracer Cartridge and the MK210 High Explosive Incendiary - Tracer Cartridge. The M793 supports gunnery training for the Army's Bradley Fighting Vehicles, the United States Marine Corps Light Armored Vehicles, and the Navy's MK38 Deck Gun. The M793 is a percussion primed round. It is packed for the Army and USMC in linked belts of 30 cartridges into the PA125 Container. It is packed for the Navy in linked belts of 55 cartridges in the CNU405 Container. The M28 metal link is used to belt M793 cartridges. This item is Code A, approved for service use.

(E08204) The 25MM M910 Target Practice Discarding Sabot-Tracer Cartridge is a ballistically matched training round that simulates the M791 25mm Armor Piercing Discarding Sabot-Tracer Cartridge. The M910 is also used as a training counterpart for the M919 25MM Armor Piercing Discarding Sabot Fin Stabilized - Tracer cartridge, though the M910 cannot simulate the full range of the M919. The M910 supports gunnery training for the Army's Bradley Fighting Vehicles and the United States Marine Corps Light Armored Vehicles. The M910 is a percussion primed round, packed in linked belts of 30 cartridges per PA125 container. The M28 link is used to belt M910 cartridges. This item is Code A, approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
2650E08200 / CTG, 25mm, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E08201 / CTG 25MM HEI-T M792 [A975]	P-5a	A		- / 282.049	- / 22.000	- / -	- / -	- / -	- / -
P-5	E08203 / CTG, 25mm TP-T, M793 w/M28 Link [A976]	P-5a, P-21	A		- / 460.193	- / -	- / -	- / -	- / 8.990	- / 8.990
P-5	E08204 / CTG 25MM TPDS-T M910 [A940]	P-5a	A		- / 412.226	- / 18.502	- / -	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 1,154.468	- / 40.502	- / -	- / -	- / 8.990	- / 8.990

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense (DoD) Instruction 3000.04 (Munitions Requirements Process) and AR 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD)-approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0M for Base and \$8.990 million for Overseas Contingency Operations, with a quantity of .227 million for \$8.990 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E08201) 25mm HEI-T M792 This is a war reserve item used in combat. The request builds a war reserve inventory in accordance with the Army's procurement goals.
Type Classification Date: 1979

(E08203) CTG 25MM TP-T M793 is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$8.990 million supports the procurement of .227 million M793 cartridges. E08203 is a new start in FY 2020.
Type Classification Date: 1979

(E08204) CTG 25MM TPDS-T M910 is a training unique item not used in combat. The request supports annual training and builds a depot level in accordance with the Army's procurement goals.
Type Classification Date: 1988

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08201 / CTG 25MM HEI-T M792 [A975]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	282.049	22.000	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	282.049	22.000	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	282.049	22.000	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	32.54	8,481,045	275.973	75.80	272,701	20.671	-	-	-	-	-	-	-	-	-	-	-	-
Container PA125 ^(†)	59.47	14,832	0.882	70.29	9,217	0.648	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	276.855	-	-	21.319	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	276.855	-	-	21.319	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	1.742	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	1.742	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	3.379	-	-	0.672	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	3.379	-	-	0.672	-	-	-	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.073	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.073	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	282.049	-	-	22.000	-	-	-	-	-	-	-	-	-	-	-	-

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08201 / CTG 25MM HEI-T M792 [A975]
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	Jan 2020	222,251	75.80	Y		
LOAD, ASSEMBLE, PACK (LAP)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	Aug 2019	50,450	75.80	Y		
Container PA125		2018	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	Apr 2019	9,217	70.29	Y		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08203 / CTG, 25mm TP-T, M793 w/ M28 Link [A976]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	460.193	-	-	-	8.990	8.990
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	460.193	-	-	-	8.990	8.990
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	460.193	-	-	-	8.990	8.990

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	21.36	21,418,942	457.509	-	-	-	-	-	-	-	-	-	29.88	227,023	6.783	29.88	227,023	6.783
CONTAINER PA125 ^(††)	69.76	25,225	1.760	-	-	-	-	-	-	-	-	-	93.51	7,673	0.718	93.51	7,673	0.718
<i>Subtotal: Recurring Cost</i>	-	-	459.268	-	-	-	-	-	-	-	-	0.000	-	-	7.501	-	-	7.501
Subtotal: Hardware Cost	-	-	459.268	-	-	-	-	-	-	-	-	0.000	-	-	7.501	-	-	7.501
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.012	-	-	0.012
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.427	-	-	0.427
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.439	-	-	0.439
Support - Product Improvement Cost																		
Safety	-	-	0.025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.885	-	-	-	-	-	-	-	-	-	-	-	1.046	-	-	1.046
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.885	-	-	-	-	-	-	-	-	0.000	-	-	1.046	-	-	1.046
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.014	-	-	-	-	-	-	-	-	-	-	-	0.004	-	-	0.004

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08203 / CTG, 25mm TP-T, M793 w/ M28 Link [A976]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.014	-	-	-	-	-	-	-	-	0.000	-	-	0.004	-	-	0.004
Gross/Weapon System Cost	-	-	460.193	-	-	-	-	-	-	-	-	-	-	-	8.990	-	-	8.990

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types				Item Number / Title [DODIC]: E08203 / CTG, 25mm TP-T, M793 w/ M28 Link [A976]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	113,511	29.88	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	113,512	29.88	Y		
CONTAINER PA125	✓	2020	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Nov 2020	7,673	93.51	Y		

^(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. Quantity split will be determined in the year of execution between two contractors: Northrop Grumman Innovation Systems, Plymouth, MN and General Dynamics Ordnance and Tactical Systems, Marion, IL. Complete round is an average unit cost of the two contractors. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08203 / CTG, 25mm TP-T, M793 w/ M28 Link [A976]

Cost Elements (Units in Thousands)						Fiscal Year 2020																	Fiscal Year 2021												BALANCE								
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020																	Calendar Year 2021																			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P													
LOAD, ASSEMBLE, PACK (LAP)																																											
Prior Years Deliveries: 21418942																																											
✓	1	2020	ARMY	113.511	.000	113.511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.460	9.460	9.460	9.459	9.459	9.459	9.459	47.295								
✓	2	2020	ARMY	113.512	.000	113.512	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.460	9.460	9.460	9.460	9.459	9.459	9.459	47.295
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P													

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types
		Item Number / Title [DODIC]: E08203 / CTG, 25mm TP-T, M793 w/ M28 Link [A976]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022												Fiscal Year 2023												B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
LOAD, ASSEMBLE, PACK (LAP)																															
Prior Years Deliveries: 21418942																															
✓	1	2020	ARMY	113.511	66.216	47.295	9.459	9.459	9.459	9.459	9.459																		.000		
✓	2	2020	ARMY	113.512	66.217	47.295	9.459	9.459	9.459	9.459	9.459																		.000		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types
		Item Number / Title [DODIC]: E08203 / CTG, 25mm TP-T, M793 w/ M28 Link [A976]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GENERAL DYNAMICS ORD & TAC - MARION, IL	1,000	100,000	150,000	6	6	12	18	6	6	12	18
2	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	1,000	100,000	150,000	6	6	12	18	6	6	12	18

Remarks:
LAP LINE FOR EACH CONTRACTOR SHARED WITH OTHER 25MM ITEMS.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08204 / CTG 25MM TPDS-T M910 [A940]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	412.226	18.502	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	412.226	18.502	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	412.226	18.502	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	46.63	8,815,537	411.068	35.61	474,359	16.892	-	-	-	-	-	-	-	-	-	-	-	-
CONTAINER PA125 ^(†)	63.46	5,169	0.328	70.29	16,033	1.127	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	411.397	-	-	18.019	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	411.397	-	-	18.019	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.483	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.483	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.814	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.814	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	412.226	-	-	18.502	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types	Item Number / Title [DODIC]: E08204 / CTG 25MM TPDS-T M910 [A940]
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2650E08200 / CTG, 25mm, All Types				Item Number / Title [DODIC]: E08204 / CTG 25MM TPDS-T M910 [A940]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	Oct 2019	474,359	35.61	Y		
CONTAINER PA125		2018	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	May 2019	16,033	70.29	Y		

Remarks:
This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. Quantity split determined between two contractors in the year of execution.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,402.372	114.000	85.617	-	93.713	93.713	86.830	81.767	94.695	91.855	-	2,050.849
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,402.372	114.000	85.617	-	93.713	93.713	86.830	81.767	94.695	91.855	-	2,050.849
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,402.372	114.000	85.617	-	93.713	93.713	86.830	81.767	94.695	91.855	-	2,050.849

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$93.713M for Overseas Contingency Operations (OCO); of which \$68.813M and quantity of 1.041 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 30MM ALL TYPES:

(E09900) 30mm M789 High Explosive Dual Purpose Cartridge is the only qualified combat cartridge for use in the Apache Helicopter's M230 Chain Gun. It is also used by the 160th SOAR, fired from the MH-60L Blackhawk helicopter. The M789 cartridge consists of a projectile containing explosive, a shaped charge liner, a M759 point-detonating fuze, aluminum cartridge case, propellant and a PA520 electric primer. The shaped charge allows the M789 to defeat light armor, and the steel projectile body provides an anti-personnel capability. M789 cartridges are packed in Bulk Ammunition Strips (BAS), 110 cartridges per M592 container. This item is Code A, approved for service use.

(E10100) 30mm M788 30mm Target Practice cartridge is the only qualified training cartridge for use in the Apache and Blackhawk Helicopter's M230 Chain Gun. The M788 consists of an inert projectile, propellant, utilizes a PA520 electric primer and has a lightweight aluminum cartridge case. M788 cartridges are packed in Bulk Ammunition Strips (BAS), 110 cartridges per M592 container. This item is Code A, approved for service use.

(E07306) 30x173mm MK239 Target Practice with Tracer (TP-T) cartridge is a Navy qualified training cartridge that is ballistically matched to the MK238. The MK239 cartridge consists of an inert projectile, a glass-reinforced nylon rotating band, a tracer, AFP-001 base grain propellant, an M36A2 percussion primer, and an aluminum cartridge case. The MK239 cartridges are packed 30 cartridges per M592 ammunition container. The Army has completed the safety qualification of the MK239 to support the Urgent Materiel Release for the Stryker Infantry Carrier Vehicle. This item is Code B, not approved for service use.

(E09191) 30x173mm MK317 is a Target Practice Discarding Sabot with Tracer (TPDS-T) cartridge. The MK317 cartridge consists of an inert projectile, molded plastic sabot, a pusher base, a tracer, propellant, an M36A2 percussion primer, and an aluminum cartridge case. The MK317 cartridges are packed 30 cartridges per M592 ammunition container. The Army has completed the safety qualification of the MK317 to support the Urgent Materiel Release for the Stryker Infantry Carrier Vehicle. This item is Code B, not approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E07406) CTG MK238 High Explosive Incendiary with Tracer (HEI-T) cartridge is a Navy qualified tactical cartridge consisting of a steel projectile body assembly crimped into an aluminum cartridge case, PBXN-5 explosive, a zirconium pellet, ATK151-LD fuze, a tracer, AFP-001 propellant, and an M36A2 percussion primer. The MK238 cartridges are packed 30 cartridges per M592 container. The Army has completed the safety qualification of the MK238 to support the Urgent Materiel Release for the Stryker Infantry Carrier Vehicle. This item is Code B, not approved for service use.</p> <p>(E09292) 30x173mm MK258 Armor Piercing Fin Stabilized Discarding Sabot with Tracer (APFSDS-T) cartridge is a Navy qualified tactical cartridge consisting of a high-density inert tungsten alloy long-rod penetrator sub-projectile held in a three-petal aluminum sabot, a plastic nose cap and obturator, a tracer, propellant, a DNAG 8235 percussion primer, and a steel cartridge case. The MK258 cartridges are packed 30 cartridges per M592 ammunition container. The Army has completed the safety qualification of the MK258 to support the Urgent Materiel Release for the Stryker Infantry Carrier Vehicle. This item is Code B, not approved for service use.</p> <p>(E07610) 30x173mm MK310 Programmable Air Burst Munition with Tracer (PABM-T) cartridge is a Navy qualified tactical high explosive cartridge that has three different ways of functioning which include point detonate, point detonation delay, and air burst, and also has a self-destruct feature if the projectile misses its intended target. The MK310 cartridge consists of a warhead loaded with explosive, a fuze that can be programmed to function in one of three ways as mentioned above, AFP-001 propellant, an M36A2 percussion primer, and an aluminum cartridge case. The MK310 cartridges are packed 30 cartridges per M592 ammunition container. The Army has completed the safety qualification of the MK310 to support the Urgent Materiel Release for the Stryker Infantry Carrier Vehicle. This item is Code B, not approved for service use.</p>		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
2938ER8120 / CTG, 30mm, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E07306 / CTG, 30mm TP-T, MK239, Single [AC25]	P-5a, P-21	B		- / 6.437	- / 14.550	- / 3.000	- / -	- / 10.870	- / 10.870
P-5	E07406 / CTG, 30mm Hi Expl Incendry-T(HEI-T), Mk238 Series [AC27]	P-5a, P-21	B		- / 9.176	- / 14.450	- / 12.674	- / -	- / 10.976	- / 10.976
P-5	E07610 / CTG, 30MM, Progmabl Air Burst Mun, Mk310, Linked [AC47]	P-5a, P-21	B		- / -	- / -	- / 1.765	- / -	- / 14.546	- / 14.546
P-5	E09191 / CTG, 30mm TPDS-T, MK317 (SABOT Trng), Single [AC28]	P-5a	B		- / 5.581	- / 15.000	- / 15.123	- / -	- / 4.000	- / 4.000
P-5	E09292 / CTG, 30mm APFSDS-T, MK258, Single [AC26]	P-5a, P-21	B		- / 13.754	- / 25.500	- / 25.447	- / -	- / 25.232	- / 25.232
P-5	E09900 / CTG, 30mm HEDP, M789, Single, f/Gun M230 [B129]	P-5a	A		- / 980.552	- / 11.666	- / 5.105	- / -	- / 5.221	- / 5.221
P-5	E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]	P-5a, P-21	A		- / 386.872	- / 32.834	- / 22.503	- / -	- / 22.868	- / 22.868
P-40	Total Gross/Weapon System Cost				- / 1,402.372	- / 114.000	- / 85.617	- / -	- / 93.713	- / 93.713

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense (DoD) Instruction 3000.04 (Munitions Requirements Process) and AR 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD)-approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), these items are 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.

FY 2020 funding totals include \$0.0 million for Base and \$93.713 million for Overseas Contingency Operations, with a quantity of 1.041 million for \$68.813 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$24.900 million, with a quantity of .131 million for OCO for Enduring Requirements.

(E09900) CTG 30mm HEDP M789 - This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.221 million supports the procurement of .039 million M789 cartridges.

TYPE CLASSIFICATION DATE: 1982

(E10100) CTG 30mm TP M788 - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$22.868 million supports the procurement of .811 million M788 cartridges.

TYPE CLASSIFICATION DATE: 1982

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E07306) CTG 30x173mm MK239 - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$7.870 million supports the procurement of .112 million 30mm MK239 cartridges. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.000 million supports the procurement of .051 million 30mm MK239 cartridges to deter potential adversaries and support the European Deterrence Initiative.</p> <p>TYPE CLASSIFICATION DATE: PENDING</p> <p>(E09191) CTG 30x173mm MK317 - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$4.000 million supports the procurement of .023 million 30mm MK317 cartridges to deter potential adversaries and support the European Deterrence Initiative.</p> <p>TYPE CLASSIFICATION DATE: PENDING</p> <p>(E07406) CTG 30x173mm MK238 High Explosive Incendiary with Tracer (HEI-T) - This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$4.976 million supports the procurement of .021 million 30mm MK238 cartridges. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$6.000 million supports the procurement of .035 million 30mm MK238 cartridges to deter potential adversaries and support the European Deterrence Initiative.</p> <p>TYPE CLASSIFICATION DATE: PENDING</p> <p>(E09292) CTG 30x173mm MK258 - This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$13.332 million supports the procurement of .020 million 30mm MK258 cartridges. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$11.900 million supports the procurement of .022 million 30mm MK258 cartridges to deter potential adversaries and support the European Deterrence Initiative.</p> <p>TYPE CLASSIFICATION DATE: PENDING</p> <p>(E07610) 30x173mm MK310 Programmable Air Burst Munition with Tracer (PABM-T) - This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base procurement dollars in the amount of \$14.546 million supports the procurement of .011 million 30mm MK310 cartridges.</p> <p>TYPE CLASSIFICATION DATE: PENDING</p>		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E07306 / CTG, 30mm TP-T, MK239, Single [AC25]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	6.437	14.550	3.000	-	10.870	10.870
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	6.437	14.550	3.000	-	10.870	10.870
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	6.437	14.550	3.000	-	10.870	10.870

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(†)	48.74	109,663	5.345	43.01	305,453	13.138	56.29	35,879	2.020	-	-	-	59.14	162,778	9.627	59.14	162,778	9.627
<i>Subtotal: Recurring Cost</i>	-	-	5.345	-	-	13.138	-	-	2.020	-	-	0.000	-	-	9.627	-	-	9.627
Subtotal: Hardware Cost	-	-	5.345	-	-	13.138	-	-	2.020	-	-	0.000	-	-	9.627	-	-	9.627
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.410	-	-	0.410	-	-	0.410	-	-	-	-	-	0.445	-	-	0.445
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.410	-	-	0.410	-	-	0.410	-	-	0.000	-	-	0.445	-	-	0.445
Support - Production Engineering Cost																		
Production Engineering	-	-	0.672	-	-	0.995	-	-	0.565	-	-	-	-	-	0.794	-	-	0.794
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.672	-	-	0.995	-	-	0.565	-	-	0.000	-	-	0.794	-	-	0.794
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	0.008	-	-	0.006	-	-	-	-	-	0.004	-	-	0.004
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.010	-	-	0.008	-	-	0.006	-	-	0.000	-	-	0.004	-	-	0.004
Gross/Weapon System Cost	-	-	6.437	-	-	14.550	-	-	3.000	-	-	-	-	-	10.870	-	-	10.870

(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E07306 / CTG, 30mm TP-T, MK239, Single [AC25]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Complete Round ^(†)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Mar 2019	305,453	43.01	Y		
Complete Round ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	35,879	56.29	Y		
Complete Round ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	162,778	59.14	Y		

^(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types										Item Number / Title [DODIC]: E07306 / CTG, 30mm TP-T, MK239, Single [AC25]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2018													Fiscal Year 2019													BALANCE		
O C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018													Calendar Year 2019													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
Complete Round																																	
Prior Years Deliveries: 109663																																	
	1	2018	ARMY	305.453	.000	305.453																									.000		
	1	2019	ARMY	35.879	.000	35.879																								35.879			
	✓	1	2020	ARMY	162.778	.000	162.778																							162.778			

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types										Item Number / Title [DODIC]: E07306 / CTG, 30mm TP-T, MK239, Single [AC25]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2020															Fiscal Year 2021															BALANCE		
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

Complete Round																														
Prior Years Deliveries: 109663																														
	1	2018	ARMY	305.453	305.453	.000																						.000		
	1	2019	ARMY	35.879	.000	35.879	-	-	-	-	-	35.879																.000		
✓	1	2020	ARMY	162.778	.000	162.778						A -	-	-	-	-	-	-	-	-	-	-	-	-	42.778	40.000	40.000	40.000	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E07306 / CTG, 30mm TP-T, MK239, Single [AC25]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	20,000	80,000	160,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E07406 / CTG, 30mm Hi Expl Incendry-T(HEI-T), Mk238 Series [AC27]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	9.176	14.450	12.674	-	10.976	10.976
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	9.176	14.450	12.674	-	10.976	10.976
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	9.176	14.450	12.674	-	10.976	10.976

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	143.62	52,934	7.602	143.62	90,342	12.975	164.24	68,703	11.284	-	-	-	171.68	55,475	9.524	171.68	55,475	9.524
Subtotal: Recurring Cost	-	-	7.602	-	-	12.975	-	-	11.284	-	-	0.000	-	-	9.524	-	-	9.524
Subtotal: Hardware Cost	-	-	7.602	-	-	12.975	-	-	11.284	-	-	0.000	-	-	9.524	-	-	9.524
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.598	-	-	0.598	-	-	0.609	-	-	-	-	-	0.615	-	-	0.615
Subtotal: Support - Acceptance Testing Cost	-	-	0.598	-	-	0.598	-	-	0.609	-	-	0.000	-	-	0.615	-	-	0.615
Support - Production Engineering Cost																		
Production Engineering	-	-	0.966	-	-	0.870	-	-	0.775	-	-	-	-	-	0.832	-	-	0.832
Subtotal: Support - Production Engineering Cost	-	-	0.966	-	-	0.870	-	-	0.775	-	-	0.000	-	-	0.832	-	-	0.832
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	0.008	-	-	0.006	-	-	-	-	-	0.004	-	-	0.004
Subtotal: Support - Quality Assurance Cost	-	-	0.010	-	-	0.008	-	-	0.006	-	-	0.000	-	-	0.004	-	-	0.004
Gross/Weapon System Cost	-	-	9.176	-	-	14.450	-	-	12.674	-	-	-	-	-	10.976	-	-	10.976

^(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E07406 / CTG, 30mm Hi Expl Incendry-T(HEI-T), Mk238 Series [AC27]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Mar 2019	90,342	143.62	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	68,703	164.24	Y		
COMPLETE ROUND ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	55,475	171.68	Y		

^(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E07406 / CTG, 30mm Hi Expl Incendry-T(HI-T), Mk238 Series [AC27]

Cost Elements (Units in Thousands)					Fiscal Year 2018													Fiscal Year 2019											B A L A N C E		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCE PT PRI OR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018													Calendar Year 2019											
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P

COMPLETE ROUND

Prior Years Deliveries: 52934

1	2018	ARMY	90.342	.000	90.342																								60.000	30.342							.000
1	2019	ARMY	68.703	.000	68.703																								A -	-							68.703
✓ 1	2020	ARMY	55.475	.000	55.475																																55.475

						O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	
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UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types										Item Number / Title [DODIC]: E07406 / CTG, 30mm Hi Expl Incendry-T(HEI-T), Mk238 Series [AC27]									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020												Fiscal Year 2021												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020												Calendar Year 2021												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
COMPLETE ROUND																															
Prior Years Deliveries: 52934																															
	1	2018	ARMY	90.342	90.342	.000																								.000	
	1	2019	ARMY	68.703	.000	68.703	-	-	-	-	-		38.703	30.000																.000	
✓	1	2020	ARMY	55.475	.000	55.475																							.000		

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Exhibit P-21, Production Schedule: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30				P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E07406 / CTG, 30mm Hi Expl Incendry-T(HEI-T), Mk238 Series [AC27]				
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	20,000	80,000	160,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E07610 / CTG, 30MM, Progrmabl Air Burst Mun, Mk310, Linked [AC47]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	1.765	-	14.546	14.546
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	-	1.765	-	14.546	14.546
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	1.765	-	14.546	14.546

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total			
	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 Cost																			
Recurring Cost																			
Complete Round ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	1,102.43	11,273	12.428	1,102.43	11,273	12.428	
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	12.428	-	-	12.428
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	12.428	-	-	12.428
Support - Acceptance Testing Cost																			
First Article Test	-	-	-	-	-	-	-	-	1.212	-	-	-	-	-	1.134	-	-	1.134	
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	1.212	-	-	0.000	-	-	1.134	-	-	1.134	
Support - Production Engineering Cost																			
Production Engineering	-	-	-	-	-	-	-	-	0.543	-	-	-	-	-	0.974	-	-	0.974	
Subtotal: Support - Production Engineering Cost	-	-	-	-	-	-	-	-	0.543	-	-	0.000	-	-	0.974	-	-	0.974	
Support - Quality Assurance Cost																			
Quality Assurance	-	-	-	-	-	-	-	-	0.010	-	-	-	-	-	0.010	-	-	0.010	
Subtotal: Support - Quality Assurance Cost	-	-	-	-	-	-	-	-	0.010	-	-	0.000	-	-	0.010	-	-	0.010	
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	1.765	-	-	-	-	-	14.546	-	-	14.546	

^(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E07610 / CTG, 30MM, Progrmabl Air Burst Mun, Mk310, Linked [AC47]					
Cost Elements	O C O	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
Complete Round ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	11,273	1,102.43	Y		

^(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. FY 2020 requirements will be a delivery order to this contract.

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E07610 / CTG, 30MM, Progrmabl Air Burst Mun, Mk310, Linked [AC47]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020											Fiscal Year 2021											BALANCE		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020											Calendar Year 2021												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N		J U L	A U G
Complete Round																														
✓	1	2020	ARMY	11.273	.000	11.273							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.273	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E07610 / CTG, 30MM, Progrmabl Air Burst Mun, Mk310, Linked [AC47]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	1,000	70,000	110,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E09191 / CTG, 30mm TPDS-T, MK317 (SABOT Trng), Single [AC28]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	5.581	15.000	15.123	-	4.000	4.000
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5.581	15.000	15.123	-	4.000	4.000
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5.581	15.000	15.123	-	4.000	4.000

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(†)	112.59	35,091	3.951	65.29	209,552	13.682	85.57	161,692	13.836	-	-	-	136.45	23,004	3.139	136.45	23,004	3.139
Subtotal: Recurring Cost	-	-	3.951	-	-	13.682	-	-	13.836	-	-	0.000	-	-	3.139	-	-	3.139
Subtotal: Hardware Cost	-	-	3.951	-	-	13.682	-	-	13.836	-	-	0.000	-	-	3.139	-	-	3.139
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.835	-	-	0.327	-	-	0.344	-	-	-	-	-	0.304	-	-	0.304
Subtotal: Support - Acceptance Testing Cost	-	-	0.835	-	-	0.327	-	-	0.344	-	-	0.000	-	-	0.304	-	-	0.304
Support - Production Engineering Cost																		
Production Engineering	-	-	0.785	-	-	0.983	-	-	0.938	-	-	-	-	-	0.554	-	-	0.554
Subtotal: Support - Production Engineering Cost	-	-	0.785	-	-	0.983	-	-	0.938	-	-	0.000	-	-	0.554	-	-	0.554
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	0.008	-	-	0.006	-	-	-	-	-	0.003	-	-	0.003
Subtotal: Support - Quality Assurance Cost	-	-	0.010	-	-	0.008	-	-	0.006	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	5.581	-	-	15.000	-	-	15.123	-	-	-	-	-	4.000	-	-	4.000

Remarks:

Unit cost growth in FY 2020 due to lower quantity range from prior year.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E09191 / CTG, 30mm TPDS-T, MK317 (SABOT Trng), Single [AC28]
ID Code (A=Service Ready, B=Not Service Ready) : B		MDAP/MAIS Code:

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E09191 / CTG, 30mm TPDS-T, MK317 (SABOT Trng), Single [AC28]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Complete Round		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Apr 2019	209,552	65.29	Y		
Complete Round		2019	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	161,692	85.57	Y		
Complete Round	✓	2020	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	23,004	136.45	Y		

Remarks:
This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E09292 / CTG, 30mm APFSDS-T, MK258, Single [AC26]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	13.754	25.500	25.447	-	25.232	25.232
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	13.754	25.500	25.447	-	25.232	25.232
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	13.754	25.500	25.447	-	25.232	25.232

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	487.67	23,075	11.253	481.00	47,908	23.044	555.55	41,434	23.019	-	-	-	553.43	41,957	23.220	553.43	41,957	23.220
Subtotal: Recurring Cost	-	-	11.253	-	-	23.044	-	-	23.019	-	-	0.000	-	-	23.220	-	-	23.220
Subtotal: Hardware Cost	-	-	11.253	-	-	23.044	-	-	23.019	-	-	0.000	-	-	23.220	-	-	23.220
Support - Acceptance Testing Cost																		
First Article Test	-	-	1.354	-	-	1.354	-	-	1.380	-	-	-	-	-	0.709	-	-	0.709
Subtotal: Support - Acceptance Testing Cost	-	-	1.354	-	-	1.354	-	-	1.380	-	-	0.000	-	-	0.709	-	-	0.709
Support - Production Engineering Cost																		
Production Engineering	-	-	1.137	-	-	1.093	-	-	1.033	-	-	-	-	-	1.297	-	-	1.297
Subtotal: Support - Production Engineering Cost	-	-	1.137	-	-	1.093	-	-	1.033	-	-	0.000	-	-	1.297	-	-	1.297
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	0.010	-	-	0.016	-	-	-	-	-	0.006	-	-	0.006
Subtotal: Support - Quality Assurance Cost	-	-	0.010	-	-	0.010	-	-	0.016	-	-	0.000	-	-	0.006	-	-	0.006
Gross/Weapon System Cost	-	-	13.754	-	-	25.500	-	-	25.447	-	-	-	-	-	25.232	-	-	25.232

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E09292 / CTG, 30mm APFSDS-T, MK258, Single [AC26]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2018	Apr 2019	47,908	481.00	Y		
COMPLETE ROUND ^(†)		2019	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	41,434	555.55	Y		
COMPLETE ROUND ^(†)	✓	2020	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	41,957	553.43	Y		

^(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-21, Production Schedule: PB 2020 Army						Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types						Item Number / Title [DODIC]: E09292 / CTG, 30mm APFSDS-T, MK258, Single [AC26]					

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P

COMPLETE ROUND																														
Prior Years Deliveries: 23075																														
	1	2018	ARMY	47.908	.000	47.908																								.000
	1	2019	ARMY	41.434	.000	41.434																								41.434
	✓	1	2020	ARMY	41.957	.000	41.957																							41.957

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E09292 / CTG, 30mm APFSDS-T, MK258, Single [AC26]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020												Fiscal Year 2021												B A L A N C E
O C C O #	M F R Y	S E R V I C E	P R O C Q T Y	A C C E P T P R I O R T O 1 O C T 2 0 1 9	B A L D U E A S O F 1 O C T	Calendar Year 2020												Calendar Year 2021												
						O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

COMPLETE ROUND																														
Prior Years Deliveries: 23075																														
	1	2018	ARMY	47.908	47.908	.000																						.000		
	1	2019	ARMY	41.434	.000	41.434	-	-	-	-	-	21.434	20.000															.000		
✓	1	2020	ARMY	41.957	.000	41.957						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	21.957	20.000	.000		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E09292 / CTG, 30mm APFSDS-T, MK258, Single [AC26]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GENERAL DYNAMICS ORD & TAC - MARION, IL	20,000	100,000	200,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E09900 / CTG, 30mm HEDP, M789, Single, f/Gun M230 [B129]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	980.552	11.666	5.105	-	5.221	5.221
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	980.552	11.666	5.105	-	5.221	5.221
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	980.552	11.666	5.105	-	5.221	5.221

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	74.42	13,062,691	972.129	88.52	126,734	11.218	125.70	37,188	4.675	-	-	-	127.40	39,096	4.981	127.40	39,096	4.981
Subtotal: Recurring Cost	-	-	972.125	-	-	11.218	-	-	4.675	-	-	0.000	-	-	4.981	-	-	4.981
Subtotal: Hardware Cost	-	-	972.125	-	-	11.218	-	-	4.675	-	-	0.000	-	-	4.981	-	-	4.981
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Reliability	-	-	-	-	-	0.119	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	0.119	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	8.319	-	-	0.323	-	-	0.407	-	-	-	-	-	0.236	-	-	0.236
Subtotal: Support - Production Engineering Cost	-	-	8.319	-	-	0.323	-	-	0.407	-	-	0.000	-	-	0.236	-	-	0.236
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.108	-	-	0.006	-	-	0.015	-	-	-	-	-	0.004	-	-	0.004
Subtotal: Support - Quality Assurance Cost	-	-	0.108	-	-	0.006	-	-	0.015	-	-	0.000	-	-	0.004	-	-	0.004

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E09900 / CTG, 30mm HEDP, M789, Single, f/Gun M230 [B129]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	980.552	-	-	11.666	-	-	5.105	-	-	-	-	-	5.221	-	-	5.221

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E09900 / CTG, 30mm HEDP, M789, Single, f/Gun M230 [B129]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Feb 2018	Mar 2019	126,734	88.52	Y		
COMPLETE ROUND		2019	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	18,594	125.70	Y		
COMPLETE ROUND		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	18,594	125.70	Y		
COMPLETE ROUND	✓	2020	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	19,548	127.40	Y		
COMPLETE ROUND	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	19,548	127.40	Y		

Remarks:
This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. Quantity split will be determined in the year of execution between two contractors: Northrop Grumman Innovation Systems, Plymouth, MN and General Dynamics Ordnance and Tactical Systems, Marion, IL. Complete round is an average unit cost of the two contractors. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types	Item Number / Title [DODIC]: E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	386.872	32.834	22.503	-	22.868	22.868
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	386.872	32.834	22.503	-	22.868	22.868
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	386.872	32.834	22.503	-	22.868	22.868

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	18.12	20,581,014	372.930	19.45	1,542,063	29.993	24.34	845,080	20.569	-	-	-	25.85	810,864	20.961	25.85	810,864	20.961
Subtotal: Recurring Cost	-	-	372.928	-	-	29.993	-	-	20.569	-	-	0.000	-	-	20.961	-	-	20.961
Subtotal: Hardware Cost	-	-	372.928	-	-	29.993	-	-	20.569	-	-	0.000	-	-	20.961	-	-	20.961
Support - Product Improvement Cost																		
Safety	-	-	0.600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	0.600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	13.315	-	-	2.835	-	-	1.918	-	-	-	-	-	1.904	-	-	1.904
Subtotal: Support - Production Engineering Cost	-	-	13.315	-	-	2.835	-	-	1.918	-	-	0.000	-	-	1.904	-	-	1.904
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.021	-	-	0.006	-	-	0.015	-	-	-	-	-	0.003	-	-	0.003
Subtotal: Support - Quality Assurance Cost	-	-	0.021	-	-	0.006	-	-	0.015	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	386.872	-	-	32.834	-	-	22.503	-	-	-	-	-	22.868	-	-	22.868

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types				Item Number / Title [DODIC]: E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Jan 2018	Oct 2018	1,176,594	19.45	Y		
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Jan 2018	Dec 2018	365,469	19.45	Y		
COMPLETE ROUND ^(†)		2019	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	422,540	24.34	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	422,540	24.34	Y		
COMPLETE ROUND ^(†)	✓	2020	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	405,432	25.85	Y		
COMPLETE ROUND ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	405,432	25.85	Y		

^(†) indicates the presence of a P-21

Remarks:

This item is part of a combined 20mm, 25mm, 30mm contract FY 2018 - FY 2023. Quantity split will be determined in the year of execution between two contractors: Northrop Grumman Innovation Systems, Plymouth, MN and General Dynamics Ordnance and Tactical Systems, Marion, IL. Complete round is an average unit cost of the two contractors. FY 2020 requirements will be a delivery order to this contract.

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Exhibit P-21, Production Schedule: PB 2020 Army						Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30						P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types						Item Number / Title [DODIC]: E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]					

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 7	BAL D U E A S O F 1 O C T	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
COMPLETE ROUND																															
Prior Years Deliveries: 20581014																															
	1	2018	ARMY	1.177	.000	1.177				A	-	-	-	-	-	-	-	-	.120	.120	.120	.120	.120	.120	.120	.120	.120	.097		.000	
	2	2018	ARMY	.365	.000	.365			A	-	-	-	-	-	-	-	-	-	-	-	.120	.120	.126							.000	
	1	2019	ARMY	.423	.000	.423																			A	-	-	-	-	-	.423
	2	2019	ARMY	.423	.000	.423																			A	-	-	-	-	-	.423
✓	1	2020	ARMY	.405	.000	.405																								.405	
✓	2	2020	ARMY	.405	.000	.405																								.405	

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types										Item Number / Title [DODIC]: E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020												Fiscal Year 2021												B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T O 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020												Calendar Year 2021												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
COMPLETE ROUND																															
Prior Years Deliveries: 20581014																															
	1	2018	ARMY	1.177	1.177	.000																							.000		
	2	2018	ARMY	.365	.365	.000																							.000		
	1	2019	ARMY	.423	.000	.423	-	-	-	-	-	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.000		
	2	2019	ARMY	.423	.000	.423	-	-	-	-	-	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.035	.000		
✓	1	2020	ARMY	.405	.000	.405						A	-	-	-	-	-	-	-	-	-	-	-	-	.034	.034	.034	.034	.169		
✓	2	2020	ARMY	.405	.000	.405						A	-	-	-	-	-	-	-	-	-	-	-	-	.034	.034	.034	.034	.169		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types										Item Number / Title [DODIC]: E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]									

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2022											Fiscal Year 2023											BALANCE		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022											Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N		J U L	A U G
COMPLETE ROUND																														
Prior Years Deliveries: 20581014																														
	1	2018	ARMY	1.177	1.177	.000																								.000
	2	2018	ARMY	.365	.365	.000																								.000
	1	2019	ARMY	.423	.423	.000																								.000
	2	2019	ARMY	.423	.423	.000																								.000
✓	1	2020	ARMY	.405	.237	.169	.034	.034	.034	.034	.034																			.000
✓	2	2020	ARMY	.405	.237	.169	.034	.034	.034	.034	.034																			.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 2938ER8120 / CTG, 30mm, All Types
		Item Number / Title [DODIC]: E10100 / CTG, 30mm TP, M788, Single, f/Gun M230 [B118]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GENERAL DYNAMICS ORD & TAC - MARION, IL	30,000	120,000	200,000	6	6	12	18	6	6	12	18
2	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	30,000	120,000	200,000	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,431.282	125.380	69.781	-	103.952	103.952	117.192	135.402	151.443	149.333	-	2,283.765
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,431.282	125.380	69.781	-	103.952	103.952	117.192	135.402	151.443	149.333	-	2,283.765
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,431.282	125.380	69.781	-	103.952	103.952	117.192	135.402	151.443	149.333	-	2,283.765

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$103.952M for Overseas Contingency Operations (OCO); of which \$103.952M and quantity of 4.784 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 40MM ALL TYPES:

(E12601) CTG,40mm M433 is a High Explosive Dual Purpose impact type round designed to penetrate lightly armored targets and perform an anti-personnel mission, and is compatible with the M203 and M320 Grenade Launchers. Upon impact, the detonator triggers the spitback shaped charge and produces a jet blast that detonates the high explosive bursting charge. Detonation of the bursting charge forms an armor-piercing jet of molten metal and fragmentation of the projectile body. This item is Code A, approved for service use.

(E11800) CTG 40mm M430A1 is a High-Explosive Dual Purpose cartridge (HEDP), and is fired from a MK19 Grenade Machine Gun at a max range of 2,200 meters. It is capable of penetrating steel armor and inflicting personnel casualties in the target area. This item is Code A, approved for service use.

(E12000) CTG 40mm M583A1 White Star Parachute cartridge is a cartridge designed for illumination and signaling with less weight and bulk and greater accuracy than comparable handheld signals. They are fired from a 40mm grenade Launcher M203 and M320. The cartridge is fired to a height of approximately 600 ft where the parachute is deployed and the candle is illuminated for 30 seconds. This item is Code A, approved for service use.

(E05610) CTG 40mm M781E1 Low Velocity Day Night Thermal cartridge is a training cartridge for the M203 and M320 Grenade Launchers. This ammunition consists of a projectile assembly and cartridge case assembly. The projectile ogive is filled with a signature material that provides a signature upon impact that can be seen, day or night with the unaided eye, thermal and night vision weapon sights. The cartridge does not contain any fuzing or explosives, eliminating unexploded ordnance issues on the training ranges due to non-functioning training ammunition. This item is code B, not approved for service use.

(E05611) CTG 40mm M918E1 High Velocity Day Night Thermal cartridge is a training cartridge for the MK19 Grenade Machine Gun. This ammunition consists of a projectile assembly and cartridge case assembly. The projectile ogive is filled with a signature material that provides a signature upon impact that can be seen, day or night with the unaided eye, thermal and night vision weapon sights. The cartridge does not contain any fuzing or explosives, eliminating unexploded ordnance issues on the training ranges due to non-functioning training ammunition. This item is code B, not approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/
Medium Cal Ammunition **P-1 Line Item Number / Title:**
3222ER8001 / CTG, 40mm, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E05610 / CTG, 40mm TP-Day/Nite/Ther,Lo Vel M781E1, f/M203GL [BA54]	P-5a, P-21	B		- / 34.000	- / 23.000	- / 11.206	- / -	- / 17.576	- / 17.576
P-5	E05611 / CTG, 40mm TP-Day/Nite/Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]	P-5a, P-21	B		- / 77.824	- / 89.067	- / 55.626	- / -	- / 85.931	- / 85.931
P-5	E11800 / CTG, 40mm HEDP, M430A1 Series f/MK19 MG [B542]		A		- / 728.010	- / 2.913	- / 2.949	- / -	- / -	- / -
P-5	E12000 / CTG 40MM WHITE STAR PARA M583 [B535]		A		- / 59.434	- / -	- / -	- / -	- / 0.445	- / 0.445
P-5	E12601 / CTG, 40mm HEDP, M433 f/M203 Grenade Launcher				- / 532.014	- / 10.400	- / -	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 1,431.282	- / 125.380	- / 69.781	- / -	- / 103.952	- / 103.952

*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.

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

Justification:

The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense (DoD) Instruction 3000.04 (Munitions Requirements Process) and AR 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD)-approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$103.952 million for Overseas Contingency Operations, with a quantity of 4.784 million for \$103.952 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E12601) CTG 40MM HEDP M433 - This is a training standard item used in both training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals.

TYPE CLASSIFICATION DATE: 1971

(E11800) CTG 40MM HEDP M430A1 F/MK19 MG - This is a war reserve item used in combat. The request builds a war reserve inventory in accordance with the Army's procurement goals.

Type Classification Date: 1971

(E12000) CTG 40mm White Star Para M583A1 - This is a war reserve item used in combat. FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$.445 million supports the procurement of .004 million M583 Cartridges. E12000 is a new start in FY 2020.

Type classification date: 1972

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 30: Small/ Medium Cal Ammunition		P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E05610) CTG, 40MM, M781E1 Low Velocity Day Night Thermal - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$17.576 million supports the procurement of 1.268 million M781E1 cartridges.</p> <p>Type Classification Date: 31 May 2017, Limited Procurement</p> <p>(E05611) CTG, 40MM, M918E1 High Velocity Day Night Thermal - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$85.931 million supports the procurement of 3.512 million M918E1 cartridges.</p> <p>Type Classification Date: 31 May 2017, Limited Procurement</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E05610 / CTG, 40mm TP-Day/Nite/ Ther,Lo Vel M781E1, f/M203GL [BA54]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	34.000	23.000	11.206	-	17.576	17.576
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	34.000	23.000	11.206	-	17.576	17.576
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	34.000	23.000	11.206	-	17.576	17.576

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	11.56	2,752,298	31.817	10.41	1,975,362	20.564	14.98	593,881	8.896	-	-	-	12.48	1,267,928	15.824	12.48	1,267,928	15.824
Subtotal: Recurring Cost	-	-	31.817	-	-	20.564	-	-	8.896	-	-	0.000	-	-	15.824	-	-	15.824
Subtotal: Hardware Cost	-	-	31.817	-	-	20.564	-	-	8.896	-	-	0.000	-	-	15.824	-	-	15.824
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.158	-	-	0.162	-	-	0.174	-	-	-	-	-	0.132	-	-	0.132
Subtotal: Support - Acceptance Testing Cost	-	-	0.158	-	-	0.162	-	-	0.174	-	-	0.000	-	-	0.132	-	-	0.132
Support - Production Engineering Cost																		
Production Engineering	-	-	1.989	-	-	2.245	-	-	2.122	-	-	-	-	-	1.615	-	-	1.615
Subtotal: Support - Production Engineering Cost	-	-	1.989	-	-	2.245	-	-	2.122	-	-	0.000	-	-	1.615	-	-	1.615
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	-	-	-	0.014	-	-	-	-	-	0.005	-	-	0.005
Subtotal: Support - Quality Assurance Cost	-	-	0.010	-	-	-	-	-	0.014	-	-	0.000	-	-	0.005	-	-	0.005
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.027	-	-	0.030	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Study & Analysis Cost	-	-	0.027	-	-	0.030	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E05610 / CTG, 40mm TP-Day/Nite/ Ther,Lo Vel M781E1, f/M203GL [BA54]
ID Code (A=Service Ready, B=Not Service Ready) : B		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	34.000	-	-	23.000	-	-	11.206	-	-	-	-	-	17.576	-	-	17.576

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types				Item Number / Title [DODIC]: E05610 / CTG, 40mm TP-Day/Nite/ Ther,Lo Vel M781E1, f/M203GL [BA54]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jul 2020	1,975,362	10.41	Y		
COMPLETE ROUND ^(†)		2019	GENERAL DYNAMICS ORD & TAC / MARION, IL	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jul 2020	593,881	14.98	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Jul 2021	1,267,928	12.48	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018 AND FY 2019 COMPLETE ROUND IS A DELIVERY ORDER TO AN EXISTING CONTRACT. FY 2020 WILL BE A NEW CONTRACT.

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Exhibit P-21, Production Schedule: PB 2020 Army																						Date: March 2019										
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types										Item Number / Title [DODIC]: E05610 / CTG, 40mm TP-Day/Nite/ Ther,Lo Vel M781E1, f/M203GL [BA54]												
Cost Elements (Units in Millions, * = < 500)						Fiscal Year 2019											Fiscal Year 2020												B A L A N C E			
OC	RF	Q	FY	SERVICE	PROC QTY	Calendar Year 2019													Calendar Year 2020													
1	2	3		ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG		SEP		
O	C	R	#			T	V	C	N	B	R	R	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G		P		
COMPLETE ROUND																																
Prior Years Deliveries: 2752298																																
	1	2018	ARMY	1.975	.000	1.975					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.165	.165	.165	1.482		
	1	2019	ARMY	.594	.000	.594					A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.049	.049	.049	.445		
✓	2	2020	ARMY	1.268	.000	1.268																	A -	-	-	-	-	-	-	1.268		
✓	2	2020	MC (*)	.656	.000	.656																	A -	-	-	-	-	-	-	.656		
✓	2	2020	Total OCO	1.923	.000	1.923																		-	-	-	-	-	-	-	1.923	
							O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S		
							C	V	E	A	E	A	P	A	U	U	U	E	C	O	V	E	C	R	P	Y	N	L	G	P		

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types										Item Number / Title [DODIC]: E05610 / CTG, 40mm TP-Day/Nite/ Ther,Lo Vel M781E1, f/M203GL [BA54]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2021													Fiscal Year 2022													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T O 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021													Calendar Year 2022													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
COMPLETE ROUND																																	
Prior Years Deliveries: 2752298																																	
	1	2018	ARMY	1.975	.494	1.482	.165	.165	.165	.165	.165	.165	.165	.165	.165															.000			
	1	2019	ARMY	.594	.148	.445	.049	.049	.049	.049	.049	.049	.049	.049	.049															.000			
✓	2	2020	ARMY	1.268	.000	1.268	-	-	-	-	-	-	-	-	-	.106	.106	.106	.106	.106	.106	.106	.106	.106	.106	.106	.106			.000			
✓	2	2020	MC ^(*)	.656	.000	.656	-	-	-	-	-	-	-	-	-	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055	.055			.000			
✓	2	2020	Total OCO	1.923	.000	1.923	-	-	-	-	-	-	-	-	-	.160	.160	.160	.160	.160	.160	.160	.160	.160	.160	.160	.160	-	-	-	.000		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types
		Item Number / Title [DODIC]: E05610 / CTG, 40mm TP-Day/Nite/ Ther,Lo Vel M781E1, f/M203GL [BA54]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GENERAL DYNAMICS ORD & TAC - MARION, IL	20,000	125,000	375,000	6	6	16	22	6	6	16	22
2	TO BE SELECTED - TBS01	20,000	125,000	375,000	6	6	16	22	6	6	16	22

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule. "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		77.824	89.067	55.626	-	85.931	85.931
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		77.824	89.067	55.626	-	85.931	85.931
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		77.824	89.067	55.626	-	85.931	85.931

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	21.17	3,415,422	72.304	19.71	4,217,914	83.135	22.64	2,247,281	50.878	-	-	-	22.84	3,511,944	80.213	22.84	3,511,944	80.213
Subtotal: Recurring Cost	-	-	72.304	-	-	83.135	-	-	50.878	-	-	0.000	-	-	80.213	-	-	80.213
Subtotal: Hardware Cost	-	-	72.304	-	-	83.135	-	-	50.878	-	-	0.000	-	-	80.213	-	-	80.213
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.409	-	-	-	-	-	0.434	-	-	-	-	-	0.414	-	-	0.414
Subtotal: Support - Acceptance Testing Cost	-	-	0.409	-	-	-	-	-	0.434	-	-	0.000	-	-	0.414	-	-	0.414
Support - Product Improvement Cost																		
Production Verification Test	-	-	-	-	-	0.221	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	0.221	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	5.070	-	-	5.671	-	-	4.300	-	-	-	-	-	5.297	-	-	5.297
Subtotal: Support - Production Engineering Cost	-	-	5.070	-	-	5.671	-	-	4.300	-	-	0.000	-	-	5.297	-	-	5.297
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	0.010	-	-	0.014	-	-	-	-	-	0.007	-	-	0.007
Subtotal: Support - Quality Assurance Cost	-	-	0.010	-	-	0.010	-	-	0.014	-	-	0.000	-	-	0.007	-	-	0.007

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]
ID Code (A=Service Ready, B=Not Service Ready) : B		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.030	-	-	0.029	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	0.030	-	-	0.029	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	77.824	-	-	89.067	-	-	55.626	-	-	-	-	-	85.931	-	-	85.931

(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30			P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types				Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	C / FFP	PICATINNY ARSENAL, NJ	Sep 2018	Nov 2019	4,217,914	19.71	Y		
COMPLETE ROUND ^(†)		2019	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jul 2020	2,247,281	22.64	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Jul 2021	3,511,944	22.84	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018 AND FY 2019 COMPLETE ROUND IS A DELIVERY ORDER TO AN EXISTING CONTRACT. FY 2020 WILL BE A NEW CONTRACT.

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Exhibit P-21, Production Schedule: PB 2020 Army													Date: March 2019																
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30						P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types												Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]											

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P

COMPLETE ROUND

Prior Years Deliveries: 3415422																															
1	2018	ARMY	4.218	.000	4.218																										4.218
1	2019	ARMY	2.247	.000	2.247																										2.247
✓	2	2020	ARMY	3.512	.000	3.512																									3.512

O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P
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UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types										Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]									

Cost Elements <i>(Units in Millions, * = < 500)</i>					Fiscal Year 2020															Fiscal Year 2021															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 9	BAL D U E A S O F 1 O C T	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
Prior Years Deliveries: 3415422																																					
	1	2018	ARMY	4.218	.000	4.218	-	.350	.600	.600	.600	.600	.600	.600	.600	.268																		.000			
	1	2019	ARMY	2.247	.000	2.247	-	-	-	-	-	-	-	-	-	-	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187	.187		.000				
✓	2	2020	ARMY	3.512	.000	3.512											A	-	-	-	-	-	-	-	-	-	-	-	-	-	.293	.293	.293	2.634			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army																		Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30										P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types										Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]									

Cost Elements <i>(Units in Millions, * = < 500)</i>						Fiscal Year 2022												Fiscal Year 2023												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P

COMPLETE ROUND																																
Prior Years Deliveries: 3415422																																
	1	2018	ARMY	4.218	4.218	.000																										.000
	1	2019	ARMY	2.247	2.247	.000																										.000
✓	2	2020	ARMY	3.512	.878	2.634	.293	.293	.293	.293	.293	.293	.293	.293	.293	.293																.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P		

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types
		Item Number / Title [DODIC]: E05611 / CTG, 40mm TP-Day/Nite/ Ther,Hi Vel,M918E1 f/MK19Gmg [BA55]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	AMERICAN ORDNANCE LLC (IAAP) - MIDDLETOWN, IA	50,000	250,000	600,000	6	6	16	22	6	6	16	22
2	TO BE SELECTED - TBS01	50,000	250,000	600,000	6	6	16	22	6	6	16	22

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E11800 / CTG, 40mm HEDP, M430A1 Series f/MK19 MG [B542]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		728.010	2.913	2.949	-	-	-
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		728.010	2.913	2.949	-	-	-
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		728.010	2.913	2.949	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	49.93	14,483,490	723.161	43.80	41,651	1.824	59.90	34,123	2.044	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	723.161	-	-	1.824	-	-	2.044	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	723.161	-	-	1.824	-	-	2.044	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	0.446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Reliability	-	-	-	-	-	0.464	-	-	-	-	-	-	-	-	-	-	-	-
Environmental Initiatives	-	-	-	-	-	0.107	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	0.571	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	4.365	-	-	0.509	-	-	0.897	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	-	-	4.365	-	-	0.509	-	-	0.897	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.039	-	-	0.008	-	-	0.008	-	-	-	-	-	-	-	-	-
Subtotal: Support - Quality Assurance Cost	-	-	0.039	-	-	0.008	-	-	0.008	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E11800 / CTG, 40mm HEDP, M430A1 Series f/MK19 MG [B542]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	728.010	-	-	2.913	-	-	2.949	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30		P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types
		Item Number / Title [DODIC]: E12000 / CTG 40MM WHITE STAR PARA M583 [B535]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	59.434	-	-	-	0.445	0.445
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	59.434	-	-	-	0.445	0.445
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	59.434	-	-	-	0.445	0.445

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	61.01	947,762	57.823	-	-	-	-	-	-	-	-	-	68.01	4,211	0.286	68.01	4,211	0.286
Subtotal: Recurring Cost	-	-	57.823	-	-	-	-	-	-	-	-	-	0.000	-	0.286	-	-	0.286
Subtotal: Hardware Cost	-	-	57.823	-	-	-	-	-	-	-	-	-	0.000	-	0.286	-	-	0.286
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.353	-	-	-	-	-	-	-	-	-	-	-	0.143	-	-	0.143
Subtotal: Support - Acceptance Testing Cost	-	-	0.353	-	-	-	-	-	-	-	-	-	0.000	-	0.143	-	-	0.143
Support - Production Engineering Cost																		
Production Engineering	-	-	1.258	-	-	-	-	-	-	-	-	-	-	-	0.016	-	-	0.016
Subtotal: Support - Production Engineering Cost	-	-	1.258	-	-	-	-	-	-	-	-	-	0.000	-	0.016	-	-	0.016
Gross/Weapon System Cost	-	-	59.434	-	-	-	-	-	-	-	-	-	-	-	0.445	-	-	0.445

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 30	P-1 Line Item Number / Title: 3222ER8001 / CTG, 40mm, All Types	Item Number / Title [DODIC]: E12601 / CTG, 40mm HEDP, M433 f/ M203 Grenade Launcher

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	532.014	10.400	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	532.014	10.400	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	532.014	10.400	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	69.02	7,708,113	532.014	55.77	186,480	10.400	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	532.014	-	-	10.400	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	532.014	-	-	10.400	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	532.014	-	-	10.400	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	587.042	55.359	45.498	-	50.580	50.580	39.284	44.495	36.993	44.585	-	903.836
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	587.042	55.359	45.498	-	50.580	50.580	39.284	44.495	36.993	44.585	-	903.836
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	587.042	55.359	45.498	-	50.580	50.580	39.284	44.495	36.993	44.585	-	903.836

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$50.580M for Overseas Contingency Operations (OCO); of which \$50.580M and quantity of 126,806 cartridges is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

(E89600) 60MM Mortar, All Types

This line includes 60mm Mortar Ammunition, All Types.

The 60mm Mortar cartridges are designed for use with the M224A1 Lightweight Company Mortar System (LWCMS) used by the Stryker Brigade Combat Teams as well as light infantry battalions including Airborne, Air Assault and Ranger. The short minimum range of the M224 makes the 60mm mortar ammunition well suited for close protective fires against an assaulting enemy, for block-to-block fighting in cities, and combat over close terrain with restricted visibility.

(E70400) CTG, 60mm Mortar VL ILLUM, M721 w/MTSQ Fuze

The M721 cartridge is a fin stabilized, mortar cartridge that consists of a M776 Mechanical Time Superquick (MTSQ) fuze, a thin wall steel body tube and aluminum tail cone that contains the payload (parachute and canister), and a fin assembly that contains the ignition cartridge and propelling charges. The payload is base ejected and upon ignition produces visible light illumination. This visible light illumination allows for monitoring of enemy activities and adjustment of fire at greater observation distances during night operations. It also provides a means for day/night signaling. It is particularly useful in combined operations with allies who may not have night vision devices (NVDs). The M721/M767 Illumination Cartridges (Range 200 meter minimum to 3,200 meter maximum) are ballistically similar to the M720A1 HE Cartridge, allowing a gun to illuminate and fire on the same target without adjustments.

This item is Code A, approved for service use.

(E72199) CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM

The M1061, 60mm High Explosive Enhanced Fragmentation (EF) cartridge with Multi Option Fuze for Mortars (MOFM) (Range 70 meter minimum to 3,400 meter maximum) is used against personnel and a higher category of materiel target sets providing both fragmentation and blast effect. This round uses the insensitive main charge explosive PBNX-110. Lethality is maintained by an enhanced fragmentation warhead. The M1061 EF uses the highly reliable and robust electronic countermeasure resistant M734A1 multi-option fuze. When the fuze is set in the proximity mode, it functions at a height over the target that is optimized for lethality.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>This item is Code A, approved for service use.</p> <p>(E92200) CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze The M769 is a low-cost, full range, training round (FRTR) that will replace a percentage of the standard HE rounds used in 60mm mortar training. The M769 FRTR (Range 70 meter minimum to 3,500 meter maximum) has been designed to provide the user with realistic training at a fraction of the cost. It is identical in shape, size and weight to the M720/M720A1 HE cartridges. The flash, bang and smoke signature provided by the M775 fuze is channeled to exhaust holes in the rear of the cartridge through the use of a center vent tube. This item is Code A, approved for service use.</p> <p>(E92900) CTG, 60mm Mortar HE, M768 Series w/PD Fuze The 60mm High Explosive (HE) Cartridges are Insensitive Munitions (IM) enhanced, HE rounds. The M768 High Explosive cartridge (Range 70 meter minimum to 3,400 meter maximum) is used with the new M783 dual safety, point detonating/delay fuze, tail fin assembly, and high fragmentation steel (HF-1) shell body loaded with approximately 2 pounds. of an IM explosive. This round is used primarily in training because it is significantly less expensive than the M720A1, the preferred war fighting round. However, the M768 is lethal and can be used in combat. This item is Code A, approved for service use.</p> <p>(E85700) CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze The M767 cartridge is a fin stabilized, mortar cartridge that consists of a M776 Mechanical Time Superquick (MTSQ) fuze, a thin wall steel body tube and aluminum tail cone that contains the payload (parachute and canister), and a fin assembly that contains the ignition cartridge and propelling charges. The payload is base ejected and upon ignition produces infrared (IR) illumination. The advantage of the infrared over conventional illumination is that there is minimal visible light. This reduces the possibility of exposing forward friendly troop positions while also allowing covert adjustment of fire at greater observation distances through use of passive Night Vision Devices (NVD). The M721/M767 Illumination Cartridges (Range 300 meter minimum to 3,175 meter maximum) are ballistically similar to the M720A1 HE Cartridge, allowing a gun to illuminate and fire on the same target without adjustments. This item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition

P-1 Line Item Number / Title:
0050E89600 / 60MM Mortar, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E70400 / CTG, 60mm Mortar VL ILLUM, M721 w/MTSQ Fuze [B647]	P-5a	A		- / 80.722	- / 6.600	- / -	- / -	- / -	- / -
P-5	E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]	P-5a, P-21	A		- / 45.146	- / 16.373	- / 16.035	- / -	- / 10.964	- / 10.964
P-5	E85700 / CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze [BA04]	P-5a	A		- / 52.656	- / -	- / 0.042	- / -	- / 8.700	- / 8.700
P-5	E92200 / CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze [BA15]	P-5a	A		- / 159.762	- / 13.586	- / 14.186	- / -	- / 14.433	- / 14.433
P-5	E92900 / CTG, 60mm Mortar HE, M768 Series w/PD Fuze [BA45]	P-5a	A		- / 248.756	- / 18.800	- / 15.235	- / -	- / 16.483	- / 16.483
P-40	Total Gross/Weapon System Cost				- / 587.042	- / 55.359	- / 45.498	- / -	- / 50.580	- / 50.580

*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.

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

Justification:

The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$50.580 million for Overseas Contingency Operations, with a quantity of 126,806 million for \$50.580 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

E70400 -CTG, 60mm Mortar VL ILLUM, M721 w/MTSQ Fuze

This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals.

TYPE CLASSIFICATION DATE: DECEMBER 1999

E72199 - CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM

This is a war reserve item used in combat. FY 2020 request builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$10.964 million supports the procurement of 8,245 cartridges.

TYPE CLASSIFICATION DATE: 2013

E92200 - CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze

This is a training unique item not used in combat. FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$14.433 million supports the procurement of 74,474 cartridges.

TYPE CLASSIFICATION DATE: 2001

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>E92900 - CTG, 60mm Mortar HE, M768 Series w/PD Fuze This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$16.483 million supports the procurement of 32,827 cartridges. TYPE CLASSIFICATION DATE: 2001</p> <p>E85700 - CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$8.700 million supports the procurement of 11,260 cartridges. TYPE CLASSIFICATION DATE: DECEMBER 1999</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E70400 / CTG, 60mm Mortar VL ILLUM, M721 w/MTSQ Fuze [B647]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	80.722	6.600	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	80.722	6.600	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	80.722	6.600	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	121.83	10,153	1.237	-	-	-	-	-	-	-	-	-	-	-	-
FIN ASSEMBLY M27 ^(†)	-	-	-	7.95	10,458	0.083	-	-	-	-	-	-	-	-	-	-	-	-
M702 IGNITION CARTRIDGE ^(†)	-	-	-	17.40	10,458	0.182	-	-	-	-	-	-	-	-	-	-	-	-
PROPELLANT CHARGE, M235 ^(†)	-	-	-	14.46	41,830	0.605	-	-	-	-	-	-	-	-	-	-	-	-
FUZE MTSQ, M776 ^(†)	-	-	-	201.50	10,458	2.107	-	-	-	-	-	-	-	-	-	-	-	-
BODY TUBE, 60MM ILLUM ^(†)	-	-	-	16.74	10,458	0.175	-	-	-	-	-	-	-	-	-	-	-	-
VL ILLUM CANNISTER, 60MM ^(†)	-	-	-	122.91	10,458	1.285	-	-	-	-	-	-	-	-	-	-	-	-
PARACHUTE, 60MM ^(†)	-	-	-	23.00	10,458	0.241	-	-	-	-	-	-	-	-	-	-	-	-
FIBER CONTAINER PA 175, 60MM ^(†)	-	-	-	3.47	10,458	0.036	-	-	-	-	-	-	-	-	-	-	-	-
TAIL CONE, 60MM ILLUM ^(†)	-	-	-	16.19	10,458	0.169	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E70400 / CTG, 60mm Mortar VL ILLUM, M721 w/MTSQ Fuze [B647]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
METAL CONTAINER PA191, 60MM ^(†)	-	-	-	51.30	1,320	0.068	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	6.189	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	6.189	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.115	-	-	-	-	-	-	-	-	-	-	-	-
First Article Test	-	-	-	-	-	0.068	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.183	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	80.722	-	-	0.228	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	80.722	-	-	0.228	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	80.722	-	-	6.600	-	-	-	-	-	-	-	-	-	-	-	-

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types				Item Number / Title [DODIC]: E70400 / CTG, 60mm Mortar VL ILLUM, M721 w/MTSQ Fuze [B647]				

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Dec 2018	Dec 2020	10,153	121.83	Y		
FIN ASSEMBLY M27		2018	GAYSTON CORPORATION / MIAMISBURG, OH	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jul 2018	Jul 2019	10,458	7.95	Y		
M702 IGNITION CARTRIDGE		2018	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	10,458	17.40	Y		
PROPELLANT CHARGE, M235		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Sep 2018	Mar 2020	41,830	14.46	Y		
FUZE MTSQ, M776		2018	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Feb 2020	10,458	201.50	Y		
BODY TUBE, 60MM ILLUM		2018	LEWIS ENGINEERING COMPANY / MARSHALL, TX	Option / IDIQ	PICATINNY ARSENAL, NJ	Jul 2018	Jul 2019	10,458	16.74	Y		
VL ILLUM CANNISTER, 60MM		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	May 2018	Nov 2019	10,458	122.91	Y		
PARACHUTE, 60MM		2018	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2019	10,458	23.00	Y		
FIBER CONTAINER PA 175, 60MM		2018	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jun 2018	Dec 2019	10,458	3.47	Y		
TAIL CONE, 60MM ILLUM		2018	LEWIS ENGINEERING COMPANY / MARSHALL, TX	Option / IDIQ	PICATINNY ARSENAL, NJ	Jul 2018	Jul 2019	10,458	16.19	Y		
METAL CONTAINER PA191, 60MM		2018	BWAY CORPORATION / ATLANTA, GA	Option / IDIQ	PICATINNY ARSENAL, NJ	May 2018	Nov 2019	1,320	51.30	Y		

Remarks:

M27 FINS: IDIQ awarded (FY 2017) to multiple contractors. Requirements are competed among the following contractors: Gayston, Springboro, OH and Flexible Concepts Elkhart, IN.
 Ignition Cartridges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Nammo Pocal INC., Scranton, PA and Pyrotechnique by Grucci INC., Radford, VA.
 Body Tube / Tail Cones: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Medico Industries Inc., Wilkes Barre, PA and Lewis Engineering Company, Marshall, TX.
 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	45.146	16.373	16.035	-	10.964	10.964
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	45.146	16.373	16.035	-	10.964	10.964
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	45.146	16.373	16.035	-	10.964	10.964

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	611.33	20,530	12.551	584.57	15,360	8.979	584.57	15,671	9.161	-	-	-	720.06	8,245	5.937	720.06	8,245	5.937
FUZE MOFM, M734A1 ^(†)	265.85	21,146	5.622	269.74	15,821	4.268	275.14	16,142	4.441	-	-	-	280.61	8,492	2.383	280.61	8,492	2.383
M702 IGNITION CARTRIDGE ^(†)	14.06	21,146	0.297	14.25	15,821	0.225	17.77	16,142	0.287	-	-	-	18.12	8,492	0.154	18.12	8,492	0.154
PROPELLANT CHARGE, M236 ^(†)	9.26	84,583	0.783	12.34	63,283	0.781	12.59	64,564	0.813	-	-	-	12.83	33,969	0.436	12.83	33,969	0.436
FIN ASSEMBLY M27 ^(†)	7.05	21,146	0.149	7.68	15,821	0.122	7.40	16,142	0.119	-	-	-	7.54	8,492	0.064	7.54	8,492	0.064
<i>Subtotal: Recurring Cost</i>	-	-	19.402	-	-	14.374	-	-	14.821	-	-	0.000	-	-	8.974	-	-	8.974
Subtotal: Hardware Cost	-	-	19.402	-	-	14.374	-	-	14.821	-	-	0.000	-	-	8.974	-	-	8.974
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.571	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acceptance Test	-	-	0.290	-	-	0.227	-	-	0.120	-	-	-	-	-	0.120	-	-	0.120
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.861	-	-	0.227	-	-	0.120	-	-	0.000	-	-	0.120	-	-	0.120
Support - Production Engineering Cost																		
Production Engineering	-	-	24.883	-	-	1.772	-	-	1.094	-	-	-	-	-	1.870	-	-	1.870

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	24.883	-	-	1.772	-	-	1.094	-	-	0.000	-	-	1.870	-	-	1.870
Gross/Weapon System Cost	-	-	45.146	-	-	16.373	-	-	16.035	-	-	-	-	-	10.964	-	-	10.964

Remarks:
Unit price increase in FY 2020 is due to quantity reduction.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types				Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]					

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	DAY & ZIMMERMAN (KSAAP) / PARSONS, KS	Option / FFP	PICATINNY ARSENAL, NJ	Dec 2018	Sep 2021	15,360	584.57	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	DAY & ZIMMERMAN (KSAAP) / PARSONS, KS	Option / FFP	PICATINNY ARSENAL, NJ	Dec 2018	Dec 2021	15,671	584.57	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	DAY & ZIMMERMAN (KSAAP) / PARSONS, KS	Option / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2023	8,245	720.06	Y		
FUZE MOFM, M734A1		2018	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Sep 2020	15,821	269.74	Y		
FUZE MOFM, M734A1		2019	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2021	16,142	275.14	Y		
FUZE MOFM, M734A1	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Feb 2020	Feb 2022	8,492	280.61	Y		
M702 IGNITION CARTRIDGE		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	15,821	14.25	Y		
M702 IGNITION CARTRIDGE		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	16,142	17.77	Y		
M702 IGNITION CARTRIDGE	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	8,492	18.12	Y		
PROPELLANT CHARGE, M236		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	63,283	12.34	Y		
PROPELLANT CHARGE, M236		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	64,564	12.59	Y		
PROPELLANT CHARGE, M236	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	33,969	12.83	Y		
FIN ASSEMBLY M27		2018	GAYSTON CORPORATION / MIAMISBURG, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	15,821	7.68	Y		
FIN ASSEMBLY M27		2019	GAYSTON CORPORATION / MIAMISBURG, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	16,142	7.40	Y		
FIN ASSEMBLY M27	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	8,492	7.54	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 and FY 2019 Load Assemble and Pack have a tandem contract award in order to take advantage of a quantity price break.

M27 FINS: IDIQ awarded (FY 2017) to multiple contractors. Requirements are competed among the following contractors: Gayston, Springboro, OH; Flexible Concepts Elkhart, IN.

Ignition Cartridges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Nammo Pocal INC., Scranton, PA and Pyrotechnique by Grucci INC., Radford, VA.

Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
		Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
LOAD, ASSEMBLE, PACK (LAP)																															
Prior Years Deliveries: 20530																															
	1	2018	ARMY	15.360	.000	15.360																							15.360		
	1	2019	ARMY	15.671	.000	15.671																							15.671		
	1	2019	NSOF (†)	2.205	.000	2.205																							2.205		
	1	2019	Total	17.876	.000	17.876																							17.876		
✓	1	2020	ARMY	8.245	.000	8.245																							8.245		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
		Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020														Fiscal Year 2021														B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
LOAD, ASSEMBLE, PACK (LAP)																																			
Prior Years Deliveries: 20530																																			
	1	2018	ARMY	15.360	.000	15.360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.000	10.360	
	1	2019	ARMY	15.671	.000	15.671	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.671		
	1	2019	NSOF (†)	2.205	.000	2.205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.205			
	1	2019	Total	17.876	.000	17.876	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.876			
✓	1	2020	ARMY	8.245	.000	8.245																										8.245			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
		Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022													Fiscal Year 2023										B A L A N C E							
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N		J U L	A U G	S E P				
LOAD, ASSEMBLE, PACK (LAP)																																			
Prior Years Deliveries: 20530																																			
	1	2018	ARMY	15.360	5.000	10.360	5.000	5.360																											.000
	1	2019	ARMY	15.671	.000	15.671	-	-	2.184	2.000	2.000	2.000	2.000	2.000	2.000	2.000	1.487																		.000
	1	2019	NSOF (†)	2.205	.000	2.205	-	-	.816	1.000	.389	-	-	-	-	-																		.000	
	1	2019	Total	17.876	.000	17.876	-	-	3.000	3.000	2.389	2.000	2.000	2.000	2.000	1.487																		.000	
✓	1	2020	ARMY	8.245	.000	8.245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.000	3.245		.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
		Item Number / Title [DODIC]: E72199 / CTG, 60mm Mortar HE ENFRAG, M1061 Series w/MOFM [BA42]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	DAY & ZIMMERMAN (KSAAP) - PARSONS, KS	1,000	5,000	15,000	6	8	36	44	6	8	36	44

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule. "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army											Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33						P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types						Item Number / Title [DODIC]: E85700 / CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze [BA04]						
ID Code (A=Service Ready, B=Not Service Ready) : A											MDAP/MAIS Code:							
Resource Summary				Prior Years		FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO		FY 2020 Total	
Procurement Quantity (Units in Each)				-		-			-			-			-		-	
Gross/Weapon System Cost (\$ in Millions)				52.656		-			0.042			-			8.700		8.700	
Less PY Advance Procurement (\$ in Millions)				-		-			-			-			-		-	
Net Procurement (P-1) (\$ in Millions)				52.656		-			0.042			-			8.700		8.700	
Plus CY Advance Procurement (\$ in Millions)				-		-			-			-			-		-	
Total Obligation Authority (\$ in Millions)				52.656		-			0.042			-			8.700		8.700	
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-			-			-			-		-	
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-			-			-			-		-	

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	109.80	11,648	1.279	-	-	-	163.95	54	0.009	-	-	-	167.46	11,260	1.886	167.46	11,260	1.886
FIN ASSEMBLY M27 ^(†)	7.89	11,997	0.095	-	-	-	7.40	56	*.***	-	-	-	7.54	11,597	0.087	7.54	11,597	0.087
M702 IGNITION CARTRIDGE ^(†)	14.49	11,997	0.174	-	-	-	17.77	56	0.001	-	-	-	18.12	11,597	0.210	18.12	11,597	0.210
PROPELLANT CHARGE, M235 ^(†)	9.26	47,990	0.444	-	-	-	13.17	222	0.003	-	-	-	13.51	46,391	0.627	13.51	46,391	0.627
FUZE MTSQ, M776 ^(†)	225.52	11,997	2.706	-	-	-	245.17	56	0.014	-	-	-	250.05	11,597	2.900	250.05	11,597	2.900
BODY TUBE, 60MM ILLUM ^(†)	26.84	11,997	0.322	-	-	-	17.08	56	0.001	-	-	-	17.41	11,597	0.202	17.41	11,597	0.202
TAIL CONE, 60MM ILLUM ^(†)	20.16	11,997	0.242	-	-	-	16.51	56	0.001	-	-	-	16.84	11,597	0.195	16.84	11,597	0.195
PARACHUTE, 60MM ^(†)	22.00	11,997	0.264	-	-	-	23.46	56	0.001	-	-	-	23.92	11,597	0.277	23.92	11,597	0.277
IR ILLUM CANNISTER, 60MM ^(†)	101.96	11,997	1.223	-	-	-	106.61	56	0.006	-	-	-	108.73	11,597	1.261	108.73	11,597	1.261
FIBER CONTAINER PA 175, 60MM ^(†)	3.47	11,997	0.042	-	-	-	3.54	56	*.***	-	-	-	3.60	11,597	0.042	3.60	11,597	0.042

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
Item Number / Title [DODIC]: E85700 / CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze [BA04]		

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
METAL CONTAINER PA191, 60MM ^(t)	48.60	1,500	0.073	-	-	-	52.33	7	*.*.*	-	-	-	53.36	1,407	0.075	53.36	1,407	0.075
<i>Subtotal: Recurring Cost</i>	-	-	6.863	-	-	-	-	-	0.037	-	-	0.000	-	-	7.762	-	-	7.762
<i>Subtotal: Hardware Cost</i>	-	-	6.863	-	-	-	-	-	0.037	-	-	0.000	-	-	7.762	-	-	7.762
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.187	-	-	-	-	-	0.003	-	-	-	-	-	0.090	-	-	0.090
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.187	-	-	-	-	-	0.003	-	-	0.000	-	-	0.090	-	-	0.090
Support - Production Engineering Cost																		
Production Engineering	-	-	45.606	-	-	-	-	-	0.003	-	-	-	-	-	0.848	-	-	0.848
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	45.606	-	-	-	-	-	0.003	-	-	0.000	-	-	0.848	-	-	0.848
Gross/Weapon System Cost	-	-	52.656	-	-	-	-	-	0.042	-	-	-	-	-	8.700	-	-	8.700

..* represents funding below \$1,000.00

^(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types					Item Number / Title [DODIC]: E85700 / CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze [BA04]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2019	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Feb 2019	Feb 2021	54	163.95	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Jan 2020	Jan 2022	11,260	167.46	Y		
FIN ASSEMBLY M27		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	56	7.40	Y		
FIN ASSEMBLY M27	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	11,597	7.54	Y		
M702 IGNITION CARTRIDGE		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	56	17.77	Y		
M702 IGNITION CARTRIDGE	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	11,597	18.12	Y		
PROPELLANT CHARGE, M235		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	222	13.17	Y		
PROPELLANT CHARGE, M235	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	46,391	13.51	Y		
FUZE MTSQ, M776		2019	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Nov 2020	56	245.17	Y		
FUZE MTSQ, M776	✓	2020	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2020	Oct 2021	11,597	250.05	Y		
BODY TUBE, 60MM ILLUM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	56	17.08	Y		
BODY TUBE, 60MM ILLUM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	11,597	17.41	Y		
TAIL CONE, 60MM ILLUM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	56	16.51	Y		
TAIL CONE, 60MM ILLUM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	11,597	16.84	Y		
PARACHUTE, 60MM		2019	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	56	23.46	Y		
PARACHUTE, 60MM	✓	2020	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	11,597	23.92	Y		
IR ILLUM CANNISTER, 60MM		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Feb 2019	Aug 2020	56	106.61	Y		
IR ILLUM CANNISTER, 60MM	✓	2020	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2020	Jul 2021	11,597	108.73	Y		
FIBER CONTAINER PA 175, 60MM		2019	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	56	3.54	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types				Item Number / Title [DODIC]: E85700 / CTG, 60mm Mortar IR ILLUM, M767 Series w/MTSQ Fuze [BA04]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
FIBER CONTAINER PA 175, 60MM	✓	2020	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	11,597	3.60	Y		
METAL CONTAINER PA191, 60MM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	7	52.33	Y		
METAL CONTAINER PA191, 60MM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	1,407	53.36	Y		

Remarks:
M27 FINS: IDIQ awarded (FY 2017) to multiple contractors. Requirements are competed among the following contractors: Gayston, Springboro, OH; Flexible Concepts Elkhart, IN.
Ignition Cartridges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Nammo Pocal INC., Scranton, PA and Pyrotechnique by Grucci INC., Radford, VA.
Body Tube / Tail Cones: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Medico Industries Inc., Wilkes Barre, PA and Lewis Engineering Company, Marshall, TX.
Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E92200 / CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze [BA15]

ID Code (A=Service Ready, B=Not Service Ready) : A				MDAP/MAIS Code:					
Resource Summary				Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)				-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)				159.762	13.586	14.186	-	14.433	14.433
Less PY Advance Procurement (\$ in Millions)				-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)				159.762	13.586	14.186	-	14.433	14.433
Plus CY Advance Procurement (\$ in Millions)				-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)				159.762	13.586	14.186	-	14.433	14.433
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>									
Initial Spares (\$ in Millions)				-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)				-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (LAP) ^(†)	18.04	54,208	0.978	18.45	75,202	1.387	18.56	76,210	1.414	-	-	-	19.42	74,474	1.446	19.42	74,474	1.446
Fuze Practice, M775 ^(†)	20.45	55,834	1.142	19.92	77,459	1.543	21.20	78,496	1.664	-	-	-	21.62	76,708	1.658	21.62	76,708	1.658
Shell Body, 60MM FRPC ^(†)	35.99	55,834	2.009	36.59	77,459	2.834	37.19	78,496	2.919	-	-	-	37.93	76,708	2.910	37.93	76,708	2.910
M702 Ignition Cartridge ^(†)	14.06	55,834	0.785	14.25	77,459	1.104	17.77	78,496	1.395	-	-	-	18.12	76,708	1.390	18.12	76,708	1.390
Propellant Charge, M235 ^(†)	9.26	223,337	2.068	12.43	309,832	3.851	13.17	313,985	4.135	-	-	-	13.51	306,832	4.145	13.51	306,832	4.145
Fin Assembly M27 ^(†)	7.89	55,834	0.441	7.07	77,459	0.548	7.40	78,496	0.581	-	-	-	7.54	76,708	0.578	7.54	76,708	0.578
<i>Subtotal: Recurring Cost</i>	-	-	7.423	-	-	11.267	-	-	12.109	-	-	0.000	-	-	12.128	-	-	12.128
<i>Subtotal: Hardware Cost</i>	-	-	7.423	-	-	11.267	-	-	12.109	-	-	0.000	-	-	12.128	-	-	12.128
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.480	-	-	0.408	-	-	0.576	-	-	-	-	-	0.508	-	-	0.508
First Article Test	-	-	-	-	-	0.168	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.480	-	-	0.576	-	-	0.576	-	-	0.000	-	-	0.508	-	-	0.508
Support - Production Engineering Cost																		
Production Engineering	-	-	151.860	-	-	1.743	-	-	1.501	-	-	-	-	-	1.797	-	-	1.797

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E92200 / CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze [BA15]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	151.860	-	-	1.743	-	-	1.501	-	-	0.000	-	-	1.797	-	-	1.797
Gross/Weapon System Cost	-	-	159.762	-	-	13.586	-	-	14.186	-	-	-	-	-	14.433	-	-	14.433

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types				Item Number / Title [DODIC]: E92200 / CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze [BA15]				

Cost Elements	O C O	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
Load, Assemble, Pack (LAP)		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2018	Jan 2020	75,202	18.45	Y		
Load, Assemble, Pack (LAP)		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2019	Feb 2021	76,210	18.56	Y		
Load, Assemble, Pack (LAP)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	May 2020	May 2022	74,474	19.42	Y		
Fuze Practice, M775		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	77,459	19.92	Y		
Fuze Practice, M775		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2019	Jun 2020	78,496	21.20	Y		
Fuze Practice, M775	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	76,708	21.62	Y		
Shell Body, 60MM FRPC		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2018	Aug 2019	77,459	36.59	Y		
Shell Body, 60MM FRPC		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	78,496	37.19	Y		
Shell Body, 60MM FRPC	✓	2020	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	76,708	37.93	Y		
M702 Ignition Cartridge		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	77,459	14.25	Y		
M702 Ignition Cartridge		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	78,496	17.77	Y		
M702 Ignition Cartridge	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	76,708	18.12	Y		
Propellant Charge, M235		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	309,832	12.43	Y		
Propellant Charge, M235		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	313,985	13.17	Y		
Propellant Charge, M235	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	306,832	13.51	Y		
Fin Assembly M27		2018	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	77,459	7.07	Y		
Fin Assembly M27		2019	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	78,496	7.40	Y		
Fin Assembly M27	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	76,708	7.54	Y		

Remarks:
FRPC LAP: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Nammo Pocal INC., Scranton, PA and Day & Zimmerman, Parsons, KS.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E92200 / CTG, 60mm Mortar FRTR, M769 Series w/Practice Fuze [BA15]
<p>M27 FINS: IDIQ awarded (FY 2017) to multiple contractors. Requirements are competed among the following contractors: Gayston, Springboro, OH; Flexible Concepts Elkhart, IN. Ignition Cartridges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: Nammo Pocal INC., Scranton, PA and Pyrotechnique by Grucci INC., Radford, VA. Shell Bodies: IDIQ awarded (FY 2018) to Medico Industries, Wilkes Barre, PA. Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E92900 / CTG, 60mm Mortar HE, M768 Series w/PD Fuze [BA45]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	248.756	18.800	15.235	-	16.483	16.483
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	248.756	18.800	15.235	-	16.483	16.483
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	248.756	18.800	15.235	-	16.483	16.483

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	50.88	63,701	3.241	53.03	38,055	2.018	54.09	30,130	1.630	-	-	-	55.40	32,827	1.819	55.40	32,827	1.819
SHELL BODY (HF1), 60MM HE ^(†)	39.59	65,613	2.598	40.19	39,197	1.575	40.79	31,034	1.266	-	-	-	41.60	33,811	1.407	41.60	33,811	1.407
FIN ASSEMBLY M27 ^(†)	7.05	65,613	0.463	7.40	39,197	0.290	7.40	31,034	0.230	-	-	-	7.54	33,811	0.255	7.54	33,811	0.255
M702 IGNITION CARTRIDGE ^(†)	14.06	65,613	0.923	30.70	39,197	1.203	17.77	31,034	0.551	-	-	-	18.12	33,811	0.613	18.12	33,811	0.613
PROPELLANT CHARGE, M235 ^(†)	9.26	262,448	2.430	12.34	156,787	1.935	13.17	124,136	1.635	-	-	-	13.51	135,247	1.827	13.51	135,247	1.827
FUZE POINT DETONATOR M783 ^(†)	165.30	65,613	10.846	192.33	39,197	7.539	196.18	31,034	6.088	-	-	-	200.08	33,811	6.765	200.08	33,811	6.765
PBXW-14 BULK EXPLOSIVE ^(†)	67.73	3,822	0.259	67.73	2,283	0.155	69.36	1,808	0.125	-	-	-	70.74	1,969	0.139	70.74	1,969	0.139
EXPLOSIVE FILL IMX-104 ^(†)	23.27	191,103	4.447	21.90	114,165	2.500	22.34	90,390	2.019	-	-	-	22.78	98,481	2.243	22.78	98,481	2.243
<i>Subtotal: Recurring Cost</i>	-	-	25.206	-	-	17.215	-	-	13.545	-	-	0.000	-	-	15.068	-	-	15.068
<i>Subtotal: Hardware Cost</i>	-	-	25.206	-	-	17.215	-	-	13.545	-	-	0.000	-	-	15.068	-	-	15.068
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.632	-	-	0.075	-	-	0.266	-	-	-	-	-	0.261	-	-	0.261

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types	Item Number / Title [DODIC]: E92900 / CTG, 60mm Mortar HE, M768 Series w/PD Fuze [BA45]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
First Article Test	-	-	-	-	-	0.069	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.632	-	-	0.144	-	-	0.266	-	-	0.000	-	-	0.261	-	-	0.261
Support - Production Engineering Cost																		
Production Engineering	-	-	222.918	-	-	1.441	-	-	1.424	-	-	-	-	-	1.154	-	-	1.154
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	222.918	-	-	1.441	-	-	1.424	-	-	0.000	-	-	1.154	-	-	1.154
Gross/Weapon System Cost	-	-	248.756	-	-	18.800	-	-	15.235	-	-	-	-	-	16.483	-	-	16.483

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types					Item Number / Title [DODIC]: E92900 / CTG, 60mm Mortar HE, M768 Series w/PD Fuze [BA45]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	GEN DYNAMICS ORD & TAC SYS - / LE GARDEUR, CANADA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2018	Jan 2021	38,055	53.03	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2019	Feb 2022	30,130	54.09	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	May 2020	May 2023	32,827	55.40	Y		
SHELL BODY (HF1), 60MM HE		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2018	Aug 2019	39,197	40.19	Y		
SHELL BODY (HF1), 60MM HE		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	31,034	40.79	Y		
SHELL BODY (HF1), 60MM HE	✓	2020	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	33,811	41.60	Y		
FIN ASSEMBLY M27		2018	GAYSTON CORPORATION / MIAMISBURG, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	39,197	7.40	Y		
FIN ASSEMBLY M27		2019	GAYSTON CORPORATION / MIAMISBURG, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	31,034	7.40	Y		
FIN ASSEMBLY M27	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2020	33,811	7.54	Y		
M702 IGNITION CARTRIDGE		2018	PYROTECHNIQUE BY GRUCCI INC / RADFORD, VA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	39,197	30.70	Y		
M702 IGNITION CARTRIDGE		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	31,034	17.77	Y		
M702 IGNITION CARTRIDGE	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	33,811	18.12	Y		
PROPELLANT CHARGE, M235		2018	GENERAL DYNAMICS ORD & TAC / MARION, IL	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	156,787	12.34	Y		
PROPELLANT CHARGE, M235		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	124,136	13.17	Y		
PROPELLANT CHARGE, M235	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	135,247	13.51	Y		
FUZE POINT DETONATOR M783		2018	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Sep 2020	39,197	192.33	Y		
FUZE POINT DETONATOR M783		2019	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2021	31,034	196.18	Y		
FUZE POINT DETONATOR M783	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2022	33,811	200.08	Y		
PBXW-14 BULK EXPLOSIVE		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	2,283	67.73	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 0050E89600 / 60MM Mortar, All Types				Item Number / Title [DODIC]: E92900 / CTG, 60mm Mortar HE, M768 Series w/PD Fuze [BA45]				

Cost Elements	O C O	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
PBXW-14 BULK EXPLOSIVE		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2020	1,808	69.36	Y		
PBXW-14 BULK EXPLOSIVE	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	1,969	70.74	Y		
EXPLOSIVE FILL IMX-104		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jul 2018	Jan 2021	114,165	21.90	Y		
EXPLOSIVE FILL IMX-104		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2021	90,390	22.34	Y		
EXPLOSIVE FILL IMX-104	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2022	98,481	22.78	Y		

Remarks:
 HE LAP: IDIQ awarded (FY 2017) to multiple contractors. Requirements are competed among the following contractors: Day and Zimmerman, Parsons, KS; American Ordnance, Middletown, IA; General Dynamics, Le Gardeur, QC, Canada.
 M27 FINS: IDIQ awarded (FY 2017) to multiple contractors. Requirements are competed among the following contractors: Gayston, Springboro, OH; Flexible Concepts Elkhart, IN.
 Ignition Cartridges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: Nammo Pocal INC., Scranton, PA and Pyrotechnique by Grucci INC., Radford, VA.
 Shell Body: IDIQ awarded (FY 2018) to Medico Industries, Wilkes Barre, PA.
 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements are competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	757.991	49.471	47.887	-	59.373	59.373	68.599	66.326	62.579	51.567	-	1,163.793
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	757.991	49.471	47.887	-	59.373	59.373	68.599	66.326	62.579	51.567	-	1,163.793
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	757.991	49.471	47.887	-	59.373	59.373	68.599	66.326	62.579	51.567	-	1,163.793

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$59.373M for Overseas Contingency Operations (OCO); of which \$59.373M and quantity of 116,898 is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes 81mm Mortar Ammunition, All Types.

The 81mm Mortar cartridges are designed for use with the M252 Mortar Weapon System used by the Stryker Brigade Combat Teams as well as light infantry battalions including Airborne, Air Assault and Ranger.

(E69600) CTG, MORTAR, 81MM FRTR M879 SERIES W/PRACTICE FUZE

The M879 is a low-cost, full range, training round (FRTR) that will replace a percentage of the standard HE rounds used in 81mm mortar training. The M879 FRPC (Range 70 meter minimum to 5,800 meter maximum) has been designed to provide the user with realistic training at a fraction of the cost. It is identical in shape, size and weight to the M889A4/M821A3E1 HE cartridges. The flash, bang and smoke signature provided by the M751 practice fuze is channeled to exhaust holes in the rear of the cartridge through the use of a center vent tube.

This item is Code A, approved for service use.

(E76100) CTG, MORTAR, 81MM VL ILLUM M853 SERIES W/MTSQ FUZE

The M853A1 cartridge is a fin stabilized, mortar cartridge that consists of a M772 Mechanical Time Super Quick (MTSQ) fuze, a thin wall aluminum body tube and aluminum tail cone that contains the payload (parachute and canister), and a fin assembly that contains the ignition cartridge and propelling charges. The payload is base ejected and upon ignition produces visible light illumination. This visible light illumination allows for monitoring of enemy activities and adjustment of fire at greater observation distances during night operations. It also provides a means for day/night signaling. It is particularly useful in combined operations with allies who may not have night vision devices (NVDs).

This round illuminates to the full range of the HE round, which allows adjustment of fire at any distance out to the maximum range. The M853A1 (Range 300 meter minimum and 5,050 maximum) is range-matched to the 81mm High Explosive (HE) and smoke cartridges. This item is Code A, approved for service use.

(E76200) CTG, MORTAR, 81MM RP SMOKE M819 SERIES W/MTSQ FUZE

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>The M819 Cartridge is a fin stabilized thin wall steel body tube containing 28 pelletized red phosphorous (RP) wedges; it uses the highly reliable M772 Mechanical Time Super Quick (MTSQ) fuze. After a set time delay, the RP wedges are ejected and dispersed on the target to quickly produce an obscuring smoke screen. A full screen can be developed with 3 rounds as opposed to 15 rounds with the M375 series WP cartridge that is used to create smoke screens to cover movement of troops and/or disrupt visibility of enemy forces. This cartridge was modified to include Gas Absorbent Modules (GAMS) that absorb the phosphine gas emitted by the RP to keep the round stable. The M819 (Range 300 meter minimum and 4,900 maximum) is range-matched to the 81mm High Explosive (HE) and Illum cartridges. This item is code A, approved for service use.</p> <p>(E18403) CTG, MORTAR, 81MM HE M821 W/MOFM The 81mm High Explosive (HE) Cartridges are Insensitive Munitions (IM) enhanced, HE rounds. The 81mm HE Cartridges consist of a fuze, a threaded plastic fuze adapter, a High Fragmentation (HF)-1 steel projectile body loaded with approximately 3lbs. of IMX-104 explosive, a plastic obturating ring, a M24 Fin, the M220 Propelling Charges, and a M299 Ignition Cartridge. The M821A2 HE (Range 70 meter minimum to 5,859 meter maximum) also incorporates the highly reliable and robust electronic countermeasure resistant M734A1 multi-option fuze. When the fuze is set in the proximity mode, it functions at a height over the target that is optimized for lethality. The IM features of this cartridge reduce the vulnerability to unplanned stimuli, e.g. fire/heat, shock and impact. In order to maintain the required effectiveness while implementing IM features, the M821A3E1 cartridge will incorporate warhead modifications in order to meet all requirements. Specifically, the warhead will consist of a Fragmentation Sleeve with an HF-1 Steel body. All other components are the same and will utilize existing production lines and production contracts. These items are Code A, approved for service use.</p> <p>(E18404) CTG, MORTAR, 81MM HE M889 SERIES W/PD FUZE The 81mm High Explosive Cartridges are Insensitive Munitions (IM) enhanced, HE rounds. The 81mm HE Cartridges consist of a fuze, a threaded plastic fuze adapter, a HF-1 steel projectile body loaded with approximately 3lbs. of IMX-104 explosive, a plastic obturating ring, a M24 Fin, the M220 Propelling Charges, and a M299 Ignition Cartridge. The M889A4 HE (Range 70 meter minimum to 5,859 meter maximum) is used with the new M783 dual safety, point detonating/delay fuze. This round is used primarily in training because it is significantly less expensive than the M821A2, the preferred war fighting round. However, the M889A4 is lethal and can be used in combat. The IM features of this cartridge reduce the vulnerability to unplanned stimuli, e.g. fire/heat, shock and impact, while maintaining or exceeding the same level of effectiveness in combat. These items are Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition

P-1 Line Item Number / Title:
3584E76000 / 81MM Mortar, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]	P-5a, P-21	A		- / 275.553	- / 15.934	- / 9.846	- / -	- / 37.084	- / 37.084
P-5	E18404 / CTG, 81mm Mortar HE, M889 Series w/PD Fuze [CA63]	P-5a	A		- / 132.094	- / 13.100	- / 18.762	- / -	- / -	- / -
P-5	E69600 / CTG, 81mm FRTR, M879 Series w/Practice Fuze [C875]	P-5a	A		- / 163.850	- / 14.000	- / 12.572	- / -	- / 16.154	- / 16.154
P-5	E76100 / CTG, 81mm Mortar VL ILLUM, M853 Series w/MTSQ Fuze [C871]	P-5a	A		- / 96.052	- / -	- / 0.084	- / -	- / -	- / -
P-5	E76200 / CTG, 81mm Mortar Smoke RP, M819 Series w/MTSQ Fuze [C870]	P-5a	A		- / 90.442	- / 6.437	- / 6.623	- / -	- / 6.135	- / 6.135
P-40	Total Gross/Weapon System Cost				- / 757.991	- / 49.471	- / 47.887	- / -	- / 59.373	- / 59.373

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$59.373 million for Overseas Contingency Operations, with a quantity of 116,898 for \$59.373 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

E69600 - CTG, MORTAR, 81MM FRTR M879 SERIES W/PRACTICE FUZE
This is a training unique item not used in combat. FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$16.154 million supports the procurement of 72,450 cartridges.
TYPE CLASSIFICATION DATE: August 1986

(E76100)CTG, MORTAR, 81MM VL ILLUM M853 SERIES W/MTSQ FUZE
This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals.
TYPE CLASSIFICATION DATE: December 1986

E76200 - CTG, MORTAR, 81MM RP SMOKE M819 SERIES W/MTSQ FUZE
This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement in the amount of \$6.135 million supports the procurement of 6,357 cartridges.
TYPE CLASSIFICATION DATE: December 1986

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>E18403 - CTG, MORTAR, 81MM HE M821 SERIES W/MOFM This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$37.084 million supports the procurement of 38,091 cartridges. TYPE CLASSIFICATION DATE: June 1996</p> <p>E18404 - CTG, MORTAR 81MM HE M889 SERIES W/PD FUZE This is a training standard item used in training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. TYPE CLASSIFICATION DATE: July 2009</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	275.553	15.934	9.846	-	37.084	37.084
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	275.553	15.934	9.846	-	37.084	37.084
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	275.553	15.934	9.846	-	37.084	37.084

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	325.25	13,789	4.485	325.25	10,195	3.316	-	-	-	332.10	38,091	12.650	332.10	38,091	12.650
SHELL BODY, 81MM HE M821A3E1 ^(†)	-	-	-	81.60	14,203	1.159	81.60	10,501	0.857	-	-	-	83.22	39,233	3.265	83.22	39,233	3.265
FIN MORTAR CTG M24 F/81MM ^(†)	-	-	-	16.20	14,203	0.230	15.10	10,501	0.159	-	-	-	15.39	39,233	0.604	15.39	39,233	0.604
IGN CTG M299 ^(†)	-	-	-	14.91	14,203	0.212	15.21	10,501	0.160	-	-	-	15.51	39,233	0.609	15.51	39,233	0.609
PROPELLANT CHARGE, M658 ^(†)	-	-	-	14.75	56,811	0.838	14.75	42,003	0.620	-	-	-	13.51	156,935	2.120	13.51	156,935	2.120
FUZE MOFM, M734A1 ^(†)	-	-	-	269.74	14,203	3.831	275.14	10,501	2.889	-	-	-	280.61	39,233	11.009	280.61	39,233	11.009
PBXW-14 BULK EXPLOSIVE ^(†)	-	-	-	67.73	1,655	0.112	69.36	1,223	0.085	-	-	-	70.74	4,571	0.323	70.74	4,571	0.323
EXPLOSIVE FILL IMX-104 ^(†)	-	-	-	21.90	57,914	1.268	22.34	42,819	0.957	-	-	-	22.78	159,982	3.644	22.78	159,982	3.644
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	12.135	-	-	9.041	-	-	0.000	-	-	34.224	-	-	34.224
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	12.135	-	-	9.041	-	-	0.000	-	-	34.224	-	-	34.224
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.110	-	-	0.080	-	-	-	-	-	0.167	-	-	0.167
First Article Test	-	-	-	-	-	0.500	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.610	-	-	0.080	-	-	0.000	-	-	0.167	-	-	0.167
Support - Product Improvement Cost																		
Insensitive Munitions	-	-	-	-	-	0.550	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	0.550	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	275.553	-	-	2.282	-	-	0.725	-	-	-	-	-	2.692	-	-	2.692
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	275.553	-	-	2.282	-	-	0.725	-	-	0.000	-	-	2.692	-	-	2.692
Support - Study & Analysis Cost																		
Study & Analysis	-	-	-	-	-	0.357	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	-	-	-	0.357	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	275.553	-	-	15.934	-	-	9.846	-	-	-	-	-	37.084	-	-	37.084

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types					Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Nov 2021	13,789	325.25	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Feb 2022	10,195	325.25	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	May 2020	May 2023	38,091	332.10	Y		
SHELL BODY, 81MM HE M821A3E1		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2019	Aug 2020	14,203	81.60	Y		
SHELL BODY, 81MM HE M821A3E1		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2019	Aug 2020	10,501	81.60	Y		
SHELL BODY, 81MM HE M821A3E1	✓	2020	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	39,233	83.22	Y		
FIN MORTAR CTG M24 F/81MM		2018	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	14,203	16.20	Y		
FIN MORTAR CTG M24 F/81MM		2019	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Sep 2020	10,501	15.10	Y		
FIN MORTAR CTG M24 F/81MM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	39,233	15.39	Y		
IGN CTG M299		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2020	14,203	14.91	Y		
IGN CTG M299		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	10,501	15.21	Y		
IGN CTG M299	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	39,233	15.51	Y		
PROPELLANT CHARGE, M658		2018	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2019	Aug 2020	56,811	14.75	Y		
PROPELLANT CHARGE, M658		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2019	Aug 2020	42,003	14.75	Y		
PROPELLANT CHARGE, M658	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	156,935	13.51	Y		
FUZE MOFM, M734A1		2018	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Mar 2021	14,203	269.74	Y		
FUZE MOFM, M734A1		2019	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Jun 2019	Dec 2021	10,501	275.14	Y		
FUZE MOFM, M734A1	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2022	39,233	280.61	Y		
PBXW-14 BULK EXPLOSIVE		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	1,655	67.73	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types				Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]				

Cost Elements	O C O	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
PBXW-14 BULK EXPLOSIVE		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	1,223	69.36	Y		
PBXW-14 BULK EXPLOSIVE	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	4,571	70.74	Y		
EXPLOSIVE FILL IMX-104		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jul 2018	Jan 2021	57,914	21.90	Y		
EXPLOSIVE FILL IMX-104		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2021	42,819	22.34	Y		
EXPLOSIVE FILL IMX-104	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2022	159,982	22.78	Y		

(†) indicates the presence of a P-21

Remarks:

Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.
 HE LAP: IDIQ awarded (FY 2017) to multiple contractors. Requirements will be competed among the following contractors: Day and Zimmerman, Parsons, KS; General Dynamics, Le Gardeur, Canada; American Ordnance, Middletown, IA.
 HE Shell Bodes: IDIQ awarded (FY 2018) to Medico Industries, Wilkes Barre, PA.
 Fins: IDIQ awarded (FY 2017) to multiple contractors. Requirements will be competed among the following contractors: Gayston Corp., Springboro, OH and Flexible Concepts, Elkhart, IN.

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Exhibit P-21, Production Schedule: PB 2020 Army						Date: March 2019																	
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33						P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types						Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]											

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E																
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019																											
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P															
LOAD, ASSEMBLE, PACK (LAP)																																														
	1	2018	ARMY	13.789	.000	13.789																							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.789
	1	2019	ARMY	10.195	.000	10.195																							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.195
	1	2019	MC (†)	24.898	.000	24.898																							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.898
	1	2019	Total	35.093	.000	35.093																							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.093
✓	1	2020	ARMY	38.091	.000	38.091																																							38.091	
✓	1	2020	MC (†)	52.475	.000	52.475																																							52.475	
✓	1	2020	Total OCO	90.566	.000	90.566																																							90.566	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P																

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
		Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2020													Fiscal Year 2021													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020													Calendar Year 2021													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
LOAD, ASSEMBLE, PACK (LAP)																																	
	1	2018	ARMY	13.789	.000	13.789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.789			
	1	2019	ARMY	10.195	.000	10.195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.195			
	1	2019	MC (†)	24.898	.000	24.898	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.898			
	1	2019	Total	35.093	.000	35.093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.093			
✓	1	2020	ARMY	38.091	.000	38.091																							38.091				
✓	1	2020	MC (†)	52.475	.000	52.475																							52.475				
✓	1	2020	Total OCO	90.566	.000	90.566																							90.566				
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
		Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022												Fiscal Year 2023												B A L A N C E			
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P	
LOAD, ASSEMBLE, PACK (LAP)																																
	1	2018	ARMY	13.789	.000	13.789	-	4.000	4.000	5.789																			.000			
	1	2019	ARMY	10.195	.000	10.195	-	-	-	-	6.195	4.000	-	-	-	-													.000			
	1	2019	MC (†)	24.898	.000	24.898	-	-	-	-	-	-	6.000	6.000	6.000	6.898													.000			
	1	2019	Total	35.093	.000	35.093	-	-	-	-	6.195	4.000	-	6.000	6.000	6.000	6.898											.000				
✓	1	2020	ARMY	38.091	.000	38.091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.000	6.000	6.000	6.000	6.000	8.091
✓	1	2020	MC (†)	52.475	.000	52.475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.000	6.000	6.000	6.000	6.000	22.475
✓	1	2020	Total OCO	90.566	.000	90.566	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.000	12.000	12.000	12.000	12.000	30.566
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P		

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
		Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2024												Fiscal Year 2025												B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2023	BAL DUE AS OF 1 OCT	Calendar Year 2024												Calendar Year 2025												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
LOAD, ASSEMBLE, PACK (LAP)																															
	1	2018	ARMY	13.789	13.789	.000																							.000		
	1	2019	ARMY	10.195	10.195	.000																							.000		
	1	2019	MC (†)	24.898	24.898	.000																							.000		
	1	2019	Total	35.093	35.093	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
✓	1	2020	ARMY	38.091	30.000	8.091	6.000	2.091	-																				.000		
✓	1	2020	MC (†)	52.475	30.000	22.475	6.000	9.909	6.566																				.000		
✓	1	2020	Total OCO	90.566	60.000	30.566	12.000	12.000	6.566	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
		Item Number / Title [DODIC]: E18403 / CTG, 81mm Mortar HE, M821 Series w/MOFM [CA66]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	4,000	12,000	30,000	8	8	36	44	8	8	36	44

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E18404 / CTG, 81mm Mortar HE, M889 Series w/PD Fuze [CA63]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	132.094	13.100	18.762	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	132.094	13.100	18.762	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	132.094	13.100	18.762	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	83.38	35,402	2.952	84.89	21,476	1.823	86.84	30,519	2.650	-	-	-	-	-	-	-	-	-
FUZE POINT DETONATOR M783 ^(†)	165.30	36,464	6.027	192.33	22,120	4.254	196.18	31,435	6.167	-	-	-	-	-	-	-	-	-
SHELL BODY, 81MM HE ^(†)	50.39	36,464	1.837	50.99	22,120	1.128	51.59	31,435	1.622	-	-	-	-	-	-	-	-	-
IGN CTG M299 ^(†)	14.64	36,464	0.534	14.91	22,120	0.330	15.21	31,435	0.478	-	-	-	-	-	-	-	-	-
CHG PROP 81MM M220 ^(†)	10.44	145,856	1.523	13.00	88,481	1.150	13.26	125,738	1.667	-	-	-	-	-	-	-	-	-
FIN MORTAR CTG M24 F/81MM ^(†)	15.95	36,464	0.582	16.20	22,120	0.358	15.10	31,435	0.475	-	-	-	-	-	-	-	-	-
PBXW-14 BULK EXPLOSIVE ^(†)	67.73	4,248	0.288	67.73	2,577	0.175	69.36	3,662	0.254	-	-	-	-	-	-	-	-	-
EXPLOSIVE FILL IMX-104 ^(†)	23.27	148,688	3.460	21.90	90,199	1.975	22.34	128,180	2.864	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	17.203	-	-	11.194	-	-	16.177	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	17.203	-	-	11.194	-	-	16.177	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.233	-	-	0.251	-	-	0.267	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
Item Number / Title [DODIC]: E18404 / CTG, 81mm Mortar HE, M889 Series w/PD Fuze [CA63]		

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.233	-	-	0.251	-	-	0.267	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	114.659	-	-	1.656	-	-	2.318	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	114.659	-	-	1.656	-	-	2.318	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	132.094	-	-	13.100	-	-	18.762	-	-	-	-	-	-	-	-	-

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E18404 / CTG, 81mm Mortar HE, M889 Series w/PD Fuze [CA63]
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Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	GEN DYNAMICS ORD & TAC SYS - / LE GARDEUR, CANADA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2018	Jan 2021	21,476	84.89	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	May 2019	May 2022	30,519	86.84	Y		
FUZE POINT DETONATOR M783		2018	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Sep 2020	22,120	192.33	Y		
FUZE POINT DETONATOR M783		2019	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Jun 2019	Dec 2021	31,435	196.18	Y		
SHELL BODY, 81MM HE		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2018	Aug 2019	22,120	50.99	Y		
SHELL BODY, 81MM HE		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	31,435	51.59	Y		
IGN CTG M299		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	22,120	14.91	Y		
IGN CTG M299		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	31,435	15.21	Y		
CHG PROP 81MM M220		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	88,481	13.00	Y		
CHG PROP 81MM M220		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	125,738	13.26	Y		
FIN MORTAR CTG M24 F/81MM		2018	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	22,120	16.20	Y		
FIN MORTAR CTG M24 F/81MM		2019	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	31,435	15.10	Y		
PBXW-14 BULK EXPLOSIVE		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Oct 2019	2,577	67.73	Y		
PBXW-14 BULK EXPLOSIVE		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2020	3,662	69.36	Y		
EXPLOSIVE FILL IMX-104		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jul 2018	Jan 2020	90,199	21.90	Y		
EXPLOSIVE FILL IMX-104		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2020	128,180	22.34	Y		

Remarks:
 Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.
 HE LAP: IDIQ awarded (FY 2017) to multiple contractors. Requirements will be competed among the following contractors: Day and Zimmerman, Parsons, KS; General Dynamics, Le Gardeur, Canada; American Ordnance, Middletown, IA.
 HE Shell Bodes: IDIQ awarded (FY 2018) to Medico Industries, Wilkes Barre, PA.
 M220 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion IL.
 Fins: IDIQ awarded (FY 2017) to multiple contractors. Requirements will be competed among the following contractors: Gayston Corp., Springboro, OH and Flexible Concepts, Elkhart, IN.

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019																																																																																																																																																																																																																																																																																																																																		
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Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total																																																																																																																																																																																																																																																																																																																																	
Procurement Quantity (Units in Each)				-		-		-		-		-		-																																																																																																																																																																																																																																																																																																																																	
Gross/Weapon System Cost (\$ in Millions)				163.850		14.000		12.572		-		16.154		16.154																																																																																																																																																																																																																																																																																																																																	
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-																																																																																																																																																																																																																																																																																																																																	
Net Procurement (P-1) (\$ in Millions)				163.850		14.000		12.572		-		16.154		16.154																																																																																																																																																																																																																																																																																																																																	
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-																																																																																																																																																																																																																																																																																																																																	
Total Obligation Authority (\$ in Millions)				163.850		14.000		12.572		-		16.154		16.154																																																																																																																																																																																																																																																																																																																																	
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																																																																																																																																																																																																																																																																																																																																															
Initial Spares (\$ in Millions)				-		-		-		-		-		-		-																																																																																																																																																																																																																																																																																																																															
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-		-		-		-		-		-																																																																																																																																																																																																																																																																																																																															
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Acceptance Testing Cost</td> </tr> <tr> <td>Acceptance Test</td> <td>-</td> <td>-</td> <td>0.629</td> <td>-</td> <td>-</td> <td>0.395</td> <td>-</td> <td>-</td> <td>0.361</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>0.545</td> <td>-</td> <td>-</td> <td>0.545</td> </tr> <tr> <td><i>Subtotal: Support - Acceptance Testing Cost</i></td> <td>-</td> <td>-</td> <td>0.629</td> <td>-</td> <td>-</td> <td>0.395</td> <td>-</td> <td>-</td> <td>0.361</td> <td>-</td> <td>-</td> <td>0.000</td> <td>-</td> <td>-</td> <td>0.545</td> <td>-</td> <td>-</td> <td>0.545</td> </tr> <tr> <td colspan="18">Support - Production Engineering Cost</td> </tr> <tr> <td>Production Engineering</td> <td>-</td> <td>-</td> <td>151.684</td> <td>-</td> <td>-</td> <td>1.411</td> <td>-</td> <td>-</td> <td>0.880</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>1.131</td> <td>-</td> <td>-</td> <td>1.131</td> </tr> </tbody> </table>																		Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total			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 Cost																		Recurring Cost																		LOAD, ASSEMBLE, PACK (LAP) ^(†)	41.61	63,588	2.646	41.61	63,642	2.648	39.45	58,966	2.326	-	-	-	43.87	72,450	3.178	43.87	72,450	3.178	FUZE PRACTICE, M751 ^(†)	20.00	65,496	1.310	19.92	65,551	1.306	20.32	60,735	1.234	-	-	-	20.72	74,623	1.546	20.72	74,623	1.546	SHELL BODY, 81MM FRPC ^(†)	43.39	65,496	2.842	43.99	65,551	2.884	44.59	60,735	2.708	-	-	-	45.76	74,623	3.415	45.76	74,623	3.415	IGN CTG M299 ^(†)	14.64	65,496	0.959	14.91	65,551	0.977	15.21	60,735	0.924	-	-	-	15.51	74,623	1.157	15.51	74,623	1.157	CHG PROP 81MM M220 ^(†)	10.44	261,983	2.735	13.00	262,205	3.409	13.26	242,940	3.221	-	-	-	13.51	298,494	4.033	13.51	298,494	4.033	FIN MORTAR CTG M24 F/81MM ^(†)	15.95	65,496	1.045	14.80	65,551	0.970	15.10	60,735	0.917	-	-	-	15.39	74,623	1.148	15.39	74,623	1.148	<i>Subtotal: Recurring Cost</i>	-	-	11.536	-	-	12.194	-	-	11.331	-	-	0.000	-	-	14.478	-	-	14.478	<i>Subtotal: Hardware Cost</i>	-	-	11.536	-	-	12.194	-	-	11.331	-	-	0.000	-	-	14.478	-	-	14.478	Support - Acceptance Testing Cost																		Acceptance Test	-	-	0.629	-	-	0.395	-	-	0.361	-	-	-	-	-	0.545	-	-	0.545	<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.629	-	-	0.395	-	-	0.361	-	-	0.000	-	-	0.545	-	-	0.545	Support - Production Engineering Cost																		Production Engineering	-	-	151.684	-	-	1.411	-	-	0.880	-	-	-	-	-	1.131	-	-	1.131
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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E69600 / CTG, 81mm FRTR, M879 Series w/Practice Fuze [C875]
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	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)
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	151.684	-	-	1.411	-	-	0.880	-	-	0.000	-	-	1.131	-	-	1.131
Gross/Weapon System Cost	-	-	163.850	-	-	14.000	-	-	12.572	-	-	-	-	-	16.154	-	-	16.154

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E69600 / CTG, 81mm FRTR, M879 Series w/Practice Fuze [C875]
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Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	DAY & ZIMMERMAN (KSAAP) / PARSONS, KS	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2018	Jan 2020	63,642	41.61	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	DAY & ZIMMERMAN (KSAAP) / PARSONS, KS	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2019	May 2021	58,966	39.45	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	DAY & ZIMMERMAN (KSAAP) / PARSONS, KS	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2020	May 2022	72,450	43.87	Y		
FUZE PRACTICE, M751		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	65,551	19.92	Y		
FUZE PRACTICE, M751		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	60,735	20.32	Y		
FUZE PRACTICE, M751	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	74,623	20.72	Y		
SHELL BODY, 81MM FRPC		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2018	Aug 2019	65,551	43.99	Y		
SHELL BODY, 81MM FRPC		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	60,735	44.59	Y		
SHELL BODY, 81MM FRPC	✓	2020	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	74,623	45.76	Y		
IGN CTG M299		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	65,551	14.91	Y		
IGN CTG M299		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	60,735	15.21	Y		
IGN CTG M299	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Sep 2021	74,623	15.51	Y		
CHG PROP 81MM M220		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	262,205	13.00	Y		
CHG PROP 81MM M220		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	242,940	13.26	Y		
CHG PROP 81MM M220	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	298,494	13.51	Y		
FIN MORTAR CTG M24 F/81MM		2018	GAYSTON CORPORATION / SPRINGBORO, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	65,551	14.80	Y		
FIN MORTAR CTG M24 F/81MM		2019	GAYSTON CORPORATION / SPRINGBORO, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	60,735	15.10	Y		
FIN MORTAR CTG M24 F/81MM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	74,623	15.39	Y		

Remarks:
FRPC LAP: IDIQ awarded (FY 2018) to Day and Zimmerman, Parsons, KS.

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E69600 / CTG, 81mm FRTR, M879 Series w/Practice Fuze [C875]

FRPC Shell Bodes: IDIQ awarded (FY 2018) to Medico Industries, Wilkes Barre, PA.
Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.
M220 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.
Fins: IDIQ awarded (FY 2017) to multiple contractors. Requirements will be competed among the following contractors: Gayston Corp., Springboro, OH and Flexible Concepts, Elkhart, IN.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E76100 / CTG, 81mm Mortar VL ILLUM, M853 Series w/MTSQ Fuze [C871]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	96.052	-	0.084	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	96.052	-	0.084	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	96.052	-	0.084	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	-	-	-	120.53	102	0.012	-	-	-	-	-	-	-	-	-
FUZE MTSQ, M772 ^(†)	-	-	-	-	-	-	245.17	105	0.026	-	-	-	-	-	-	-	-	-
BODY TUBE, 81MM ILLUM ^(†)	-	-	-	-	-	-	37.30	105	0.004	-	-	-	-	-	-	-	-	-
TAIL CONE, 81MM ILLUM ^(†)	-	-	-	-	-	-	29.84	105	0.003	-	-	-	-	-	-	-	-	-
IGN CTG M752 ^(†)	-	-	-	-	-	-	21.17	105	0.002	-	-	-	-	-	-	-	-	-
CHG PROP 81MM M219 ^(†)	-	-	-	-	-	-	13.15	420	0.006	-	-	-	-	-	-	-	-	-
FIN MORTAR CTG M28 F/81MM M819 RP ^(†)	-	-	-	-	-	-	17.34	105	0.002	-	-	-	-	-	-	-	-	-
ILLUM CANDLE VL F/81MM M853A1 ^(†)	-	-	-	-	-	-	174.51	105	0.018	-	-	-	-	-	-	-	-	-
PARACHUTE, 81MM ^(†)	-	-	-	-	-	-	28.50	105	0.003	-	-	-	-	-	-	-	-	-
FIBER CONTAINER PA 162, 81MM ^(†)	-	-	-	-	-	-	6.12	105	0.001	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E76100 / CTG, 81mm Mortar VL ILLUM, M853 Series w/MTSQ Fuze [C871]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
METAL CONTAINER PA 157, 81MM ^(t)	-	-	-	-	-	-	64.16	35	0.002	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	0.079	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	0.079	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	96.052	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	96.052	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	96.052	-	-	-	-	-	0.084	-	-	-	-	-	-	-	-	-

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E76100 / CTG, 81mm Mortar VL ILLUM, M853 Series w/MTSQ Fuze [C871]
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2019	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	ROCK ISLAND ARSENAL, IL	May 2019	Sep 2021	102	120.53	Y		
FUZE MTSQ, M772		2019	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	105	245.17	Y		
BODY TUBE, 81MM ILLUM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	105	37.30	Y		
TAIL CONE, 81MM ILLUM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	105	29.84	Y		
IGN CTG M752		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	105	21.17	Y		
CHG PROP 81MM M219		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	420	13.15	Y		
FIN MORTAR CTG M28 F/81MM M819 RP		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	105	17.34	Y		
ILLUM CANDLE VL F/81MM M853A1		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Mar 2019	Oct 2020	105	174.51	Y		
PARACHUTE, 81MM		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2020	105	28.50	Y		
FIBER CONTAINER PA 162, 81MM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2019	105	6.12	Y		
METAL CONTAINER PA 157, 81MM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	35	64.16	Y		

Remarks:

81MM Illum Body Tubes and Tail Cones: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: Medico, Wilkes Barre, PA and Lewis Engineering, Marshall, TX
 Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal INC., Scranton, PA.
 Fins: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: Gayston Corp., Springboro, OH and Flexible Concepts, Elkhart, IN.
 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.

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Exhibit P-5, Cost Analysis: PB 2020 Army											Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33					P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types						Item Number / Title [DODIC]: E76200 / CTG, 81mm Mortar Smoke RP, M819 Series w/MTSQ Fuze [C870]							
ID Code (A=Service Ready, B=Not Service Ready) : A											MDAP/MAIS Code:							
Resource Summary				Prior Years		FY 2018			FY 2019			FY 2020 Base		FY 2020 OCO		FY 2020 Total		
Procurement Quantity (Units in Each)				-		-			-			-		-		-		
Gross/Weapon System Cost (\$ in Millions)				90.442		6.437			6.623			-		6.135		6.135		
Less PY Advance Procurement (\$ in Millions)				-		-			-			-		-		-		
Net Procurement (P-1) (\$ in Millions)				90.442		6.437			6.623			-		6.135		6.135		
Plus CY Advance Procurement (\$ in Millions)				-		-			-			-		-		-		
Total Obligation Authority (\$ in Millions)				90.442		6.437			6.623			-		6.135		6.135		
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-			-			-		-		-		
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-			-			-		-		-		

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	266.88	8,064	2.152	282.85	8,299	2.347	384.76	7,091	2.728	-	-	-	426.04	6,357	2.708	426.04	6,357	2.708
FIN MORTAR CTG M28 F/81MM M819 RP ^(†)	16.75	8,306	0.139	17.00	8,548	0.145	17.34	7,304	0.127	-	-	-	17.68	6,547	0.116	17.68	6,547	0.116
IGN CTG M752 ^(†)	19.19	8,306	0.159	20.75	8,548	0.177	21.17	7,304	0.155	-	-	-	21.58	6,547	0.141	21.58	6,547	0.141
PROPELLANT CHARGE, M218 ^(†)	10.44	33,224	0.347	12.89	34,192	0.441	13.15	29,215	0.384	-	-	-	13.40	26,190	0.351	13.40	26,190	0.351
FUZE MTSQ, M772 ^(†)	247.91	8,306	2.059	244.14	8,548	2.087	245.17	7,304	1.791	-	-	-	250.05	6,547	1.637	250.05	6,547	1.637
BODY TUBE, 81MM RP SMK ^(†)	24.87	8,306	0.207	26.00	8,548	0.222	37.30	7,304	0.272	-	-	-	38.04	6,547	0.249	38.04	6,547	0.249
TAIL CONE, 81MM SMOKE ^(†)	22.74	8,306	0.189	24.00	8,548	0.205	29.84	7,304	0.218	-	-	-	30.43	6,547	0.199	30.43	6,547	0.199
GAMS ^(†)	8.52	16,612	0.142	8.65	17,262	0.149	8.82	14,749	0.130	-	-	-	9.03	13,222	0.119	9.03	13,222	0.119
FIBER CONTAINER PA 162, 81MM ^(†)	6.00	8,306	0.050	6.00	8,548	0.051	6.12	7,304	0.045	-	-	-	6.24	6,547	0.041	6.24	6,547	0.041
METAL CONTAINER PA 157, 81MM ^(†)	55.65	2,769	0.154	62.90	996	0.063	64.16	886	0.057	-	-	-	65.43	794	0.052	65.43	794	0.052
<i>Subtotal: Recurring Cost</i>	-	-	5.598	-	-	5.888	-	-	5.907	-	-	0.000	-	-	5.614	-	-	5.614

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types	Item Number / Title [DODIC]: E76200 / CTG, 81mm Mortar Smoke RP, M819 Series w/MTSQ Fuze [C870]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Hardware Cost</i>	-	-	5.598	-	-	5.888	-	-	5.907	-	-	0.000	-	-	5.614	-	-	5.614
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.229	-	-	0.098	-	-	0.090	-	-	-	-	-	0.091	-	-	0.091
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.229	-	-	0.098	-	-	0.090	-	-	0.000	-	-	0.091	-	-	0.091
Support - Production Engineering Cost																		
Production Engineering	-	-	84.615	-	-	0.451	-	-	0.627	-	-	-	-	-	0.430	-	-	0.430
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	84.615	-	-	0.451	-	-	0.627	-	-	0.000	-	-	0.430	-	-	0.430
Gross/Weapon System Cost	-	-	90.442	-	-	6.437	-	-	6.623	-	-	-	-	-	6.135	-	-	6.135

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types					Item Number / Title [DODIC]: E76200 / CTG, 81mm Mortar Smoke RP, M819 Series w/MTSQ Fuze [C870]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jan 2021	8,299	282.85	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	May 2019	May 2021	7,091	384.76	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Jan 2020	Jan 2022	6,357	426.04	Y		
FIN MORTAR CTG M28 F/81MM M819 RP		2018	FLEXIBLE CONCEPTS, INC. / ELKHART, IN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jul 2018	Jan 2020	8,548	17.00	Y		
FIN MORTAR CTG M28 F/81MM M819 RP		2019	GAYSTON CORPORATION / MIAMISBURG, OH	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	7,304	17.34	Y		
FIN MORTAR CTG M28 F/81MM M819 RP	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	6,547	17.68	Y		
IGN CTG M752		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2019	8,548	20.75	Y		
IGN CTG M752		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	7,304	21.17	Y		
IGN CTG M752	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	6,547	21.58	Y		
PROPELLANT CHARGE, M218		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / IDIQ	PICATINNY ARSENAL, NJ	Sep 2018	Mar 2020	34,192	12.89	Y		
PROPELLANT CHARGE, M218		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	29,215	13.15	Y		
PROPELLANT CHARGE, M218	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	26,190	13.40	Y		
FUZE MTSQ, M772		2018	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2019	8,548	244.14	Y		
FUZE MTSQ, M772		2019	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2019	Aug 2020	7,304	245.17	Y		
FUZE MTSQ, M772	✓	2020	JUNGHANS MICROTEC GMBH / DUNNINGEN, GERMANY	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	6,547	250.05	Y		
BODY TUBE, 81MM RP SMK		2018	LEWIS ENGINEERING COMPANY / MARSHALL, TX	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	8,548	26.00	Y		
BODY TUBE, 81MM RP SMK		2019	LEWIS ENGINEERING COMPANY / MARSHALL, TX	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	7,304	37.30	Y		
BODY TUBE, 81MM RP SMK	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	6,547	38.04	Y		
TAIL CONE, 81MM SMOKE		2018	LEWIS ENGINEERING COMPANY / MARSHALL, TX	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	8,548	24.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 3584E76000 / 81MM Mortar, All Types				Item Number / Title [DODIC]: E76200 / CTG, 81mm Mortar Smoke RP, M819 Series w/MTSQ Fuze [C870]				

Cost Elements	O C O	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
TAIL CONE, 81MM SMOKE		2019	LEWIS ENGINEERING COMPANY / MARSHALL, TX	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	7,304	29.84	Y		
TAIL CONE, 81MM SMOKE	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	6,547	30.43	Y		
GAMS		2018	DESIGN WEST TECHNOLOGIES, / TUSTIN, CA	Option / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2019	17,262	8.65	Y		
GAMS		2019	DESIGN WEST TECHNOLOGIES, / TUSTIN, CA	Option / FFP	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	14,749	8.82	Y		
GAMS	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	13,222	9.03	Y		
FIBER CONTAINER PA 162, 81MM		2018	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jun 2018	Sep 2019	8,548	6.00	Y		
FIBER CONTAINER PA 162, 81MM		2019	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	7,304	6.12	Y		
FIBER CONTAINER PA 162, 81MM	✓	2020	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	6,547	6.24	Y		
METAL CONTAINER PA 157, 81MM		2018	BWAY CORPORATION / ATLANTA, GA	Option / IDIQ	PICATINNY ARSENAL, NJ	May 2018	Nov 2019	996	62.90	Y		
METAL CONTAINER PA 157, 81MM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	886	64.16	Y		
METAL CONTAINER PA 157, 81MM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	794	65.43	Y		

Remarks:
 Body tube and Tail Cones: IDIQ awarded (FY 2018) to Medico Industries, Wilkes Barre, PA and Lewis Engineering Company, Marshall, TX.
 Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.
 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.
 Fins: IDIQ awarded (FY 2017) to multiple contractors. Requirements will be competed among the following contractors: Gayston Corp., Springboro, OH and Flexible Concepts, Elkhart, IN.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,289.031	108.328	82.853	-	125.452	125.452	72.595	95.695	88.908	111.988	-	1,974.850
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,289.031	108.328	82.853	-	125.452	125.452	72.595	95.695	88.908	111.988	-	1,974.850
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,289.031	108.328	82.853	-	125.452	125.452	72.595	95.695	88.908	111.988	-	1,974.850

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$125.452M for Overseas Contingency Operations (OCO); of which \$125.452M and quantity of 157,229 cartridges is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line item includes 120MM Mortars, All Types.

The 120mm Mortar Cartridges are designed for use with the M120, 120mm Towed Mortar System and the M121 Carrier Mortar System as well as use with the Brigade Combat Team Mortar System.

(E91300) CTG, MORTAR, 120MM WP SMOKE M929 SERIES W/MOFM

The M929 White Phosphorous (WP) Smoke Cartridge is used to provide smoke, with some incendiary effect for various screening missions. The cartridge is filled with 5 lbs of WP. The M929 uses the highly reliable and robust electronic countermeasure resistant M734A1 multi-option fuze when functions, detonates the burster, which disperses the felt pads which are soaked with WP over the target. The smoke obscuration is generated by a spontaneous reaction between the WP and oxygen. The M929 (Range 200 meter minimum and 7,200 maximum) is range-matched to the 120mm High Explosive (HE) and Illium cartridges

This item is Code A, approved for service use.

(E91400) CTG, MORTAR, 120MM HE M934 SERIES W/MOFM FUZE

The M934A1 120mm High Explosive (HE) cartridge with the M734A1 multi-option Fuze is used against personnel, bunker and light materiel targets. It consists of a Steel Shell Body with Composition B fill, and aluminum M31 Fin Assembly. The propulsion system utilizes the M1020 Ignition Cartridge and four horseshoe-shaped, water-resistant M234 Propelling Charges. The M934A1 HE (Range 200 meter minimum to 7,200 meter maximum) uses the highly reliable and countermeasure resistant M734A1 multi-option fuze. The proximity setting will burst the round at a height over the target that is optimized for lethality. This item is Code A, approved for service use.

(E25507) CTG, MORTAR, 120MM FRTR M931 SERIES W/PRACT FUZE

The M931 is a low-cost, full range, training round (FRTR) that will replace a percentage of the standard HE rounds used in 120mm mortar training. The M931 FRPC (Range 200 meter minimum to 7,200 meter maximum) has been designed to provide the user with realistic training for 120mm Mortar crews at a fraction of the cost. It is identical in shape, size and weight to the M933A1/M934A1 HE cartridges. The M931 is equipped with M781 PD Practice Fuze. The M781 PD Practice Fuze produces a flash, bang, and smoke signature that provides audio/visual feedback to the mortar crew and forward observer.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition		P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
This item is Code A, approved for service use.		
(E25502) CTG, MORTAR, 120MM HE M933 SERIES W/PD FUZE The M933A1 120mm High Explosive (HE) cartridge with the M783 Point Detonating/ Delay (PD/DLY) Fuze is used against personnel, bunker and light materiel targets. It consists of a Steel Shell Body with Composition B fill, and aluminum M31 Fin Assembly. The propulsion system utilizes the M1020 Ignition Cartridge and four horseshoe-shaped, water- resistant M234 Propelling Charges. The M933A1 HE (Range 200 meter minimum to 7,200 meter maximum) is used with the new M783 dual safety, point detonating/delay fuze. This round is used primarily in training because it is significantly less expensive than the M934A1, the preferred war fighting round. However, the M933A1 is lethal and can be used in combat. This item is Code A, approved for service use.		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition

P-1 Line Item Number / Title:
6780E25500 / 120MM Mortar, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E25502 / CTG, 120mm Mortar HE, M933 Series w/PD Fuze [CA44]	P-5a	A		- / 425.787	- / 23.400	- / 23.871	- / -	- / 17.118	- / 17.118
P-5	E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]	P-5a, P-21	A		- / 518.107	- / 57.828	- / 58.982	- / -	- / 35.530	- / 35.530
P-5	E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]	P-5a, P-21	A		- / 196.931	- / 27.100	- / -	- / -	- / 54.304	- / 54.304
P-5	E91400 / CTG, 120mm Mortar HE, M934 Series w/MOFM [CA04]	P-5a	A		- / 148.206	- / -	- / -	- / -	- / 18.500	- / 18.500
P-40	Total Gross/Weapon System Cost				- / 1,289.031	- / 108.328	- / 82.853	- / -	- / 125.452	- / 125.452

*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.

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

Justification:
The FY 2020 Base Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$125.452 million for Overseas Contingency Operations, with a quantity of 157,229 cartridges for \$125.452 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E91300) CTG, MORTAR, 120MM WP SMOKE M929 SERIES W/MOFM
This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$54.304 million supports the procurement of 37,084 cartridges.
TYPE CLASSIFICATION DATE: 1996

(E91400) CTG, MORTAR, 120MM HE M934 SERIES W/MOFM FUZE
This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement in the amount of \$18.500 million supports production of 19,671 cartridges.
E91400 is a new start in FY 2020
TYPE CLASSIFICATION DATE: 2009

(E25507) CTG, MORTAR, 120MM FRTR M931 SERIES W/PRACT FUZE
This is a training unique item not used in combat. FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$35.530 million supports the procurement of 81,127 cartridges.
TYPE CLASSIFICATION DATE: 1996

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 33: Mortar Ammunition		P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E25502) CTG, MORTAR, 120MM HE M933 SERIES W/PD FUZE This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement in the amount of \$17.118 million supports production of 19,347 cartridges. TYPE CLASSIFICATION DATE: 2009</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E25502 / CTG, 120mm Mortar HE, M933 Series w/PD Fuze [CA44]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		425.787	23.400	23.871	-	17.118	17.118
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		425.787	23.400	23.871	-	17.118	17.118
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		425.787	23.400	23.871	-	17.118	17.118

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	133.84	82,167	10.997	133.00	35,987	4.786	143.16	34,765	4.977	-	-	-	146.75	19,347	2.839	146.75	19,347	2.839
FIN ASSEMBLY, M31 ^(†)	43.32	84,632	3.666	43.30	37,067	1.605	44.27	35,808	1.585	-	-	-	45.14	19,927	0.900	45.14	19,927	0.900
IGNITION CARTRIDGE, M1020 ^(†)	23.21	84,632	1.964	23.21	37,067	0.860	23.67	35,808	0.848	-	-	-	24.14	19,927	0.481	24.14	19,927	0.481
PROPELLANT CHARGE, M234A1 ^(†)	17.60	338,528	5.958	20.43	148,266	3.029	21.42	143,232	3.068	-	-	-	21.25	79,709	1.694	21.25	79,709	1.694
SHELL BODY, 120MM HE ^(†)	96.40	84,632	8.159	99.69	37,067	3.695	114.68	35,808	4.106	-	-	-	142.78	19,927	2.845	142.78	19,927	2.845
FUZE POINT DETONATOR M783 ^(†)	165.30	84,632	13.990	192.33	37,067	7.129	196.18	35,808	7.025	-	-	-	200.08	19,927	3.987	200.08	19,927	3.987
COMP B TYPE I GRADE A ^(†)	11.87	739,503	8.778	-	-	-	-	-	-	-	-	-	13.52	174,123	2.354	13.52	174,123	2.354
*COMP B TYPE I GRADE A ^(†)	-	-	-	12.00	323,883	3.887	12.11	312,885	3.789	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	53.512	-	-	24.992	-	-	25.398	-	-	0.000	-	-	15.100	-	-	15.100
<i>Subtotal: Hardware Cost</i>	-	-	53.512	-	-	24.992	-	-	25.398	-	-	0.000	-	-	15.100	-	-	15.100
Support - Acceptance Testing Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E25502 / CTG, 120mm Mortar HE, M933 Series w/PD Fuze [CA44]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
First Article Test	-	-	0.100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acceptance Test	-	-	0.325	-	-	0.125	-	-	0.125	-	-	-	-	-	0.100	-	-	0.100
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.425	-	-	0.125	-	-	0.125	-	-	0.000	-	-	0.100	-	-	0.100
Support - Government Furnished Materials Cost																		
Government Furnished Materials	-	-	-	-	-	-3.887	-	-	-3.789	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Government Furnished Materials Cost</i>	-	-	-	-	-	-3.887	-	-	-3.789	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	371.850	-	-	2.170	-	-	2.137	-	-	-	-	-	1.918	-	-	1.918
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	371.850	-	-	2.170	-	-	2.137	-	-	0.000	-	-	1.918	-	-	1.918
Gross/Weapon System Cost	-	-	425.787	-	-	23.400	-	-	23.871	-	-	-	-	-	17.118	-	-	17.118

Remarks:

Propellant Charges: IDIQ awarded (FY 18) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.
Ignition Cartridges: IDIQ awarded (FY 18) to Nammo Pocal INC., Scranton, PA.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity:			P-1 Line Item Number / Title:					Item Number / Title [DODIC]:				
2034A / 01 / 33			6780E25500 / 120MM Mortar, All Types					E25502 / CTG, 120mm Mortar HE, M933 Series w/PD Fuze [CA44]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	GEN DYNAMICS ORD & TAC SYS - / LE GARDEUR, CANADA	Option / FFP	PICATINNY ARSENAL, NJ	Dec 2017	Dec 2021	35,987	133.00	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	TO BE SELECTED / TBS03	C / FFP	PICATINNY ARSENAL, NJ	Aug 2019	Aug 2022	34,765	143.16	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS03	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2023	19,347	146.75	Y		
FIN ASSEMBLY, M31		2018	MACHINING TECHNOLOGIES INC / SALISBURY, MD	Option / IDIQ	PICATINNY ARSENAL, NJ	Nov 2017	May 2019	37,067	43.30	Y		
FIN ASSEMBLY, M31		2019	MACHINING TECHNOLOGIES INC / SALISBURY, MD	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	35,808	44.27	Y		
FIN ASSEMBLY, M31	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	19,927	45.14	Y		
IGNITION CARTRIDGE, M1020		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Nov 2017	May 2019	37,067	23.21	Y		
IGNITION CARTRIDGE, M1020		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	35,808	23.67	Y		
IGNITION CARTRIDGE, M1020	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	19,927	24.14	Y		
PROPELLANT CHARGE, M234A1		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	148,266	20.43	Y		
PROPELLANT CHARGE, M234A1		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	143,232	21.42	Y		
PROPELLANT CHARGE, M234A1	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	79,709	21.25	Y		
SHELL BODY, 120MM HE		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jun 2018	Dec 2019	37,067	99.69	Y		
SHELL BODY, 120MM HE		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	May 2019	Nov 2020	35,808	114.68	Y		
SHELL BODY, 120MM HE	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	19,927	142.78	Y		
FUZE POINT DETONATOR M783		2018	L3 FUZING & ORDNANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Jun 2019	Nov 2021	37,067	192.33	Y		
FUZE POINT DETONATOR M783		2019	L3 FUZING & ORDNANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Aug 2019	Feb 2021	35,808	196.18	Y		
FUZE POINT DETONATOR M783	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2022	19,927	200.08	Y		
COMP B TYPE I GRADE A	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Feb 2021	174,123	13.52	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types				Item Number / Title [DODIC]: E25502 / CTG, 120mm Mortar HE, M933 Series w/PD Fuze [CA44]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
*COMP B TYPE I GRADE A		2018	GOVERNMENT FURNISHED MATERIAL / STOCK ISSUE,	GFM	PICATINNY ARSENAL, NJ	Sep 2018	Sep 2018	323,883	12.00	N		
*COMP B TYPE I GRADE A		2019	GOVERNMENT FURNISHED MATERIAL / STOCK ISSUE,	GFM	PICATINNY ARSENAL, NJ	Sep 2019	Sep 2019	312,885	12.11	N		

Remarks:
 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.
 Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal INC., Scranton, PA.

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33						P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types						Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]						
ID Code (A=Service Ready, B=Not Service Ready) : A									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity (Units in Each)				-		-		-		-		-		-				
Gross/Weapon System Cost (\$ in Millions)				518.107		57.828		58.982		-		35.530		35.530				
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Net Procurement (P-1) (\$ in Millions)				518.107		57.828		58.982		-		35.530		35.530				
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Total Obligation Authority (\$ in Millions)				518.107		57.828		58.982		-		35.530		35.530				
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-		-		-		-		-		-		
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-		-		-		-		-		-		
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	77.65	144,591	11.227	80.61	144,646	11.660	82.22	145,940	11.999	-	-	-	82.96	81,127	6.730	82.96	81,127	6.730
FIN ASSEMBLY, M31 ^(†)	43.30	148,929	6.449	43.30	148,985	6.451	44.27	150,318	6.655	-	-	-	45.14	83,560	3.772	45.14	83,560	3.772
IGNITION CARTRIDGE, M1020 ^(†)	23.21	148,929	3.457	23.21	148,985	3.458	23.67	150,318	3.558	-	-	-	24.14	83,560	2.017	24.14	83,560	2.017
PROPELLANT CHARGE, M234A1 ^(†)	18.04	595,715	10.747	20.43	595,942	12.175	20.84	601,273	12.531	-	-	-	21.25	334,243	7.103	21.25	334,243	7.103
SHELL BODY, 120MM FRPC ^(†)	92.59	148,929	13.789	110.58	148,985	16.475	110.87	150,318	16.666	-	-	-	122.39	83,560	10.227	122.39	83,560	10.227
FUZE PRACTICE, M781 ^(†)	21.57	148,929	3.212	20.38	148,985	3.036	20.32	150,318	3.054	-	-	-	20.72	83,560	1.731	20.72	83,560	1.731
<i>Subtotal: Recurring Cost</i>	-	-	48.881	-	-	53.255	-	-	54.463	-	-	0.000	-	-	31.580	-	-	31.580
<i>Subtotal: Hardware Cost</i>	-	-	48.881	-	-	53.255	-	-	54.463	-	-	0.000	-	-	31.580	-	-	31.580
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.735	-	-	0.725	-	-	0.735	-	-	-	-	-	0.610	-	-	0.610
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.735	-	-	0.725	-	-	0.735	-	-	0.000	-	-	0.610	-	-	0.610
Support - Production Engineering Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Production Engineering	-	-	468.491	-	-	3.848	-	-	3.785	-	-	-	-	-	3.340	-	-	3.340
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	468.491	-	-	3.848	-	-	3.785	-	-	0.000	-	-	3.340	-	-	3.340
Gross/Weapon System Cost	-	-	518.107	-	-	57.828	-	-	58.982	-	-	-	-	-	35.530	-	-	35.530

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]
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Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	GEN DYNAMICS ORD & TAC SYS - / LE GARDEUR, CANADA	Option / FFP	PICATINNY ARSENAL, NJ	Dec 2017	Dec 2019	144,646	80.61	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	GEN DYNAMICS ORD & TAC SYS - / LE GARDEUR, CANADA	Option / FFP	PICATINNY ARSENAL, NJ	Jan 2019	Jan 2021	145,940	82.22	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS03	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2022	81,127	82.96	Y		
FIN ASSEMBLY, M31		2018	MACHINING TECHNOLOGIES INC / SALISBURY, MD	Option / IDIQ	PICATINNY ARSENAL, NJ	Nov 2017	May 2019	148,985	43.30	Y		
FIN ASSEMBLY, M31		2019	MACHINING TECHNOLOGIES INC / SALISBURY, MD	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	150,318	44.27	Y		
FIN ASSEMBLY, M31	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	83,560	45.14	Y		
IGNITION CARTRIDGE, M1020		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Nov 2017	May 2019	148,985	23.21	Y		
IGNITION CARTRIDGE, M1020		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	150,318	23.67	Y		
IGNITION CARTRIDGE, M1020	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	83,560	24.14	Y		
PROPELLANT CHARGE, M234A1		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Nov 2019	595,942	20.43	Y		
PROPELLANT CHARGE, M234A1		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2019	Jul 2020	601,273	20.84	Y		
PROPELLANT CHARGE, M234A1	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	334,243	21.25	Y		
SHELL BODY, 120MM FRPC		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jun 2018	Oct 2019	148,985	110.58	Y		
SHELL BODY, 120MM FRPC		2019	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	May 2019	Nov 2020	150,318	110.87	Y		
SHELL BODY, 120MM FRPC	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	83,560	122.39	Y		
FUZE PRACTICE, M781		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	148,985	20.38	Y		
FUZE PRACTICE, M781		2019	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	150,318	20.32	Y		
FUZE PRACTICE, M781	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	83,560	20.72	Y		

^(†) indicates the presence of a P-21

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]
Remarks: Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA. Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL. Fuze: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.		

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33										P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types										Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2018															Fiscal Year 2019															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018															Calendar Year 2019															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
LOAD, ASSEMBLE, PACK (LAP)																																					
Prior Years Deliveries: 144591																																					
	1	2018	ARMY	144.646	.000	144.646		A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144.646							
	1	2019	ARMY	145.940	.000	145.940															A -	-	-	-	-	-	-	-	-	145.940							
✓	2	2020	ARMY	81.127	.000	81.127																								81.127							
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33										P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types										Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2020															Fiscal Year 2021															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
LOAD, ASSEMBLE, PACK (LAP)																																					
Prior Years Deliveries: 144591																																					
	1	2018	ARMY	144.646	.000	144.646	-	-	9.000	9.920	12.000	12.000	12.000	14.726	15.000	15.000	15.000	15.000																		.000	
	1	2019	ARMY	145.940	.000	145.940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.000	17.000	17.000	17.000	17.000	17.000	15.000	15.000	13.940					.000			
✓	2	2020	ARMY	81.127	.000	81.127								A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81.127				
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33										P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types										Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022															Fiscal Year 2023															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022															Calendar Year 2023															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

LOAD, ASSEMBLE, PACK (LAP)

Prior Years Deliveries: 144591																														
	1	2018	ARMY	144.646	144.646	.000																							.000	
	1	2019	ARMY	145.940	145.940	.000																							.000	
✓	2	2020	ARMY	81.127	.000	81.127	-	-	-	-	-	-	-	-	17.000	17.000	17.000	17.000	13.127											.000

							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P
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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types
		Item Number / Title [DODIC]: E25507 / CTG, 120mm Mortar FRTR, M931 Series w/Pract Fuze [CA09]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GEN DYNAMICS ORD & TAC SYS - - LE GARDEUR, CANADA	10,000	12,000	24,000	8	8	24	32	8	8	24	32
2	TO BE SELECTED - TBS03	10,000	12,000	24,000	8	8	24	32	8	8	24	32

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types			Item Number / Title [DODIC]: E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]		
ID Code (A=Service Ready, B=Not Service Ready) : A						MDAP/MAIS Code:		
Resource Summary			Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)			-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)			196.931	27.100	-	-	54.304	54.304
Less PY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)			196.931	27.100	-	-	54.304	54.304
Plus CY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)			196.931	27.100	-	-	54.304	54.304
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>								
Initial Spares (\$ in Millions)			-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)			-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	343.14	21,444	7.358	-	-	-	-	-	-	428.23	37,084	15.880	428.23	37,084	15.880
FIN ASSEMBLY, M31 ^(†)	-	-	-	43.30	22,087	0.956	-	-	-	-	-	-	45.14	38,196	1.724	45.14	38,196	1.724
IGNITION CARTRIDGE, M1020 ^(†)	-	-	-	23.21	22,087	0.513	-	-	-	-	-	-	24.14	38,196	0.922	24.14	38,196	0.922
PROPELLANT CHARGE, M234A1 ^(†)	-	-	-	20.43	88,349	1.805	-	-	-	-	-	-	21.25	152,786	3.247	21.25	152,786	3.247
SHELL BODY, 120MM SMK ^(†)	-	-	-	234.01	22,087	5.169	-	-	-	-	-	-	300.00	38,196	11.459	300.00	38,196	11.459
BURSTER HOUSING, 120MM SMOKE ^(†)	-	-	-	57.42	22,087	1.268	-	-	-	-	-	-	63.13	38,196	2.411	63.13	38,196	2.411
FUZE MOFM, M734A1 ^(†)	-	-	-	269.74	22,087	5.958	-	-	-	-	-	-	280.61	38,196	10.718	280.61	38,196	10.718
BURSTER ASSEMBLY, M86 ^(†)	-	-	-	49.59	22,087	1.095	-	-	-	-	-	-	50.57	38,196	1.932	50.57	38,196	1.932
FIBER CONTAINER PA 167, 120MM ^(†)	-	-	-	12.34	22,087	0.273	-	-	-	-	-	-	13.35	38,196	0.510	13.35	38,196	0.510

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
METAL CONTAINER PA 154, 120MM ^(t)	-	-	-	68.60	11,151	0.765	-	-	-	-	-	-	71.36	19,283	1.376	71.36	19,283	1.376
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	25.160	-	-	-	-	-	0.000	-	-	50.179	-	-	50.179
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	25.160	-	-	-	-	-	0.000	-	-	50.179	-	-	50.179
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.200	-	-	-	-	-	-	-	-	0.323	-	-	0.323
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.200	-	-	-	-	-	0.000	-	-	0.323	-	-	0.323
Support - Production Engineering Cost																		
Production Engineering	-	-	196.931	-	-	1.740	-	-	-	-	-	-	-	-	3.801	-	-	3.801
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	196.931	-	-	1.740	-	-	-	-	-	0.000	-	-	3.801	-	-	3.801
Gross/Weapon System Cost	-	-	196.931	-	-	27.100	-	-	-	-	-	-	-	-	54.304	-	-	54.304

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity:			P-1 Line Item Number / Title:					Item Number / Title [DODIC]:				
2034A / 01 / 33			6780E25500 / 120MM Mortar, All Types					E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2018	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Mar 2018	Mar 2021	21,444	343.14	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	May 2020	Aug 2022	37,084	428.23	Y		
FIN ASSEMBLY, M31		2018	MACHINING TECHNOLOGIES INC / SALISBURY, MD	Option / IDIQ	PICATINNY ARSENAL, NJ	Nov 2017	May 2019	22,087	43.30	Y		
FIN ASSEMBLY, M31	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	38,196	45.14	Y		
IGNITION CARTRIDGE, M1020		2018	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Nov 2017	May 2019	22,087	23.21	Y		
IGNITION CARTRIDGE, M1020	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	38,196	24.14	Y		
PROPELLANT CHARGE, M234A1		2018	AMERICAN ORDANCE LLC (IAAP) / MIDDLETOWN, IA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	May 2018	Sep 2019	88,349	20.43	Y		
PROPELLANT CHARGE, M234A1	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	152,786	21.25	Y		
SHELL BODY, 120MM SMK		2018	MEDICO INDUSTRIES INC. / WILKES BARRE, PA	Option / IDIQ	PICATINNY ARSENAL, NJ	Jun 2018	Dec 2019	22,087	234.01	Y		
SHELL BODY, 120MM SMK	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	38,196	300.00	Y		
BURSTER HOUSING, 120MM SMOKE		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Mar 2018	Sep 2019	22,087	57.42	Y		
BURSTER HOUSING, 120MM SMOKE	✓	2020	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	38,196	63.13	Y		
FUZE MOFM, M734A1		2018	L-3 FUZING & ORDANCE SYSTEMS / CINCINNATI, OH	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Sep 2020	22,087	269.74	Y		
FUZE MOFM, M734A1	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2022	38,196	280.61	Y		
BURSTER ASSEMBLY, M86		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Mar 2018	Sep 2019	22,087	49.59	Y		
BURSTER ASSEMBLY, M86	✓	2020	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	38,196	50.57	Y		
FIBER CONTAINER PA 167, 120MM		2018	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2019	22,087	12.34	Y		
FIBER CONTAINER PA 167, 120MM	✓	2020	UNITED AMMUNITION CONTAINER / WYNNEWOOD, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	38,196	13.35	Y		
METAL CONTAINER PA 154, 120MM		2018	BWAY CORPORATION / ATLANTA, GA	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2017	Jun 2019	11,151	68.60	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types				Item Number / Title [DODIC]: E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]					
Cost Elements	O C O	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
METAL CONTAINER PA 154, 120MM	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	19,283	71.36	Y		

(†) indicates the presence of a P-21

Remarks:

Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.
 Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.

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Exhibit P-21, Production Schedule: PB 2020 Army

Date: March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A / 01 / 33

P-1 Line Item Number / Title:
6780E25500 / 120MM Mortar, All Types

Item Number / Title [DODIC]:
E91300 / CTG, 120mm Mortar WP
Smoke, M929 Series w/MOFM [CA03]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2018													Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	F Y	S E R V I C E	P R O C Q T Y	A C C E P T P R I O R T O 1 O C T 2 0 1 7	B A L D U E A S O F 1 O C T	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
LOAD, ASSEMBLE, PACK (LAP)																															
	1	2018	ARMY	21.444	.000	21.444																								21.444	
✓	1	2020	ARMY	37.084	.000	37.084																								37.084	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types
		Item Number / Title [DODIC]: E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020														Fiscal Year 2021										BALANCE					
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P				
LOAD, ASSEMBLE, PACK (LAP)																																			
	1	2018	ARMY	21.444	.000	21.444	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.000	11.444				.000
✓	1	2020	ARMY	37.084	.000	37.084									A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.084
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army			Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types			Item Number / Title [DODIC]: E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]		

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2022													Fiscal Year 2023													BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
LOAD, ASSEMBLE, PACK (LAP)																																	
	1	2018	ARMY	21.444	21.444	.000																								.000			
✓	1	2020	ARMY	37.084	.000	37.084	-	-	-	-	-	-	-	-	-	-	9.000	9.000	9.000	10.084										.000			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33		P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types
		Item Number / Title [DODIC]: E91300 / CTG, 120mm Mortar WP Smoke, M929 Series w/MOFM [CA03]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	PINE BLUFF ARSENAL - PINE BLUFF, AR	6,000	9,000	12,000	8	8	36	44	8	8	36	44

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E91400 / CTG, 120mm Mortar HE, M934 Series w/MOFM [CA04]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	148.206	-	-	-	18.500	18.500
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	148.206	-	-	-	18.500	18.500
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	148.206	-	-	-	18.500	18.500

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	123.97	43,025	5.334	-	-	-	-	-	-	-	-	-	146.75	19,671	2.887	146.75	19,671	2.887
SHELL BODY, 120MM HE ^(†)	110.25	44,563	4.913	-	-	-	-	-	-	-	-	-	142.78	20,261	2.893	142.78	20,261	2.893
IGNITION CARTRIDGE, M1020 ^(†)	22.90	44,563	1.020	-	-	-	-	-	-	-	-	-	24.14	20,261	0.489	24.14	20,261	0.489
COMP B TYPE I GRADE A ^(†)	14.95	360,003	5.382	-	-	-	-	-	-	-	-	-	13.52	177,039	2.394	13.52	177,039	2.394
PROPELLANT CHARGE, M234A1 ^(†)	14.80	178,256	2.638	-	-	-	-	-	-	-	-	-	21.25	81,044	1.722	21.25	81,044	1.722
FIN ASSEMBLY, M31 ^(†)	35.40	44,563	1.578	-	-	-	-	-	-	-	-	-	45.14	20,261	0.915	45.14	20,261	0.915
FUZE MOFM, M734A1 ^(†)	222.08	44,563	9.897	-	-	-	-	-	-	-	-	-	280.61	20,261	5.685	280.61	20,261	5.685
<i>Subtotal: Recurring Cost</i>	-	-	30.762	-	-	-	-	-	-	-	-	-	0.000	-	16.984	-	-	16.984
<i>Subtotal: Hardware Cost</i>	-	-	30.762	-	-	-	-	-	-	-	-	-	0.000	-	16.984	-	-	16.984
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.220	-	-	0.220

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33	P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types	Item Number / Title [DODIC]: E91400 / CTG, 120mm Mortar HE, M934 Series w/MOFM [CA04]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.220	-	-	0.220
Support - Production Engineering Cost																		
Production Engineering	-	-	117.444	-	-	-	-	-	-	-	-	-	-	-	1.295	-	-	1.295
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	117.444	-	-	-	-	-	-	-	-	0.000	-	-	1.295	-	-	1.295
Gross/Weapon System Cost	-	-	148.206	-	-	-	-	-	-	-	-	-	-	-	18.500	-	-	18.500

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 33			P-1 Line Item Number / Title: 6780E25500 / 120MM Mortar, All Types				Item Number / Title [DODIC]: E91400 / CTG, 120mm Mortar HE, M934 Series w/MOFM [CA04]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS03	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2023	19,671	146.75	Y		
SHELL BODY, 120MM HE	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	20,261	142.78	Y		
IGNITION CARTRIDGE, M1020	✓	2020	NAMMO POCAL INC. / SCRANTON, PA	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	20,261	24.14	Y		
COMP B TYPE I GRADE A	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSFORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Feb 2021	177,039	13.52	Y		
PROPELLANT CHARGE, M234A1	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	81,044	21.25	Y		
FIN ASSEMBLY, M31	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	20,261	45.14	Y		
FUZE MOFM, M734A1	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2022	20,261	280.61	Y		

Remarks:
 Propellant Charges: IDIQ awarded (FY 2018) to multiple contractors. Requirements will be competed among the following contractors: American Ordnance, Middletown, IA; and General Dynamics, Marion, IL.
 Ignition Cartridges: IDIQ awarded (FY 2018) to Nammo Pocal Industries, Scranton, PA.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 35: Tank Ammunition	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	3,324.116	163.700	151.901	-	171.284	171.284	229.408	290.321	315.047	341.796	-	4,987.573
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	3,324.116	163.700	151.901	-	171.284	171.284	229.408	290.321	315.047	341.796	-	4,987.573
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	3,324.116	163.700	151.901	-	171.284	171.284	229.408	290.321	315.047	341.796	-	4,987.573

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$171.284M for Overseas Contingency Operations (OCO); of which \$171.284M and quantity of .042 million cartridges is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes CARTRIDGE, TANK, 105MM and 120MM ALL TYPES:

(E22125) M724A2 Cartridge replaces the (E22100) M724A1 Cartridge and provides the Army with a range limited (7,000 meters, maximum) round which can be safely fired at all training sites. The Cartridge, M724A2, 105mm Target Practice Discarding Sabot with Tracer (TPDS-T) is used for gunnery training in the Army's 105mm Stryker Brigade Combat Team (SBCT) Mobile Gun System (MGS). This discarding sabot round is similar in external appearance and is ballistically similar out to 2,000 meters with the M900, Armor Piercing Fin Stabilized Discarding Sabot w/Tracer Cartridge. It is used as a training surrogate for the M900 Cartridge used by the MGS. The M724A2 Cartridge consists of a deep drawn steel cartridge case, electric primer, propellant and a projectile consisting of a sub-projectile (steel core, windshield, fin and tracer) and aluminum sabot. This item is Code A, approved for service use.

(E73201) Cartridge, 120mm, Target Practice Multi Purpose-Tracer (TPMP-T) M1002 is a target practice cartridge that simulates the size, weight, ballistics and the loader's function of setting the nose switch of the High Explosive Multi-Purpose cartridge M830A1. This round is fired from the M256 120mm smoothbore cannon on the M1A1/M1A2 Abrams Tank. The projectile is inert and composed of an aluminum body, steel nose with dummy plastic switch, aluminum tailcone, aluminum sabot, nylon obturators and tracer. The tailcone imparts spin to the projectile in flight for stabilization and provides the mechanism to limit the projectile's maximum range. The M1002 replaces the M831A1 cartridge. Tank crews will conduct live fire training with the cartridge to achieve and maintain gunnery proficiency. This item is Code A, approved for service use.

(E73400) 120mm M865A1 (Longer Length) Target Practice Cone-Stabilized Discarding Sabot with Tracer (TPCSDS-T) is the follow on to the M865 TPCSDS-T. The M865A1 is a target practice round that simulates the ballistics of the 120mm M829 Series Armor Piercing Fin-Stabilized Discarding Sabot with Tracer (APFSDS-T) round and is a more accurate representation of the M829, in terms of size and handling, than its predecessor. This round is fired from the M256 120mm smoothbore cannon on the M1A1/M1A2 Abrams Tank. The projectile is inert and is composed of a steel core, aluminum fin, aluminum sabots, nylon obturator and tracer. The fin imparts spin to the projectile in flight for stabilization and provides the mechanism to limit the projectile's maximum range. Tank crews will conduct live fire training with the cartridge to achieve and maintain gunnery proficiency. This item is Code A, approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 35: Tank Ammunition		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E88105) 120mm HEMP-T, XM1147 The Advanced Multi Purpose (AMP) program is a direct fire line of sight 120mm large caliber munition under development for the Abrams Main Battle Tank. It has three modes of operation including point detonate, point detonate delay and airburst. AMP is the material solution for breaching double reinforced concrete walls and defeating Anti Tank Guided Missile (ATGM) teams from 50m to 2000m (T) and 50m to 4500m (O), a validated gap that cannot currently be met with existing stockpiled ammunition. In addition to added capability, AMP will also consolidate the capabilities of four existing stockpiled 120mm munitions, thereby addressing the users' battlecarry dilemma by allowing them to load a single munition that is capable of defeating multiple targets including ATGM teams, reinforced walls, personnel, light armor, bunkers, and obstacles. This item is Code B, not approved for service use.</p> <p>(E88106) 120mm M829A4 Armor Piercing Fin Stabilized, Discarding Sabot with Tracer (APFSDS-T) cartridge is the follow on to the M829A3 APFSDS-T cartridge. The M829A4 is the most effective anti-armor kinetic energy cartridge fired from the M256 120mm smoothbore cannon on the M1A1/M1A2 Abrams Tank. This cartridge has been designed to defeat advances in armor protection, specifically advancement in explosive reactive armor (ERA). The cartridge incorporates advancements in propulsion, using a temperature insensitive propellant, novel penetrator design, and an advanced composite sabot. The projectile system consists of a depleted uranium penetrator mated to a drag reducing windshield and flight stabilizing multi-bladed fin, all secured for launch with a composite sabot. The M829A4 captures several new technologies along with components previously used on previous APFSDS-T cartridges, but incorporates technology advancements to yield significant improvement in performance over previous fielded cartridges. This item is Code A, approved for service use.</p>		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 35: Tank Ammunition

P-1 Line Item Number / Title:
1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E22125 / CTG, 105mm Tank TPDS-T, M724A2 (Short Rg KE Trnr) [CA58]	P-5a	A		- / 26.827	- / 8.500	- / 8.719	- / -	- / -	- / -
P-5	E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]	P-5a, P-21	A		- / 455.015	- / 53.400	- / 47.882	- / -	- / 59.652	- / 59.652
P-5	E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]	P-5a, P-21	A		- / 2,677.704	- / 32.800	- / 34.279	- / -	- / 41.893	- / 41.893
P-5	E88105 / CTG, 120MM TANK, HEMP-T, XM1147	P-5a, P-21	A		- / -	- / -	- / 16.398	- / -	- / 15.002	- / 15.002
P-5	E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]	P-5a, P-21	A		- / 164.570	- / 69.000	- / 44.623	- / -	- / 54.737	- / 54.737
P-40	Total Gross/Weapon System Cost				- / 3,324.116	- / 163.700	- / 151.901	- / -	- / 171.284	- / 171.284

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$171.284 for Overseas Contingency Operations, with a quantity of .042 million cartridges for \$171.284 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E22125) M724A2 - This is a training unique item not used in combat. The request supports annual training and builds a depot level in accordance with the Army's procurement goals.

TYPE CLASSIFICATION DATE: 2016

(E73201) M1002 (TPMP-T) - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$59.652 million supports the procurement of .021 million M1002 cartridges.

TYPE CLASSIFICATION DATE: 2006

(E73400) M865 (TPCSDS-T) - This is a training unique item not used in combat. FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$41.893 million supports the procurement of .017 million M865 cartridges.

TYPE CLASSIFICATION DATE: 1984

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 35: Tank Ammunition		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E88105) XM1147 (HEMP-T) Advanced Multi Purpose (AMP) - This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$15.002 million supports the procurement of .001 million XM1147 AMP cartridges.</p> <p>TYPE CLASSIFICATION DATE: 2020</p> <p>(E88106) M829A4 (APFSDS-T) - This is a war reserve item used in combat. The FY 2020 request builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$54.737 million supports the procurement of .003 million M829A4 cartridges.</p> <p>TYPE CLASSIFICATION DATE: 2015</p>		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E22125 / CTG, 105mm Tank TPDS-T, M724A2 (Short Rg KE Trnr) [CA58]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	26.827	8.500	8.719	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	26.827	8.500	8.719	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	26.827	8.500	8.719	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	2,528.22	8,591	21.720	2,044.00	2,600	5.314	2,095.00	3,077	6.446	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	21.720	-	-	5.314	-	-	6.446	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	21.720	-	-	5.314	-	-	6.446	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.238	-	-	0.634	-	-	0.498	-	-	-	-	-	-	-	-	-
Acceptance Test	-	-	-	-	-	-	-	-	0.251	-	-	-	-	-	-	-	-	-
Subtotal: Support - Acceptance Testing Cost	-	-	0.238	-	-	0.634	-	-	0.749	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Production Qualification Test	-	-	1.018	-	-	0.650	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	1.018	-	-	0.650	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	3.022	-	-	1.902	-	-	1.523	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	-	-	3.022	-	-	1.902	-	-	1.523	-	-	-	-	-	-	-	-	-
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
Item Number / Title [DODIC]: E22125 / CTG, 105mm Tank TPDS-T, M724A2 (Short Rg KE Trnr) [CA58]		

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	0.829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	26.827	-	-	8.500	-	-	8.719	-	-	-	-	-	-	-	-	-

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35			P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types				Item Number / Title [DODIC]: E22125 / CTG, 105mm Tank TPDS-T, M724A2 (Short Rg KE Trnr) [CA58]					
Cost Elements	O C O	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
COMPLETE ROUND		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	PICATINNY ARSENAL, NJ	Feb 2018	Nov 2019	2,600	2,044.00	Y		
COMPLETE ROUND		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	3,077	2,095.00	Y		

Remarks:
FY 2018 - FY 2019 complete round is awarded as an option to an existing contract. This is a training standard item. Procurement supports annual training and builds a depot level in accordance with Army's procurement goals.

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35						P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types						Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]						
ID Code (A=Service Ready, B=Not Service Ready) : A									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity (Units in Each)				-		-		-		-		-		-				
Gross/Weapon System Cost (\$ in Millions)				455.015		53.400		47.882		-		59.652		59.652				
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Net Procurement (P-1) (\$ in Millions)				455.015		53.400		47.882		-		59.652		59.652				
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Total Obligation Authority (\$ in Millions)				455.015		53.400		47.882		-		59.652		59.652				
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-		-		-		-		-		-		
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-		-		-		-		-		-		
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	2,115.71	191,507	405.173	2,423.19	17,933	43.455	2,509.17	16,701	41.906	-	-	-	2,572.12	21,087	54.238	2,572.12	21,087	54.238
Subtotal: Recurring Cost	-	-	405.173	-	-	43.455	-	-	41.906	-	-	0.000	-	-	54.238	-	-	54.238
Subtotal: Hardware Cost	-	-	405.173	-	-	43.455	-	-	41.906	-	-	0.000	-	-	54.238	-	-	54.238
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.848	-	-	0.641	-	-	0.555	-	-	-	-	-	0.579	-	-	0.579
Subtotal: Support - Acceptance Testing Cost	-	-	0.848	-	-	0.641	-	-	0.555	-	-	0.000	-	-	0.579	-	-	0.579
Support - Product Improvement Cost																		
Safety	-	-	4.073	-	-	1.267	-	-	0.968	-	-	-	-	-	-	-	-	-
Reliability	-	-	-	-	-	0.650	-	-	-	-	-	-	-	-	-	-	-	-
Production Verification Test	-	-	-	-	-	2.572	-	-	0.782	-	-	-	-	-	0.552	-	-	0.552
Subtotal: Support - Product Improvement Cost	-	-	4.073	-	-	4.489	-	-	1.750	-	-	0.000	-	-	0.552	-	-	0.552
Support - Production Engineering Cost																		
Production Engineering	-	-	13.528	-	-	4.810	-	-	3.666	-	-	-	-	-	4.279	-	-	4.279
Subtotal: Support - Production Engineering Cost	-	-	13.528	-	-	4.810	-	-	3.666	-	-	0.000	-	-	4.279	-	-	4.279
Support - Quality Assurance Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Quality Assurance	-	-	0.017	-	-	0.005	-	-	0.005	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.017</i>	-	-	<i>0.005</i>	-	-	<i>0.005</i>	-	-	<i>0.000</i>	-	-	<i>0.003</i>	-	-	<i>0.003</i>
Support - Recapitalization Cost																		
Recapitalization	-	-	31.376	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Recapitalization Cost</i>	-	-	<i>31.376</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	455.015	-	-	53.400	-	-	47.882	-	-	-	-	-	59.652	-	-	59.652

Remarks:

FY 2020 increase in quantity due to anticipated ramp up in usage increase for training.

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35			P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types				Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	GENERAL DYNAMICS ORD AND TACT / ST PETERSBURG, FL	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2018	Sep 2019	4,648	2,423.19	Y		
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2018	Feb 2020	13,285	2,423.19	Y		
COMPLETE ROUND ^(†)		2019	GENERAL DYNAMICS ORD AND TACT / ST PETERSBURG, FL	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Feb 2020	9,186	2,509.17	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Feb 2020	7,515	2,509.17	Y		
COMPLETE ROUND ^(†)	✓	2020	GENERAL DYNAMICS ORD AND TACT / ST PETERSBURG, FL	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Feb 2021	11,598	2,572.12	Y		
COMPLETE ROUND ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Feb 2021	9,489	2,572.12	Y		

^(†) indicates the presence of a P-21

Remarks:
Hardware unit prices are an average unit price for multiple producers. FY 2019 will be part of the FY 2017 systems contract for FY 2017 - FY 2021.

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Exhibit P-21, Production Schedule: PB 2020 Army																								Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35												P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]													
Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2018															Fiscal Year 2019										B A L A N C E				
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018															Calendar Year 2019													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 191507																																			
	1	2018	ARMY	4.648	.000	4.648					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.850	2.798					
	2	2018	ARMY	13.285	.000	13.285					A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.285					
	1	2019	ARMY	9.186	.000	9.186																					A	-	-	-	-	-	-	9.186	
	2	2019	ARMY	7.515	.000	7.515																						A	-	-	-	-	-	-	7.515
	✓ 1	2020	ARMY	11.598	.000	11.598																											11.598		
	✓ 2	2020	ARMY	9.489	.000	9.489																											9.489		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35										P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2020												Fiscal Year 2021												B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 9	BAL D U E A S O F 1 O C T	Calendar Year 2020												Calendar Year 2021												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
COMPLETE ROUND																															
Prior Years Deliveries: 191507																															
	1	2018	ARMY	4.648	1.850	2.798	1.768	1.030																					.000		
	2	2018	ARMY	13.285	.000	13.285	-	-	-	-	3.740	3.740	5.805																.000		
	1	2019	ARMY	9.186	.000	9.186	-	-	-	-	.771	.765	.765	.765	.765	.765	.765	.765	.765	.765	.765	.765	.765						.000		
	2	2019	ARMY	7.515	.000	7.515	-	-	-	-	.629	.626	.626	.626	.626	.626	.626	.626	.626	.626	.626	.626							.000		
✓	1	2020	ARMY	11.598	.000	11.598																							3.864		
✓	2	2020	ARMY	9.489	.000	9.489																							3.160		

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35										P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022												Fiscal Year 2023												B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 2 1	BAL D U E A S O F 1 O C T	Calendar Year 2022												Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
COMPLETE ROUND																															
Prior Years Deliveries: 191507																															
	1	2018	ARMY	4.648	4.648	.000																								.000	
	2	2018	ARMY	13.285	13.285	.000																								.000	
	1	2019	ARMY	9.186	9.186	.000																								.000	
	2	2019	ARMY	7.515	7.515	.000																								.000	
✓	1	2020	ARMY	11.598	7.734	3.864	.966	.966	.966	.966																				.000	
✓	2	2020	ARMY	9.489	6.329	3.160	.790	.790	.790	.790																				.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
		Item Number / Title [DODIC]: E73201 / CTG, 120mm Tank, M1002 TP MULTI PUR-TRACE (TPMP-T) [CA31]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	GENERAL DYNAMICS ORD AND TACT - ST PETERSBURG, FL	400	2,880	7,800	6	6	11	17	6	6	11	17
2	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	400	2,880	7,800	6	6	11	17	6	6	11	17

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		2,677.704	32.800	34.279	-	41.893	41.893
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		2,677.704	32.800	34.279	-	41.893	41.893
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		2,677.704	32.800	34.279	-	41.893	41.893

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	715.27	3,649,000	2,610.020	-	-	-	-	-	-	-	-	-	2,232.60	16,505	36.849	2,232.60	16,505	36.849
Subtotal: Recurring Cost	-	-	2,610.020	-	-	-	-	-	-	-	-	-	0.000	-	36.849	-	-	36.849
Subtotal: Hardware Cost	-	-	2,610.020	-	-	-	-	-	-	-	-	-	0.000	-	36.849	-	-	36.849
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.810	-	-	0.824	-	-	0.854	-	-	-	-	-	0.558	-	-	0.558
Subtotal: Support - Acceptance Testing Cost	-	-	0.810	-	-	0.824	-	-	0.854	-	-	0.000	-	-	0.558	-	-	0.558
Support - Product Improvement Cost																		
Safety	-	-	2.297	-	-	0.458	-	-	1.231	-	-	-	-	-	1.349	-	-	1.349
Reliability	-	-	2.620	-	-	4.583	-	-	1.564	-	-	-	-	-	0.847	-	-	0.847
Subtotal: Support - Product Improvement Cost	-	-	4.917	-	-	5.041	-	-	2.795	-	-	0.000	-	-	2.196	-	-	2.196
Support - Production Engineering Cost																		
Production Engineering	-	-	14.452	-	-	2.755	-	-	2.224	-	-	-	-	-	2.286	-	-	2.286
Subtotal: Support - Production Engineering Cost	-	-	14.452	-	-	2.755	-	-	2.224	-	-	0.000	-	-	2.286	-	-	2.286
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	-	-	-	0.007	-	-	-	-	-	0.003	-	-	0.003

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.010	-	-	-	-	-	0.007	-	-	0.000	-	-	0.003	-	-	0.003
Support - Recapitalization Cost																		
Recapitalization	-	-	47.494	-	-	24.180	-	-	28.399	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Recapitalization Cost</i>	-	-	47.494	-	-	24.180	-	-	28.399	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	2,677.704	-	-	32.800	-	-	34.279	-	-	-	-	-	41.893	-	-	41.893

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35			P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types					Item Number / Title [DODIC]: E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]				
Cost Elements	O C O	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
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2021	9,903	2,232.60	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS02	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2021	6,602	2,232.60	Y		

^(†) indicates the presence of a P-21

Remarks:
FY2020 price is an average unit price between two contractors (Northrop Grumman Innovation Systems and General Dynamics and Tactical Systems)

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Exhibit P-21, Production Schedule: PB 2020 Army																Date: March 2019													
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35										P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]									

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2020										Fiscal Year 2021										B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020										Calendar Year 2021										
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R		M A Y

COMPLETE ROUND

Prior Years Deliveries: 3649000																																			
✓	1	2020	ARMY	9,903	0	9,903																							828	825	825	825	825	5,775	
✓	2	2020	ARMY	6,602	0	6,602																													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35										P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]									

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2022													Fiscal Year 2023													BALANCE		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
COMPLETE ROUND																																	
Prior Years Deliveries: 3649000																																	
✓	1	2020	ARMY	9,903	4,128	5,775	825	825	825	825	825	825	825																				0
✓	2	2020	ARMY	6,602	2,752	3,850	550	550	550	550	550	550	550																				0
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
		Item Number / Title [DODIC]: E73400 / CTG, 120mm Tank TPCSDS-T, M865 [C785]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	250	900	1,800	6	6	12	18	6	6	12	18
2	TO BE SELECTED - TBS02	250	900	1,800	6	6	12	18	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E88105 / CTG, 120MM TANK, HEMP-T, XM1147

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	16.398	-	15.002	15.002
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	-	16.398	-	15.002	15.002
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	16.398	-	15.002	15.002

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	-	-	-	-	-	-	14,206.56	700	9.945	-	-	-	14,206.56	700	9.945	14,206.56	700	9.945
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	9.945	-	-	0.000	-	-	9.945	-	-	9.945
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	9.945	-	-	0.000	-	-	9.945	-	-	9.945
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	1.524	-	-	-	-	-	-	-	-	-
First Article Test	-	-	-	-	-	-	-	-	1.524	-	-	-	-	-	1.220	-	-	1.220
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	3.048	-	-	0.000	-	-	1.220	-	-	1.220
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	1.636	-	-	-	-	-	2.661	-	-	2.661
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	1.636	-	-	0.000	-	-	2.661	-	-	2.661
Support - Study & Analysis Cost																		
Study & Analysis	-	-	-	-	-	-	-	-	1.770	-	-	-	-	-	1.177	-	-	1.177
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	-	-	-	-	-	-	1.770	-	-	0.000	-	-	1.177	-	-	1.177
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	16.398	-	-	-	-	-	15.002	-	-	15.002

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E88105 / CTG, 120MM TANK, HEMP-T, XM1147
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
^(†) indicates the presence of a P-5a		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35			P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types					Item Number / Title [DODIC]: E88105 / CTG, 120MM TANK, HEMP-T, XM1147				
Cost Elements	O C O	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
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	SS / FFP	PICATINNY ARSENAL, NJ	Jul 2019	Mar 2020	700	14,206.56	Y		
COMPLETE ROUND ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	SS / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	700	14,206.56	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
		Item Number / Title [DODIC]: E88105 / CTG, 120MM TANK, HEMP-T, XM1147

Cost Elements (Units in Each)		Fiscal Year 2019														Fiscal Year 2020											B A L A N C E					
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019														Calendar Year 2020											
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y		J U N	J U L	A U G	S E P	

COMPLETE ROUND																													
	1	2019	ARMY	700	0	700																							0
✓	1	2020	ARMY	700	0	700																							700

O C C O	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P
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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35										P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E88105 / CTG, 120MM TANK, HEMP-T, XM1147									

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2021													Fiscal Year 2022													BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021													Calendar Year 2022													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
COMPLETE ROUND																																	
	1	2019	ARMY	700	700	0																								0			
✓	1	2020	ARMY	700	0	700	-	-	-	-	-	-	700																		0		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
		Item Number / Title [DODIC]: E88105 / CTG, 120MM TANK, HEMP-T, XM1147

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	100	500	2,000	6	9	12	21	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35		P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types
		Item Number / Title [DODIC]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		164.570	69.000	44.623	-	54.737	54.737
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		164.570	69.000	44.623	-	54.737	54.737
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		164.570	69.000	44.623	-	54.737	54.737

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	11,532.93	11,585	133.609	15,500.00	4,167	64.589	16,000.00	2,503	40.048	-	-	-	16,320.00	3,114	50.820	16,320.00	3,114	50.820
Subtotal: Recurring Cost	-	-	133.609	-	-	64.589	-	-	40.048	-	-	0.000	-	-	50.820	-	-	50.820
Subtotal: Hardware Cost	-	-	133.609	-	-	64.589	-	-	40.048	-	-	0.000	-	-	50.820	-	-	50.820
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	7.507	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First Article Test	-	-	-	-	-	-	-	-	0.185	-	-	-	-	-	0.155	-	-	0.155
Subtotal: Support - Acceptance Testing Cost	-	-	7.507	-	-	-	-	-	0.185	-	-	0.000	-	-	0.155	-	-	0.155
Support - Non-Recurring Support Cost																		
Industrial Stock	-	-	0.053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Non-Recurring Support Cost	-	-	0.053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Production Verification Test	-	-	1.670	-	-	0.823	-	-	0.051	-	-	-	-	-	0.098	-	-	0.098
Subtotal: Support - Product Improvement Cost	-	-	1.670	-	-	0.823	-	-	0.051	-	-	0.000	-	-	0.098	-	-	0.098
Support - Production Engineering Cost																		
Production Engineering	-	-	21.730	-	-	3.588	-	-	4.339	-	-	-	-	-	3.664	-	-	3.664

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35	P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types	Item Number / Title [DODIC]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	21.730	-	-	3.588	-	-	4.339	-	-	0.000	-	-	3.664	-	-	3.664
Gross/Weapon System Cost	-	-	164.570	-	-	69.000	-	-	44.623	-	-	-	-	-	54.737	-	-	54.737

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35			P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types				Item Number / Title [DODIC]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	TO BE SELECTED / TBS02	SS / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jun 2020	4,167	15,500.00	Y		
COMPLETE ROUND ^(†)		2019	TO BE SELECTED / TBS02	SS / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jun 2020	2,503	16,000.00	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS02	SS / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Jun 2021	3,114	16,320.00	Y		

^(†) indicates the presence of a P-21

Remarks:
Production is continuous. Deliveries are consolidated to reduce costs.

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army													Date: March 2019																		
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35						P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types													Item Number / Title [DODIC]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]												

Cost Elements (Units in Each)						Fiscal Year 2019													Fiscal Year 2020													B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019													Calendar Year 2020													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
COMPLETE ROUND																																	
Prior Years Deliveries: 11585																																	
	1	2018	ARMY	4,167	0	4,167																											
	1	2019	ARMY	2,503	0	2,503																								0			
	✓ 1	2020	ARMY	3,114	0	3,114																								3,114			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35										P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types										Item Number / Title [DODIC]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]									

Cost Elements (Units in Each)						Fiscal Year 2021														Fiscal Year 2022														BALANCE			
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021														Calendar Year 2022																
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
Prior Years Deliveries: 11585																																					
	1	2018	ARMY	4,167	4,167	0																															0
	1	2019	ARMY	2,503	839	1,664	208	208	208	208	208	208	208	208																							0
✓	1	2020	ARMY	3,114	0	3,114	-	-	-	-	-	-	-	-	265	259	259	259	259	259	259	259	259	259	259	259	259	259	259	259	259	259	259			0	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 35			P-1 Line Item Number / Title: 1120E22203 / Cartridges, Tank, 105MM And 120MM, All Types				Item Number / Title [DODIC]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]	

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS02	100	300	720	6	6	15	21	6	6	14	20

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition	P-1 Line Item Number / Title: 0530E15101 / Artillery Cartridges, 75MM & 105MM, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,889.274	44.200	34.673	-	44.675	44.675	30.638	36.529	31.180	37.889	-	3,149.058
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2,889.274	44.200	34.673	-	44.675	44.675	30.638	36.529	31.180	37.889	-	3,149.058
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2,889.274	44.200	34.673	-	44.675	44.675	30.638	36.529	31.180	37.889	-	3,149.058

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$44.675M for Overseas Contingency Operations (OCO); of which \$44.675M and a quantity of 139,600 recapitalized (RECAP) cartridges is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

(E15101) Artillery Cartridges, 75MM And 105MM, All Types
This budget line includes Cartridge, Artillery, 75mm & 105mm, All Types.

(E21501) CTG, ARTY, 105MM HE, M1 W/O FUZE
The 105mm M1 High Explosive (HE) cartridge contains a HE fill and is used primarily for training although some cartridges are expended in combat operations for fragmentation and blast. The cartridge is loaded with an M67 propellant charge, consisting of seven numbered increment bags sewn together in numerical order. Projectile function is dependent upon the fuze used and may function on impact (instantaneous or delay), above ground at a predetermined height or in proximity to the target area. Fuze function detonates the HE projectile filler resulting in projectile fragmentation and blast. Range varies from 3.5 to 11.3 kilometers, depending on the number of charge bags used. The program remanufactures/recapitalizes the remaining unserviceable cartridges through replacement of M67 Prop Charge and Primer at a reduced cost over new production to provide a cost effective training cartridge.
This item is Code A, approved for service use.

(E21705) CTG, ARTY, 105MM IR ILLUM, M1064
The 105mm M1064 is a Infrared (IR) Illuminating Cartridge compatible with the M762 series ET fuze, M67 propelling charge, and is packaged in the PA117 Shipping Container. The M1064 consists of a 40 gram expelling charge, illuminant canister and parachute assembly. Upon fuze function, the expelling charge simultaneously ignites the illuminate while ejecting it from the projectile. Once dispensed, fins on the canister assist in reducing the spin rate while the parachute provides a descent rate of 12 meter per second (m/s). The Infrared Illumination greatly enhances the effectiveness of night vision devices providing front line units with temporary battlefield infrared illumination to observe the movements and maneuvers of enemy forces under the cover of darkness.
The item is Code A approved for service use.

(E21702) CTG, ARTY, 105MM VL ILLUM, M314A3

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 0530E15101 / Artillery Cartridges, 75MM & 105MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>The 105mm M314A3 is a Visible Light (VL) Illuminating Cartridge compatible with the M762 series ET fuze, M67 propelling charge, and is packaged in the PA117 Shipping Container. The M314A3 consists of a 40 gram expelling charge, illuminant canister and parachute assembly. Upon fuze function, the expelling charge simultaneously ignites the illuminate while ejecting it from the projectile. Once dispensed, fins on the canister assist in reducing the spin rate while the parachute provides a descent rate of 12 meter per second (m/s). The item is Code A approved for service use.</p>		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition

P-1 Line Item Number / Title:
0530E15101 / Artillery Cartridges, 75MM & 105MM, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E21501 / CTG, 105mm ARTY HE, M1 w/o Fuze [C445]		A		- / 2,838.826	- / 44.200	- / 30.006	- / -	- / 29.386	- / 29.386
P-5	E21702 / CTG, ARTY, 105MM VL ILLUM M314 W/O FUZE [C541]		A		- / 31.491	- / -	- / -	- / -	- / 15.289	- / 15.289
P-5	E21705 / CTG, 105mm Arty, IR ILLUM M1064 w/o Fuze [CA53]		A		- / 18.957	- / -	- / 4.667	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 2,889.274	- / 44.200	- / 34.673	- / -	- / 44.675	- / 44.675

*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.

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

Justification:

The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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."

FY 2020 funding totals include \$0.0 million for Base and \$44.675 million for Overseas Contingency Operations, with a quantity of 139,600 recapitalized (RECAP) cartridges for \$44.675 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E21501) CTG, ARTY, 105MM HE, M1 W/O FUZE

This program will remanufacture/recapitalize unserviceable rounds in the inventory.

This is a training standard item used in both training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$29.386 million will supports the procurement of 120,000 recapitalized cartridges.

TYPE CLASSIFICATION DATE: 1966

(E21705) CTG, ARTY, 105MM IR ILLUM, M1064

This program will remanufacture/recapitalize unserviceable rounds in the inventory.

This is a training standard item used in both training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals.

TYPE CLASSIFICATION DATE: 2009

(E21702) CTG, ARTY, 105MM VL ILLUM, M314A3

This program will remanufacture/recapitalize unserviceable rounds in the inventory. This is a training standard item used in both training and combat. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$15.289 million will supports the procurement of 19,600 recapitalized cartridges. E21702 is a new start in FY 2020.

TYPE CLASSIFICATION DATE: 2009

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 0530E15101 / Artillery Cartridges, 75MM & 105MM, All Types	Item Number / Title [DODIC]: E21501 / CTG, 105mm ARTY HE, M1 w/ o Fuze [C445]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,838.826	44.200	30.006	-	29.386	29.386
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2,838.826	44.200	30.006	-	29.386	29.386
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2,838.826	44.200	30.006	-	29.386	29.386

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Recapitalization Cost																		
Recapitalization	-	-	2,838.826	-	-	44.200	-	-	30.006	-	-	-	-	-	29.386	-	-	29.386
<i>Subtotal: Support - Recapitalization Cost</i>	-	-	2,838.826	-	-	44.200	-	-	30.006	-	-	0.000	-	-	29.386	-	-	29.386
Gross/Weapon System Cost	-	-	2,838.826	-	-	44.200	-	-	30.006	-	-	-	-	-	29.386	-	-	29.386

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 0530E15101 / Artillery Cartridges, 75MM & 105MM, All Types	Item Number / Title [DODIC]: E21702 / CTG, ARTY, 105MM VL ILLUM M314 W/O FUZE [C541]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	31.491	-	-	-	15.289	15.289
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	31.491	-	-	-	15.289	15.289
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	31.491	-	-	-	15.289	15.289

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Recapitalization Cost																		
Recapitalization	-	-	31.491	-	-	-	-	-	-	-	-	-	-	-	15.289	-	-	15.289
<i>Subtotal: Support - Recapitalization Cost</i>	-	-	31.491	-	-	-	-	-	-	-	-	0.000	-	-	15.289	-	-	15.289
Gross/Weapon System Cost	-	-	31.491	-	-	-	-	-	-	-	-	-	-	-	15.289	-	-	15.289

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 0530E15101 / Artillery Cartridges, 75MM & 105MM, All Types	Item Number / Title [DODIC]: E21705 / CTG, 105mm Arty, IR ILLUM M1064 w/o Fuze [CA53]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	18.957	-	4.667	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	18.957	-	4.667	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	18.957	-	4.667	-	-	-
<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>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Recapitalization Cost																		
Recapitalization	-	-	18.957	-	-	-	-	-	4.667	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Recapitalization Cost</i>	-	-	18.957	-	-	-	-	-	4.667	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	18.957	-	-	-	-	-	4.667	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition

P-1 Line Item Number / Title:
3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types

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

Line Item MDAP/MAIS Code: 123

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,173.976	279.449	300.842	-	266.037	266.037	302.096	233.669	285.493	301.582	-	3,143.144
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,173.976	279.449	300.842	-	266.037	266.037	302.096	233.669	285.493	301.582	-	3,143.144
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,173.976	279.449	300.842	-	266.037	266.037	302.096	233.669	285.493	301.582	-	3,143.144

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$266.037M for Overseas Contingency Operations (OCO); of which \$266.037M and quantity of 194,617 projectiles is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

(E89500) ARTILLERY PROJECTILE, 155MM, ALL TYPES

This budget line includes Projectiles, Artillery, 155mm, All Types.

(E26904) PROJ, ARTY, 155MM IR ILLUM M1123

The 155mm M1123 Infrared (IR) Illumination Projectile is used with night vision devices to illuminate a designated target area to a maximum range of 22.5 kilometers. The M1123 utilizes projectile bodies generated from an on-going M483 Dual Purpose Improved Conventional Munition (DPICM) demilitarization program and leverages the payload contained in the M1066 IR Illuminating Projectile. The M1123 contains a Canister Loading Assembly, Expulsion Charge, and numerous spacers. The Canister Loading Assembly consists of an IR Illuminating Candle, Main Parachute, Drogue Parachute, Delay, and Secondary Expulsion Charge. The outer shell of the canister is fitted with three longitudinal fins. The projectile uses an M762 series Electronic Time Fuze. When the fuze functions, the primary expelling charge ignites, forcing the drogue parachute and canister assembly against the base plate, rupturing the base pins and expelling the canister and parachute. The drogue parachute deploys and the canister fins extend. The expelling charge also ignites the Delay in the canister nose. The Delay ignites the secondary expelling charge within the canister after 6.5 - 9 seconds, igniting the candle and expelling the main parachute. With the main parachute open, the illuminate candle descends at 15 feet per second and burns for 120 seconds minimum. The M1123 provides Infrared battlefield illumination that is 2.4x larger in diameter than the M1124 Visible Light Illumination projectile. This item is Code A, approved for service use.

(E67800) PROJ, ARTY, 155MM WP SMOKE M825

The 155mm WP M825A1 is an improved artillery projectile which produces a ground screening smoke cloud 125-150 meters wide for 5-10 minutes. This smoke screen is produced by burning multiple wedge-shaped pieces of felt saturated with White Phosphorous (WP). The system consists principally of a projectile carrier and canister containing 116 WP felt wedges and a center core burster. Projectile carrier is comprised of an ogive, expulsion charge, modified all steel body, and a one-piece steel dome shaped base. Upon M762/M762A1 ET fuze function, the Expulsion Charge is initiated which simultaneously dispenses the canister and ignites a short delay. This delay provides ample time for canister and projectile body separation prior to functioning of the center core Burster which ruptures the canister and disperses

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 123		
<p>116 WP felt wedges. In less than 45 seconds, a dense and uniform smoke screen is created by burning of the WP. This projectile is shipped with a fusible lifting plug which protects the item during shipping, handling, and storage. This item is Code A, approved for service use.</p> <p>(E26900) PROJ, ARTY, 155MM VL ILLUM M1124 The 155mm M1124 Visual Light (VL) Illumination Projectile is fired from 155mm howitzers and is used to illuminate the battlefield to a maximum range of 22.5 kilometers. The M1124 utilizes projectile bodies generated from an on-going M483 Dual Purpose Improved Conventional Munition (DPICM) demilitarization program and leverages the payload contained in the M485A2 VL Illuminating Projectile. The M1124 contains a Canister Loading Assembly, Expulsion Charge, and numerous spacers. The Canister Loading Assembly consists of a VL Illuminating Candle, Main Parachute, Drogue Parachute, Delay, and Secondary Expulsion Charge. The outer shell of the canister is fitted with three longitudinal fins. The projectile uses an M762 series Electronic Time Fuze. When the fuze functions, the primary expelling charge ignites, forcing the drogue parachute and canister assembly against the base plate, rupturing the base pins and expelling the canister and parachute. The drogue parachute then deploys and the canister fins extend. The expelling charge also ignites the delay element in the canister nose. The delay element ignites the secondary expelling charge within the canister after 6.5 - 9 seconds, igniting the candle and expelling the main parachute. With the main parachute open, the illumination candle descends at 15 feet per second and burns for 75 seconds minimum producing approximately 1,000,000 candlepower. This item is Code A, approved for service use.</p> <p>(E66800) PROJ, ARTY, 155MM HE, M795 The M795 High Explosive (HE) Projectile is the primary HE round used for combat operations with maximum range of 22.5 kilometers. The M795 incorporates Insensitive Munitions (IM) technologies that reduces vulnerability from unplanned stimuli e.g. fire/heat, shock and impact, while maintaining or exceeding the same level of effectiveness in combat. The 155mm M795 has a high fragmentation steel (HF1) body projectile filled with 23.8 pounds of IMX101 Explosive fill, PBXN-9 Supplementary Charge, and Meltable Fuze Plug. The projectile can use several different fuzes (impact, mechanical time, electronic time and short intrusion proximity). It is used for conventional fire support for harassment and interdiction, fragmentation and blast effect. The M795 projectile is employed against personnel, trucks, electronic surveillance and target acquisition devices, supply points, command and control and communications (C3) installations, and mechanized and armored forces. This item is Code A, approved for service use.</p> <p>(E27603) PROJ, ARTY, 155MM HE IM TRAINING M1122 The 155mm M1122/E1 High Explosive (HE) Projectile will be the primary HE round used for training. The FY2018 and FY2019 buy utilized M483A1 DPICM metal parts from an ongoing M483A1 demil effort, is filled with high density concrete to simulate the weight of the M795 HE Projectile, and incorporates several Insensitive Munitions (IM) technologies to increase survivability and safety. FY2020 there are no available M483A1 DPICM bodies to re-use and therefore the buy will be for the M1122E1 which utilizes a one-piece projectile body with a flat base, and is filled with low density concrete to simulate the weight of the M795 HE Projectile. [Winkler, Jeffery M CIV JPEO A&A] Similarly to the M1122, the M1122E1 incorporates several Insensitive Munitions (IM) technologies, including IMX-104 explosive fill, PBXN-9 Supplementary Charge, Plastic Fuze Well Liner and Meltable Fuze Plug. Both the M1122 and the M1122E1 will replicate the flight characteristics of the wartime M795 HE Projectile with a maximum range of 22.5 kilometers. M1122 is Code A, approved for service use. M1122E1 is Code B, not approved for service use.</p> <p>(E66501) PROJ, ARTY, 155MM HE RAP XM1113 The XM113 High Explosive (HE), Rocket Assisted Projectile (RAP) is an extended range munition for warfare operations with maximum range of 40 kilometers in 39 caliber weapon systems and 70 kilometers in 58 caliber weapon systems. The XM1113 projectile is a critical munition that supports the Army's modernization priorities in support the National Defense Strategies. The XM1113 projectile incorporates Insensitive Munitions (IM) technologies that reduces vulnerability from unplanned stimuli e.g. fire/heat, shock and impact, while maintaining or exceeding the same level of effectiveness in combat. The XM1113 projectile has a high fragmentation steel (HF1) body projectile filled with 12 pounds of IMX104 Explosive fill, PBXN-9 Supplementary Charge, and Meltable Fuze Plug. Extended ranges are achieved with 12 pounds of rocket grain propellant. The projectile can use several different conventional fuzes (impact, mechanical time, electronic time and short intrusion proximity) as well as Precision Guidance Kit (PGK). It is used for conventional fire support for harassment and interdiction, fragmentation and blast effect. The XM1113 projectile is employed against personnel, trucks, electronic warfare surveillance, target acquisition, supply points, command and control and communications (C3), indirect fire capabilities, air defense artillery, and light armored vehicles. This item is Code B, not approved for service use.</p> <p>(E27001) PROJ, ARTY, 155MM HC SMOKE M116 Series</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 123		
<p>The M116 Series base ejection projectile has a hollow steel casing containing four canisters filled with HC (white) smoke composition. These smoke canisters are stacked within the projectile and separated by felt spacers. Upon fuze function, an expelling charge consisting of 0.34 pounds of black powder flashes through the central tube to ignite the smoke canisters, blow off the base and dispenses all smoke canisters. An effective smoke cloud is produced within 30 seconds, and continues for approximately 1.5 minutes. This item is Code A, approved for service use.</p> <p>(E68510) PROJ, ARTY, 155MM BONUS, MK2 The 155mm Bonus, MK2, is a projectile solution to address the current munition capability gap against medium to heavy armor threats. The capability gap was identified during the analysis to determine a replacement for Dual Purpose Improved Conventional Munition (DPICM) capability, a cluster munition that must be replaced in accordance with current Department of Defense Cluster Munitions policy. The 155mm Bonus, MK2, is a Swedish sensor fuzed projectile which provides lethal effects against disbursed and poorly located light, medium and heavy armored targets. The procurement of the Swedish Bonus is an effective bridging strategy to address critical capability gaps from the loss of DPICM and mitigates risks until the planned program of record is completed. This bridging strategy supports the Army's modernization priorities in support of the National Defense Strategy. This item is Code A, approved for service use.</p> <p>(E67802) PROJ, ARTY, 155MM, HE W/ BASEBLEED XM1128 The XM1128 Extended Range High Explosive (HE) projectile is intended as a replacement for the M795 projectile as the primary HE round for warfare operations utilizing current 39 caliber weapon systems. The XM1128 will have a maximum range of 30km compared to 22.5km with current M795 and incorporate Insensitive Munitions (IM) technologies that reduces vulnerability from unplanned stimuli e.g. fire/heat, shock and impact, while maintaining or exceeding the same level of effectiveness in combat. The 155mm XM1128 consists of a high fragmentation (HF-1) steel body with a streamlined ogive and a base bleed to reduce drag and extend range. The main payload is 20 pounds of IMX-104. The projectile will be compatible with our conventional fuzes (impact, mechanical time, electronic time, proximity) and Precision Guidance Kit. It will be used for conventional fire support for harassment and interdiction, fragmentation, and blast effect. The XM1128 can be employed against personnel, trucks, electronic surveillance and target acquisition devices, supply points, command and control and communications (C3) installations, and mechanized and armored forces. This item is Code B and not approved for service use.</p> <p>(E21618) PROJ, ARTY, 155mm Extended Range Spotting, M1121 The 155mm Extended Range Spotting, M1121 Artillery Round utilizes projectile bodies generated from an on-going M483 Dual Purpose Improved Conventional Munition (DPICM) demilitarization program and incorporates a more producible WP Bulk-filled Canister with 11.0 lbs of WP that provides smoke spotting capability to a maximum range of 22.5 kilometers providing increased operational effectiveness and improved training. This item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition

P-1 Line Item Number / Title:
3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types

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

Line Item MDAP/MAIS Code: 123

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E21618 / PROJ, ARTY, 155mm Extended Range Spotting, M1121 [DA66]	P-5a	A		- / 10.363	- / -	- / 5.000	- / -	- / -	- / -
P-5	E26900 / PROJ, 155mm ARTY VL ILLUM, M485 / M1124 Series [DA57]	P-5a	A		- / 301.046	- / -	- / 19.344	- / -	- / -	- / -
P-5	E26904 / PROJ, 155mm ARTY IR ILLUM, M1066 / M1123 Series [DA56]	P-5a	A		- / 63.337	- / 13.300	- / -	- / -	- / -	- / -
P-5	E27001 / PROJ, 155mm ARTY Smoke, M116 Series [D506]		A		- / -	1,970 / 5.000	- / -	- / -	1,050 / 2.978	1,050 / 2.978
P-5	E27603 / PROJ, 155mm ARTY HE IM Training, M1122	P-5a, P-21	A		- / 157.144	- / 63.900	- / 63.153	- / -	- / 114.427	- / 114.427
P-5	E66501 / PROJ, 155mm ARTY HE RAP, XM1113 [DZ12]		B		- / -	- / -	- / -	- / -	1,636 / 30.000	1,636 / 30.000
P-5	E66800 / PROJ, 155mm ARTY HE, M795 [DA54]	P-5a	A		- / 405.872	- / 157.300	- / 170.876	- / -	- / 29.538	- / 29.538
P-5	E67800 / PROJ, 155mm ARTY WP Smoke, M825 / M825A1 [D528]		A		- / 236.214	- / -	- / 9.469	- / -	- / -	- / -
P-5	E67802 / PROJ, 155mm ARTY HE-BB, XM1128 [DA70]	P-5a	B		- / -	- / -	- / -	- / -	- / 14.994	- / 14.994
P-5	E68510 / PROJ, ARTY, 155MM BONUS, MK2	P-5a, P-21	A		- / -	- / 39.949	- / 33.000	- / -	- / 74.100	- / 74.100
P-40	Total Gross/Weapon System Cost				- / 1,173.976	- / 279.449	- / 300.842	- / -	- / 266.037	- / 266.037

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$266.037 million for Overseas Contingency Operations, with a quantity of 194,617 projectiles for \$266.037 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E26904) PROJ, ARTY, 155MM IR ILLUM M1066 / M1123
This item is a training standard item used in both training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals.
TYPE CLASSIFICATION: 2010

(E67800) PROJ, ARTY, 155MM WP SMOKE M825
This items is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. TYPE CLASSIFICATION DATE: 1982

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: 123		
<p>(E26900) PROJ, ARTY, 155MM VL ILLUM, M485 / M1124 This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. TYPE CLASSIFICATION DATE: 1970</p> <p>(E66800) PROJ, ARTY, 155MM HE, M795 This is a war reserve item used in combat. FY 2020 request builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$29.538 million supports the procurement of 21,159 projectiles. TYPE CLASSIFICATION DATE: 1982</p> <p>(E27603) PROJ, ARTY, 155MM HE IM TRAINING M1122 This is a training unique item not used in combat. FY 2020 request supports annual training and builds a depot level inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$114.427 million supports the procurement of 167,620 projectiles. TYPE CLASSIFICATION DATE: M1122 is 2010; M1122E1 is 2QFY20</p> <p>(E66501) PROJ, ARTY, 155MM HE RAP XM1113 This is a war reserve item used in combat. FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$30.000 million supports the procurement of 1,636 projectiles to support the Long Range Precision Fires, Cross Functional Team (LRPF CFT) directive to deliver an operational capability by April 2021. E66501 is a new start in FY 2020. TYPE CLASSIFICATION: 4QFY22</p> <p>(E27001) PROJ, ARTY, 155MM HC SMOKE M116 Series This item is a training standard item used in both training and combat. The 155mm Smoke M116 Artillery requirement was initiated based upon REF 10 Liner which required annual delivery of 1,000 M116A1 HC Smoke Projectiles (D506) to support training. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.978 million supports the procurement of 1,050 projectiles.</p> <p>(E68510) PROJ, ARTY, 155MM BONUS, MK2 This is a war reserve item used in combat. FY 2020 request builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$74.100 million supports the procurement of 1266 Swedish Bonus projectiles.</p> <p>(E67802) PROJ, ARTY, 155MM, HE W/ BASEBLED XM1128 This is a war reserve item used in combat. FY 2020 request builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$14.994 million supports the procurement of 1,886 projectiles. E67802 is a new start in FY 2020. TYPE CLASSIFICATION DATE: 1QFY21</p> <p>(E21618) PROJ, ARTY, 155mm Extended Range Spotting, M1121 This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. TYPE CLASSIFICATION DATE: 3QFY17</p>		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E21618 / PROJ, ARTY, 155mm Extended Range Spotting, M1121 [DA66]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	10.363	-	5.000	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	10.363	-	5.000	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	10.363	-	5.000	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	-	-	-	472.00	3,010	1.421	-	-	-	-	-	-	-	-	-
MELTABLE FUZE PLUG ^(†)	-	-	-	-	-	-	10.20	3,070	0.031	-	-	-	-	-	-	-	-	-
CANNISTER METAL PART SET ^(†)	-	-	-	-	-	-	588.01	3,070	1.805	-	-	-	-	-	-	-	-	-
MODIFIED SUPPLEMENTAL CHARGE, PBXN9 ^(†)	-	-	-	-	-	-	49.99	3,070	0.153	-	-	-	-	-	-	-	-	-
WOODEN PALLET, IMX ^(†)	-	-	-	-	-	-	120.00	391	0.047	-	-	-	-	-	-	-	-	-
MODIFIED PROJECTILE BODY ^(†)	-	-	-	-	-	-	236.48	3,070	0.726	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	4.184	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	4.184	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	0.110	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.110	-	-	-	-	-	-	-	-	-
Support - Engineering Change Proposals Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E21618 / PROJ, ARTY, 155mm Extended Range Spotting, M1121 [DA66]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Engineering Change Proposals	-	-	1.201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	1.201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	9.162	-	-	-	-	-	0.706	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	9.162	-	-	-	-	-	0.706	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	10.363	-	-	-	-	-	5.000	-	-	-	-	-	-	-	-	-

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types				Item Number / Title [DODIC]: E21618 / PROJ, ARTY, 155mm Extended Range Spotting, M1121 [DA66]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2019	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2021	3,010	472.00	Y		
MELTABLE FUZE PLUG		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	3,070	10.20	Y		
CANNISTER METAL PART SET		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	3,070	588.01	Y		
MODIFIED SUPPLEMENTAL CHARGE, PBXN9		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	3,070	49.99	Y		
WOODEN PALLET, IMX		2019	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Aug 2019	Aug 2020	391	120.00	Y		
MODIFIED PROJECTILE BODY		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Mar 2019	Aug 2020	3,070	236.48	Y		

Remarks:

Melttable Lift Plug: IDIQ contract awarded (FY19) to multiple contractors. Requirements competed among the following contractors: RTI Technologies, Columbia, CT & Polymer Technologies Inc., Clifton, NJ.

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Exhibit P-5, Cost Analysis: PB 2020 Army						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types			Item Number / Title [DODIC]: E26900 / PROJ, 155mm ARTY VL ILLUM, M485 / M1124 Series [DA57]		
ID Code (A=Service Ready, B=Not Service Ready) : A						MDAP/MAIS Code:		
Resource Summary			Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)			-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)			301.046	-	19.344	-	-	-
Less PY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)			301.046	-	19.344	-	-	-
Plus CY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)			301.046	-	19.344	-	-	-
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>								
Initial Spares (\$ in Millions)			-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)			-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	334.60	7,864	2.631	-	-	-	314.69	13,431	4.227	-	-	-	-	-	-	-	-	-
METAL PARTS SETS ^(†)	301.47	8,021	2.418	-	-	-	287.01	13,431	3.855	-	-	-	-	-	-	-	-	-
VL ILLUM CANNISTER ^(†)	312.60	8,021	2.507	-	-	-	358.76	13,700	4.915	-	-	-	-	-	-	-	-	-
CANISTER MPTS ASSY, 155MM ILLUM ^(†)	53.82	8,021	0.432	-	-	-	60.91	13,700	0.834	-	-	-	-	-	-	-	-	-
CANISTER BASE ASSY, 155MM ILLUM ^(†)	17.74	8,021	0.142	-	-	-	24.93	13,700	0.342	-	-	-	-	-	-	-	-	-
M10 EXPULSION CHARGE ASSEMBLY ^(†)	16.28	8,021	0.131	-	-	-	22.09	13,700	0.303	-	-	-	-	-	-	-	-	-
PARACHUTE MAIN, 155MM ILLUM ^(†)	37.80	8,021	0.303	-	-	-	39.72	13,700	0.544	-	-	-	-	-	-	-	-	-
PARACHUTE MAIN SUPPORTS, 155MM ILLUM ^(†)	5.05	32,085	0.162	-	-	-	5.25	54,798	0.288	-	-	-	-	-	-	-	-	-
PARACHUTE DROGUE	16.90	8,021	0.136	-	-	-	17.90	13,700	0.245	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
Item Number / Title [DODIC]: E26900 / PROJ, 155mm ARTY VL ILLUM, M485 / M1124 Series [DA57]		

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
ASSEMBLY, 155MM ILLUM ^(†)																		
DELAY ELEMENT, 155MM ILLUM ^(†)	32.94	8,021	0.264	-	-	-	81.88	13,700	1.122	-	-	-	-	-	-	-	-	-
WOODEN PALLET, IMX ^(†)	95.58	1,022	0.098	-	-	-	120.00	1,746	0.210	-	-	-	-	-	-	-	-	-
DOWNLOAD, CLEAN AND INSPECT ^(†)	81.22	8,257	0.671	-	-	-	71.33	14,103	1.006	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	9.895	-	-	-	-	-	17.889	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	9.895	-	-	-	-	-	17.889	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.058	-	-	-	-	-	0.100	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.058	-	-	-	-	-	0.100	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	291.093	-	-	-	-	-	1.355	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	291.093	-	-	-	-	-	1.355	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	301.046	-	-	-	-	-	19.344	-	-	-	-	-	-	-	-	-

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types					Item Number / Title [DODIC]: E26900 / PROJ, 155mm ARTY VL ILLUM, M485 / M1124 Series [DA57]				
Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2019	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jan 2021	13,431	314.69	Y		
METAL PARTS SETS		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	13,431	287.01	Y		
VL ILLUM CANNISTER		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	13,700	358.76	Y		
CANISTER MPTS ASSY, 155MM ILLUM		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	May 2019	Nov 2020	13,700	60.91	Y		
CANISTER BASE ASSY, 155MM ILLUM		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	May 2019	Nov 2020	13,700	24.93	Y		
M10 EXPULSION CHARGE ASSEMBLY		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	13,700	22.09	Y		
PARACHUTE MAIN, 155MM ILLUM		2019	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	13,700	39.72	Y		
PARACHUTE MAIN SUPPORTS, 155MM ILLUM		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	54,798	5.25	Y		
PARACHUTE DROGUE ASSEMBLY, 155MM ILLUM		2019	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2020	13,700	17.90	Y		
DELAY ELEMENT, 155MM ILLUM		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	13,700	81.88	Y		
WOODEN PALLET, IMX		2019	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Aug 2019	Aug 2020	1,746	120.00	Y		
DOWNLOAD, CLEAN AND INSPECT		2019	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	14,103	71.33	Y		

Remarks:
 Canister Base / MPTS Assembly: IDIQ contract awarded to multiple contractors. Requirements competed among the following contractors: Woodlawn MFG INC., Marshall, TX and Bailey Tooling and MFG CO., Lancaster, TX.
 Parachute Main: IDIQ contract awarded (FY 2016) to Yoland Corp INC., Brooklyn, NY.
 Parachute Drogue Assembly: IDIQ contract awarded (FY 2016) to Yoland Corp INC., Brooklyn, NY.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E26904 / PROJ, 155mm ARTY IR ILLUM, M1066 / M1123 Series [DA56]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	63.337	13.300	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	63.337	13.300	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	63.337	13.300	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	326.82	8,858	2.895	-	-	-	-	-	-	-	-	-	-	-	-
WOODEN PALLET, IMX ^(†)	-	-	-	95.58	1,152	0.110	-	-	-	-	-	-	-	-	-	-	-	-
METAL PARTS SETS ^(†)	-	-	-	278.94	8,858	2.471	-	-	-	-	-	-	-	-	-	-	-	-
IR ILLUM CANNISTER ^(†)	-	-	-	338.12	9,035	3.055	-	-	-	-	-	-	-	-	-	-	-	-
CANISTER BASE ASSY, 155MM ILLUM ^(†)	-	-	-	24.44	9,035	0.221	-	-	-	-	-	-	-	-	-	-	-	-
CANISTER MPTS ASSY, 155MM ILLUM ^(†)	-	-	-	59.71	9,035	0.539	-	-	-	-	-	-	-	-	-	-	-	-
PARACHUTE MAIN SUPPORTS, 155MM ILLUM ^(†)	-	-	-	5.15	36,141	0.186	-	-	-	-	-	-	-	-	-	-	-	-
PARACHUTE MAIN, 155MM ILLUM ^(†)	-	-	-	38.94	9,035	0.352	-	-	-	-	-	-	-	-	-	-	-	-
PARACHUTE DROGUE	-	-	-	17.55	9,035	0.159	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E26904 / PROJ, 155mm ARTY IR ILLUM, M1066 / M1123 Series [DA56]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
ASSEMBLY, 155MM ILLUM ^(t)																		
M10 EXPULSION CHARGE ASSEMBLY ^(t)	-	-	-	17.12	9,035	0.155	-	-	-	-	-	-	-	-	-	-	-	-
DELAY ELEMENT, 155MM ILLUM ^(t)	-	-	-	80.27	9,035	0.725	-	-	-	-	-	-	-	-	-	-	-	-
DOWNLOAD, CLEAN AND INSPECT ^(t)	-	-	-	71.33	9,301	0.663	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	11.531	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	11.531	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.124	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.124	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	63.337	-	-	1.645	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	63.337	-	-	1.645	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	63.337	-	-	13.300	-	-	-	-	-	-	-	-	-	-	-	-

^(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types				Item Number / Title [DODIC]: E26904 / PROJ, 155mm ARTY IR ILLUM, M1066 / M1123 Series [DA56]				

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jan 2020	8,858	326.82	Y		
WOODEN PALLET, IMX		2018	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Jun 2019	1,152	95.58	Y		
METAL PARTS SETS		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	8,858	278.94	Y		
IR ILLUM CANNISTER		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	9,035	338.12	Y		
CANISTER BASE ASSY, 155MM ILLUM		2018	WOODLAWN MANUFACTURING INC / MARSHALL, TX	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	9,035	24.44	Y		
CANISTER MPTS ASSY, 155MM ILLUM		2018	WOODLAWN MANUFACTURING INC / MARSHALL, TX	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Apr 2018	Oct 2019	9,035	59.71	Y		
PARACHUTE MAIN SUPPORTS, 155MM ILLUM		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	36,141	5.15	Y		
PARACHUTE MAIN, 155MM ILLUM		2018	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2017	Jun 2019	9,035	38.94	Y		
PARACHUTE DROGUE ASSEMBLY, 155MM ILLUM		2018	YOLAND CORPORATION / BROOKLYN, NY	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Dec 2018	Jun 2019	9,035	17.55	Y		
M10 EXPULSION CHARGE ASSEMBLY		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	9,035	17.12	Y		
DELAY ELEMENT, 155MM ILLUM		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	9,035	80.27	Y		
DOWNLOAD, CLEAN AND INSPECT		2018	MCALESTER ARMY AMMUNITION / MCALESTER, OK	PO	PICATINNY ARSENAL, NJ	Feb 2018	Aug 2019	9,301	71.33	Y		

Remarks:
 Canister Base / MPTS Assembly: IDIQ contract awarded to multiple contractors. Requirements competed among the following contractors: Woodlawn MFG INC., Marshall, TX and Bailey Tooling and MFG CO., Lancaster, TX.
 Parachute Main: IDIQ contract awarded (FY 2016) to Yoland Corp INC., Brooklyn, NY.
 Parachute Drogue Assembly: IDIQ contract awarded (FY 2016) to Yoland Corp INC., Brooklyn, NY.

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37						P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types						Item Number / Title [DODIC]: E27001 / PROJ, 155mm ARTY Smoke, M116 Series [D506]						
ID Code (A=Service Ready, B=Not Service Ready) : A									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity (Units in Each)				-		1,970		-		-		1,050		1,050				
Gross/Weapon System Cost (\$ in Millions)				-		5.000		-		-		2.978		2.978				
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Net Procurement (P-1) (\$ in Millions)				-		5.000		-		-		2.978		2.978				
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Total Obligation Authority (\$ in Millions)				-		5.000		-		-		2.978		2.978				
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-		-		-		-		-		-		
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-		-		-		-		-		-		
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	-	2,215.50	1,953	4.327	-	-	-	-	-	-	2,305.00	1,050	2.420	2,305.00	1,050	2.420
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	4.327	-	-	-	-	-	0.000	-	-	2.420	-	-	2.420
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	4.327	-	-	-	-	-	0.000	-	-	2.420	-	-	2.420
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.075	-	-	-	-	-	-	-	-	0.075	-	-	0.075
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.075	-	-	-	-	-	0.000	-	-	0.075	-	-	0.075
Support - Industrial Facilities Cost																		
Equipment Acquisition or Modernization	-	-	-	-	-	0.117	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Industrial Facilities Cost</i>	-	-	-	-	-	0.117	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.481	-	-	-	-	-	-	-	-	0.483	-	-	0.483
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	0.481	-	-	-	-	-	0.000	-	-	0.483	-	-	0.483
Gross/Weapon System Cost	-	-	-	-	1,970	5.000	-	-	-	-	-	-	-	1,050	2.978	-	1,050	2.978

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	157.144	63.900	63.153	-	114.427	114.427
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	157.144	63.900	63.153	-	114.427	114.427
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	157.144	63.900	63.153	-	114.427	114.427

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	305.79	140,069	42.832	263.16	140,309	36.924	244.33	140,040	34.216	-	-	-	150.00	167,620	25.143	150.00	167,620	25.143
METAL PARTS - M1122A1 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	338.13	170,972	57.811	338.13	170,972	57.811
WOODEN PALLET, IMX ^(†)	108.84	18,209	1.982	114.88	18,240	2.095	120.00	18,205	2.185	-	-	-	122.39	21,790	2.667	122.39	21,790	2.667
MELTABLE FUZE PLUG ^(†)	9.59	142,870	1.370	7.90	143,115	1.131	10.20	142,841	1.457	-	-	-	10.40	170,972	1.778	10.40	170,972	1.778
SUPPLEMENTAL CHARGE, PBXN9 ^(†)	18.85	142,870	2.693	18.62	143,115	2.665	18.99	142,841	2.713	-	-	-	19.37	170,972	3.312	19.37	170,972	3.312
EXPLOSIVE FILL IMX-101 ^(†)	19.12	490,242	9.373	14.70	420,927	6.188	16.17	420,120	6.793	-	-	-	-	-	-	-	-	-
EXPLOSIVE FILL IMX-104 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	22.78	670,480	15.274	22.78	670,480	15.274
DOWNLOAD, CLEAN AND INSPECT ^(†)	-	-	-	69.33	140,309	9.728	70.72	140,040	9.904	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>58.250</i>	-	-	<i>58.730</i>	-	-	<i>57.267</i>	-	-	<i>0.000</i>	-	-	<i>105.984</i>	-	-	<i>105.984</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>58.250</i>	-	-	<i>58.730</i>	-	-	<i>57.267</i>	-	-	<i>0.000</i>	-	-	<i>105.984</i>	-	-	<i>105.984</i>
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.670	-	-	0.650	-	-	0.750	-	-	-	-	-	0.450	-	-	0.450

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.670	-	-	0.650	-	-	0.750	-	-	0.000	-	-	0.450	-	-	0.450
Support - Production Engineering Cost																		
Production Engineering	-	-	98.223	-	-	4.520	-	-	5.136	-	-	-	-	-	7.993	-	-	7.993
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	98.223	-	-	4.520	-	-	5.136	-	-	0.000	-	-	7.993	-	-	7.993
Gross/Weapon System Cost	-	-	157.144	-	-	63.900	-	-	63.153	-	-	-	-	-	114.427	-	-	114.427

Remarks:

The Cost Elements on the P5 for the FY2018 and FY2019 buy differ from the FY2020. Reason is that the FY18 and FY19 is the M1122 (DA51) which utilizes M483A1 DPICM metal parts from an ongoing M483A1 demil effort, is filled with high density concrete. In FY2020, the Army no longer has available M483A1 DPICM metal parts for the re-use, and the M1122E1 (DA68) will require a new metal part.

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37				P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types				Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	CRANE ARMY AMMO ACTIVITY / CRANE, IN	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jan 2021	26,659	263.16	Y		
LOAD, ASSEMBLE, PACK (LAP)		2018	MCALESTER ARMY AMMUNITION / MCALESTER, OK	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jan 2021	113,650	263.16	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	MCALESTER ARMY AMMUNITION / MCALESTER, OK	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jan 2022	140,040	244.33	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	May 2020	Sep 2022	167,620	150.00	Y		
METAL PARTS - M1122A1	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	170,972	338.13	Y		
WOODEN PALLET, IMX		2018	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Jun 2019	18,240	114.88	Y		
WOODEN PALLET, IMX		2019	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Aug 2019	Aug 2020	18,205	120.00	Y		
WOODEN PALLET, IMX	✓	2020	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	21,790	122.39	Y		
MELTABLE FUZE PLUG		2018	POLYMER TECHNOLOGIES, INC / CLIFTON, NJ	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	143,115	7.90	Y		
MELTABLE FUZE PLUG		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	142,841	10.20	Y		
MELTABLE FUZE PLUG	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	170,972	10.40	Y		
SUPPLEMENTAL CHARGE, PBXN9		2018	CHEMRING ORDNANCE, INC. / PERRY, FL	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2018	Jul 2019	143,115	18.62	Y		
SUPPLEMENTAL CHARGE, PBXN9		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2019	Aug 2019	142,841	18.99	Y		
SUPPLEMENTAL CHARGE, PBXN9	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	170,972	19.37	Y		
EXPLOSIVE FILL IMX-101		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSFORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2020	420,927	14.70	Y		
EXPLOSIVE FILL IMX-101		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSFORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2021	420,120	16.17	Y		
EXPLOSIVE FILL IMX-104	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSFORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2022	670,480	22.78	Y		
DOWNLOAD, CLEAN AND INSPECT		2018	MCALESTER ARMY AMMUNITION / MCALESTER, OK	PO	PICATINNY ARSENAL, NJ	Jan 2018	Jul 2019	140,309	69.33	Y		
DOWNLOAD, CLEAN AND INSPECT		2019	MCALESTER ARMY AMMUNITION / MCALESTER, OK	PO	PICATINNY ARSENAL, NJ	Jan 2019	Jul 2020	140,040	70.72	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122

^(†) indicates the presence of a P-21

Remarks:

Supplemental Charge, PBXN9 Is and IDIQ contract awarded to multiple contractors. Requirements will be competed among the following contractors: DZI Lonestar LLC., Texarkana, TX and Chemring Ordnance, INC., Perry FL.; Melttable Lift Plug: IDIQ contract awarded (FY19) to multiple contractors. Requirements competed among the following contractors: RTI Technologies, Columbia, CT & Polymer Technologies Inc., Clifton, NJ; Explosive Fill IMX101 and IMX104 is a requirements contract (IDIQ) awarded to Holston Army Ammunition Plant (HSAAP)

The Cost Elements on the P5A for the FY 2018 and FY 2019 buy differ from the FY 2020. Reason is that the FY18 and FY19 is the M1122 (DA51) which utilizes M483A1 DPICM metal parts from an ongoing M483A1 demil effort, is filled with high density concrete. In FY 2020, the Army no longer has available M483A1 DPICM metal parts for the re-use, and the M1122E1 (DA68) will require a new metal part.

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Exhibit P-21, Production Schedule: PB 2020 Army																									Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types										Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122										
Cost Elements (Units in Thousands)						Fiscal Year 2018										Fiscal Year 2019										B A L A N C E				
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018										Calendar Year 2019													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R		M A Y	J U N	J U L	A U G
LOAD, ASSEMBLE, PACK (LAP)																														
Prior Years Deliveries: 140069																														
✓	1	2020	ARMY	167.620	.000	167.620																							167.620	
✓	1	2020	MC (†)	20.162	.000	20.162																							20.162	
✓	1	2020	Total OCO	187.782	.000	187.782																							187.782	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types										Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020														Fiscal Year 2021														B A L A N C E	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
LOAD, ASSEMBLE, PACK (LAP)																																			
Prior Years Deliveries: 140069																																			
✓	1	2020	ARMY	167.620	.000	167.620																							167.620						
✓	1	2020	MC (†)	20.162	.000	20.162																							20.162						
✓	1	2020	Total OCO	187.782	.000	187.782																							187.782						
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types										Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2022												Fiscal Year 2023												B A L A N C E	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P

LOAD, ASSEMBLE, PACK (LAP)

Prior Years Deliveries: 140069

✓	1	2020	ARMY	167.620	.000	167.620	-	-	-	-	-	-	-	-	-	-	-	14.000	13.838	24.000	24.000	24.000	24.000	24.000	24.000	19.782								.000
✓	1	2020	MC (†)	20.162	.000	20.162	-	-	-	-	-	-	-	-	-	-	-	10.000	10.162	-	-	-	-	-	-	-								.000
✓	1	2020	Total OCO	187.782	.000	187.782	-	-	-	-	-	-	-	-	-	-	-	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	19.782	-	-	-	-	-	-	-	.000

							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	
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UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E27603 / PROJ, 155mm ARTY HE IM Training, M1122

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	6,000	12,000	24,000	8	8	28	36	8	8	24	32

Remarks:
The FY2018 and FY2019 reflect the deliveries for the M1122 (DA51) which utilizes M483A1 DPICM metal parts from an ongoing M483A1 demil effort and the FY2020 deliveries are for the M1122E1 (DA68).

(†) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E66501 / PROJ, 155mm ARTY HE RAP, XM1113 [DZ12]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	1,636	1,636
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	-	-	-	30.000	30.000
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	-	-	-	30.000	30.000
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	-	-	-	-	30.000	30.000

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	18,337.41	18,337.41

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	-	-	-	-	-	-	-	-	-	-	15,000.00	1,636	24.540	15,000.00	1,636	24.540
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	24.540	-	-	24.540
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	24.540	-	-	24.540
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.750	-	-	0.750
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.700	-	-	0.700
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	1.450	-	-	1.450
Support - Non-Recurring Support Cost																		
Facilitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.900	-	-	1.900
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	1.900	-	-	1.900
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.110	-	-	2.110
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	2.110	-	-	2.110
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	-	-	-	-	18,337.41	1,636	30.000	18,337.41	1,636	30.000

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37						P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types						Item Number / Title [DODIC]: E66800 / PROJ, 155mm ARTY HE, M795 [DA54]						
ID Code (A=Service Ready, B=Not Service Ready) : A									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO		FY 2020 Total	
Procurement Quantity (Units in Each)				-		-			-			-			-		-	
Gross/Weapon System Cost (\$ in Millions)				405.872		157.300			170.876			-			29.538		29.538	
Less PY Advance Procurement (\$ in Millions)				-		-			-			-			-		-	
Net Procurement (P-1) (\$ in Millions)				405.872		157.300			170.876			-			29.538		29.538	
Plus CY Advance Procurement (\$ in Millions)				-		-			-			-			-		-	
Total Obligation Authority (\$ in Millions)				405.872		157.300			170.876			-			29.538		29.538	
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-			-			-			-		-	
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-			-			-			-		-	
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	226.60	35,987	8.155	235.07	190,808	44.853	231.11	129,000	29.813	-	-	-	235.73	21,159	4.988	235.73	21,159	4.988
MELTABLE FUZE PLUG ^(†)	12.00	36,708	0.440	5.23	39,584	0.207	10.20	131,580	1.342	-	-	-	10.40	21,582	0.224	10.40	21,582	0.224
EXPLOSIVE FILL IMX-104 ^(†)	23.27	35,987	0.837	21.90	54,331	1.190	22.34	129,000	2.882	-	-	-	22.78	21,159	0.482	22.78	21,159	0.482
SUPPLEMENTAL CHARGE, PBXNg ^(†)	18.85	36,707	0.692	15.56	194,624	3.028	18.99	131,580	2.499	-	-	-	19.37	21,582	0.418	19.37	21,582	0.418
WOODEN PALLET, IMX ^(†)	115.92	4,678	0.542	114.88	24,815	2.851	120.00	16,770	2.012	-	-	-	122.39	2,751	0.337	122.39	2,751	0.337
EXPLOSIVE FILL IMX-101 ^(†)	15.54	1,187,571	18.455	14.70	1,280,664	18.826	16.17	4,257,000	68.836	-	-	-	16.48	698,247	11.507	16.48	698,247	11.507
M795 IM METAL PART ^(†)	372.69	36,708	13.681	420.85	194,624	81.908	436.92	131,580	57.490	-	-	-	437.85	21,582	9.450	437.85	21,582	9.450
<i>Subtotal: Recurring Cost</i>	-	-	42.802	-	-	152.862	-	-	164.874	-	-	0.000	-	-	27.406	-	-	27.406
<i>Subtotal: Hardware Cost</i>	-	-	42.802	-	-	152.862	-	-	164.874	-	-	0.000	-	-	27.406	-	-	27.406
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	0.135	-	-	0.475	-	-	0.621	-	-	-	-	-	0.112	-	-	0.112
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.135	-	-	0.475	-	-	0.621	-	-	0.000	-	-	0.112	-	-	0.112

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E66800 / PROJ, 155mm ARTY HE, M795 [DA54]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Production Engineering Cost																		
Production Engineering	-	-	362.935	-	-	3.963	-	-	5.382	-	-	-	-	-	2.020	-	-	2.020
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	362.935	-	-	3.963	-	-	5.382	-	-	0.000	-	-	2.020	-	-	2.020
Gross/Weapon System Cost	-	-	405.872	-	-	157.300	-	-	170.876	-	-	-	-	-	29.538	-	-	29.538

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army										Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37				P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types				Item Number / Title [DODIC]: E66800 / PROJ, 155mm ARTY HE, M795 [DA54]				
Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP)		2018	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / FFP	ROCK ISLAND ARSENAL, IL	Apr 2018	Apr 2021	190,808	235.07	Y		
LOAD, ASSEMBLE, PACK (LAP)		2019	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2022	129,000	231.11	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	AMERICAN ORDNANCE LLC (IAAP) / MIDDLETOWN, IA	Option / FFP	ROCK ISLAND ARSENAL, IL	May 2020	May 2023	21,159	235.73	Y		
MELTABLE FUZE PLUG		2018	RTI TECHNOLOGIES, LLC / COLUMBIA, CT	Option / IDIQ	PICATINNY ARSENAL, NJ	Dec 2018	Jun 2020	39,584	5.23	Y		
MELTABLE FUZE PLUG		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	131,580	10.20	Y		
MELTABLE FUZE PLUG	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	21,582	10.40	Y		
EXPLOSIVE FILL IMX-104		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jul 2018	Jan 2021	54,331	21.90	Y		
EXPLOSIVE FILL IMX-104		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2021	129,000	22.34	Y		
EXPLOSIVE FILL IMX-104	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2022	21,159	22.78	Y		
SUPPLEMENTAL CHARGE, PBXN9		2018	CHEMRING ORDNANCE, INC. / PERRY, FL	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jan 2018	Jul 2019	194,624	15.56	Y		
SUPPLEMENTAL CHARGE, PBXN9		2019	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2019	Aug 2020	131,580	18.99	Y		
SUPPLEMENTAL CHARGE, PBXN9	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	21,582	19.37	Y		
WOODEN PALLET, IMX		2018	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Jun 2018	Jun 2019	24,815	114.88	Y		
WOODEN PALLET, IMX		2019	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Aug 2019	Aug 2020	16,770	120.00	Y		
WOODEN PALLET, IMX	✓	2020	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Feb 2020	Feb 2021	2,751	122.39	Y		
EXPLOSIVE FILL IMX-101		2018	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2018	Dec 2020	1,280,664	14.70	Y		
EXPLOSIVE FILL IMX-101		2019	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Jun 2019	Dec 2021	4,257,000	16.17	Y		
EXPLOSIVE FILL IMX-101	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	Option / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Jun 2022	698,247	16.48	Y		
M795 IM METAL PART		2018	GENERAL DYNAMICS ORD AND TACT / SCRANTON, PA	Option / FFP	PICATINNY ARSENAL, NJ	Aug 2018	Feb 2020	194,624	420.85	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types					Item Number / Title [DODIC]: E66800 / PROJ, 155mm ARTY HE, M795 [DA54]				
Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
M795 IM METAL PART		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Aug 2019	Feb 2021	131,580	436.92	Y		
M795 IM METAL PART	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	21,582	437.85	Y		

Remarks:
Load, Assemble & Pack (LAP) requirements contract at Iowa Army Ammunition Plant (IAAP) FY 2019 through FY 2023 , Explosive Fill, IMX 101 and 104 are delivery orders with requirements contract at Holston Army Ammunition Plant (HSAAP) FY 2019 to FY 2023. Melttable Fuze Plug is C/IDIQ awarded (FY 2019) to multiple contractors. Requirements competed among the following contractors: RTI Technologies, Columbia, CT and Polymer Technologies Incorporated, Clifton, NJ.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E67800 / PROJ, 155mm ARTY WP Smoke, M825 / M825A1 [D528]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	236.214	-	9.469	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	236.214	-	9.469	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	236.214	-	9.469	-	-	-
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>						
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Recapitalization Cost																		
Recapitalization	-	-	236.214	-	-	-	-	-	9.469	-	-	-	-	-	-	-	-	-
Subtotal: Support - Recapitalization Cost	-	-	236.214	-	-	-	-	-	9.469	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	236.214	-	-	-	-	-	9.469	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E67802 / PROJ, 155mm ARTY HE-BB, XM1128 [DA70]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	-	-	14.994	14.994
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	-	-	-	14.994	14.994
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	-	-	14.994	14.994

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
WOODEN PALLETS	-	-	-	-	-	-	-	-	-	-	-	-	103.97	67	0.007	103.97	67	0.007
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	2,200.00	1,886	4.149	2,200.00	1,886	4.149
METAL PART, M1128 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	570.00	1,923	1.096	570.00	1,923	1.096
EXPLOSIVE FILL IMX-104 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	22.78	45,264	1.031	22.78	45,264	1.031
WOODEN PALLET, IMX ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	122.39	56	0.007	122.39	56	0.007
MELTABLE FUZE PLUG ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	10.40	1,923	0.020	10.40	1,923	0.020
SUPPLEMENTAL CHARGE, PBXN9 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	19.37	1,923	0.037	19.37	1,923	0.037
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	6.347	-	-	6.347
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	6.347	-	-	6.347
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.250	-	-	0.250
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.750	-	-	0.750
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	1.000	-	-	1.000

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E67802 / PROJ, 155mm ARTY HE-BB, XM1128 [DA70]
ID Code (A=Service Ready, B=Not Service Ready) : B		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Non-Recurring Support Cost																		
Facilitization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.000	-	-	3.000
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	3.000	-	-	3.000
Support - Product Improvement Cost																		
Production Verification Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.600	-	-	3.600
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	3.600	-	-	3.600
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.047	-	-	1.047
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	1.047	-	-	1.047
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.994	-	-	14.994

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types				Item Number / Title [DODIC]: E67802 / PROJ, 155mm ARTY HE-BB, XM1128 [DA70]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2023	1,886	2,200.00	N		
METAL PART, M1128	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	May 2020	May 2022	1,923	570.00	N		
EXPLOSIVE FILL IMX-104	✓	2020	BAE SYSTEMS ORDNANCE SYSTEMS / KINGSPORT, TN	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	45,264	22.78	Y		
WOODEN PALLET, IMX	✓	2020	KNOX COUNTY ARC / VINCENNES, IN	SS / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	56	122.39	Y		
MELTABLE FUZE PLUG	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Feb 2020	Aug 2021	1,923	10.40	Y		
SUPPLEMENTAL CHARGE, PBXN9	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	ROCK ISLAND ARSENAL, IL	Feb 2020	Aug 2021	1,923	19.37	Y		

Remarks:
 Supplemental Charge, PBXN9 Is and IDIQ contract awarded to multiple contractors. Requirements will be competed among the following contractors: DZI Lonestar LLC., Texarkana, TX and Chemring Ordnance, INC., Perry FL.
 Melttable Lift Plug: IDIQ contract awarded (FY19) to multiple contractors. Requirements competed among the following contractors: RTI Technologies, Columbia, CT & Polymer Technologies Inc., Clifton, NJ.
 Explosive Fill IMX104 is Requirements contract awarded to Holston Army Ammunition Plant (HSAAP)

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	39.949	33.000	-	74.100	74.100
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	39.949	33.000	-	74.100	74.100
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	39.949	33.000	-	74.100	74.100

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	-	-	64,396.00	528	34.001	65,683.00	480	31.528	-	-	-	56,656.00	1,266	71.726	56,656.00	1,266	71.726	
<i>Subtotal: Recurring Cost</i>	-	-	-	-	34.001	-	-	31.528	-	-	0.000	-	-	71.726	-	-	71.726	
Non Recurring Cost																		
Testing Hardware	-	-	-	-	1.500	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Subtotal: Non Recurring Cost</i>	-	-	-	-	1.500	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Subtotal: Hardware Cost</i>	-	-	-	-	35.501	-	-	31.528	-	-	0.000	-	-	71.726	-	-	71.726	
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	0.060	-	-	-	-	-	0.286	-	-	0.286	
First Article Test	-	-	-	-	-	2.382	-	-	-	-	-	-	-	-	-	-	-	
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	2.382	-	-	0.060	-	-	0.000	-	-	0.286	-	-	0.286	
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	2.066	-	-	1.412	-	-	-	-	-	2.088	-	-	2.088	
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	2.066	-	-	1.412	-	-	0.000	-	-	2.088	-	-	2.088	
Gross/Weapon System Cost	-	-	-	-	39.949	-	-	33.000	-	-	-	-	-	74.100	-	-	74.100	

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types				Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	BAE SYSTEMS BOFORS AB / KARLSKOGA, SWEDEN	SS / FFP	PICATINNY ARSENAL, NJ	Aug 2018	Feb 2020	528	64,396.00	Y		
COMPLETE ROUND ^(†)		2019	BAE SYSTEMS BOFORS AB / KARLSKOGA, SWEDEN	Option / FFP	PICATINNY ARSENAL, NJ	May 2019	Nov 2020	480	65,683.00	Y		
COMPLETE ROUND ^(†)	✓	2020	BAE SYSTEMS BOFORS AB / KARLSKOGA, SWEDEN	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Sep 2021	1,266	56,656.00	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types	
			Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2018												Fiscal Year 2019												B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
COMPLETE ROUND																															
	1	2018	ARMY	528	0	528																								528	
	1	2019	ARMY	480	0	480																								480	
✓	1	2020	ARMY	1,266	0	1,266																								1,266	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types										Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2									

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2020															Fiscal Year 2021															B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
	1	2018	ARMY	528	0	528	-	-	-	-	36	48	48	48	48	48	48	48	48	48	48	48	48	48	12								0				
	1	2019	ARMY	480	0	480	-	-	-	-	-	-	-	-	-	-	-	-	-	48	48	48	48	48	48	48	48	48	48	48	48	48	0				
✓	1	2020	ARMY	1,266	0	1,266						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108	1,158					
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types										Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2									

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2022										Fiscal Year 2023										B A L A N C E				
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022										Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R		M A Y	J U N	J U L	A U G
COMPLETE ROUND																														
	1	2018	ARMY	528	528	0																								0
	1	2019	ARMY	480	480	0																								0
✓	1	2020	ARMY	1,266	108	1,158	108	108	108	108	108	108	102	102	102	102	102													0
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 3102E89500 / ARTILLERY PROJECTILE, 155MM, All Types
		Item Number / Title [DODIC]: E68510 / PROJ, ARTY, 155MM BONUS, MK2

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	BAE SYSTEMS BOFORS AB - KARLSKOGA, SWEDEN	10	118	166	3	11	18	29	3	6	18	24

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition	P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604814A
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Line Item MDAP/MAIS Code: 366

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	9,641	2,841	2,208	-	804	804	737	226	236	232	-	16,925
Gross/Weapon System Cost (<i>\$ in Millions</i>)	927.578	220.234	173.891	-	93.486	93.486	86.282	41.068	43.000	43.000	-	1,628.539
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	927.578	220.234	173.891	-	93.486	93.486	86.282	41.068	43.000	43.000	-	1,628.539
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	927.578	220.234	173.891	-	93.486	93.486	86.282	41.068	43.000	43.000	-	1,628.539

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	96,211.80	77,519.89	78,754.98	-	116,276.12	116,276.12	117,071.91	181,716.81	182,203.39	185,344.83	-	96,220.92

Description:

FY 2020 funding totals include \$0.0M for Base and \$93.486M for Overseas Contingency Operations (OCO); of which \$57.434M and quantity of 441 projectiles is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

FY20 P1 total quantity is an error and does not match the correct quantity reflected in this P-40 Exhibit.

This budget line item includes the Excalibur family of munitions for the use in the M777A2 Lightweight 155mm Howitzer (LW155), the M109A6 Paladin Howitzer, the M109A7 Paladin PIM Howitzer and the Swedish Archer Howitzer.

(E80100) Excalibur is a Precision Guided Extended Range 155mm Artillery projectile providing Brigade Combat Teams an organic precision fires capability. Additionally it provides improved fire support capability due to its increased range of 40.5 kilometers and demonstrated accuracy of less than 3 meters radial miss distances, which enables a first round effect on target reducing the number of rounds required while reducing collateral damage. Excalibur Shaped Trajectory configuration enables user defined angle of attack and angle of fall to maximize effect on target. Excalibur is compatible with the M777A2 Lightweight 155mm Howitzer (LW155), the M109A6 Paladin Howitzer, the M109A7 Paladin PIM Howitzer, and the Swedish Archer Howitzer. Excalibur provides a 35% range increase over current Rocket Assisted Projectiles with a less than 10 meter circular error probable requirement at all ranges. Excalibur is resistant to Global Positioning System (GPS) jamming. Excalibur's mature configuration provides significant growth potential to support the National Defense Strategy, the Army Long Range Precision Fires (LRPF) Cross Functional Team (CFT), Cannon Delivered Area Effects Munitions (C-DAEM) Increment 1 Hit to Kill solution, and M777 Long Range Cannon (LRC) initiatives. Current Excalibur 1b has achieved 62.5 kilometers in Extended Range Cannon Artillery (ERCA) demonstration test.

Excalibur is currently fielded and in use by units throughout Afghanistan and deployed globally to support other Military Contingency Operations. Excalibur is an International Cooperative Development program, teamed with the Kingdom of Sweden (KoS), which contributed resources towards the development in accordance with an established Project Agreement. Excalibur Increment 1a-1 was initially fielded to units in Iraq and Afghanistan in response to an urgent need request in support of Operation Iraqi Freedom (as of September 2010 re-named to Operation New Dawn) and Operation Enduring Freedom. Increment 1a-2 was fielded in early FY 2012 and greatly increases range from 25.2 kilometers to 40.5 kilometers. Excalibur Increment 1b provides further performance improvements while significantly lowering unit costs. Increment 1b completed a successful Initial Operational Test and Evaluation in February 2014 as well as a Full Rate Production Decision Review in June 2014. The Excalibur Increment 1b projectile was Type Classified and Full Material Released in June 2014.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604814A
Line Item MDAP/MAIS Code: 366		
This item is Code A, approved for service use.		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition **P-1 Line Item Number / Title:** 6600E80100 / Proj 155mm Extended Range M982

ID Code (A=Service Ready, B=Not Service Ready): A **Program Elements for Code B Items:** N/A **Other Related Program Elements:** 0604814A

Line Item MDAP/MAIS Code: 366

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]	P-5a, P-21	A		9,641 / 927.578	2,841 / 220.234	2,208 / 173.891	- / -	804 / 93.486	804 / 93.486
P-40	Total Gross/Weapon System Cost				9,641 / 927.578	2,841 / 220.234	2,208 / 173.891	- / -	804 / 93.486	804 / 93.486

*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.

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

Justification:
 The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

This is a critical munition and war reserve item currently being used in combat. The FY 2020 request builds a war reserve inventory in accordance with the Army procurement goals.

FY 2020 funding totals include \$0.0 million for Base and \$93.486 million for Overseas Contingency Operations, with a quantity of 441 Increment 1b projectiles for \$57.434 realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$36.052 million, with a quantity of 363 Increment 1b projectiles for OCO for Enduring Requirements.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982
		Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	9,641	2,841	2,208	-	804	804
Gross/Weapon System Cost (\$ in Millions)	927.578	220.234	173.891	-	93.486	93.486
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	927.578	220.234	173.891	-	93.486	93.486
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	927.578	220.234	173.891	-	93.486	93.486

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	96,211.80	77,519.89	78,754.98	-	116,276.12	116,276.12

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND(†)	90,782.61	9,641	875.235	65,673.32	2,836	186.250	74,770.00	2,157	161.279	-	-	-	99,121.00	804	79.693	99,121.00	804	79.693
CONTAINER, EXCALIBUR	2,100.85	9,641	20.254	2,100.00	2,836	5.956	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	895.489	-	-	192.205	-	-	161.279	-	-	0.000	-	-	79.693	-	-	79.693
Subtotal: Hardware Cost	-	-	895.489	-	-	192.205	-	-	161.279	-	-	0.000	-	-	79.693	-	-	79.693
Software Cost																		
Non Recurring Cost																		
Shape Trajectory	-	-	-	-	-	14.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	-	-	-	14.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Software Cost	-	-	-	-	-	14.000	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	1.881	-	-	1.050	-	-	0.600	-	-	-	-	-	0.371	-	-	0.371
Subtotal: Support - Acceptance Testing Cost	-	-	1.881	-	-	1.050	-	-	0.600	-	-	0.000	-	-	0.371	-	-	0.371
Support - Engineering Change Proposals Cost																		
Engineering Change Proposals	-	-	9.103	-	-	3.925	-	-	4.277	-	-	-	-	-	4.176	-	-	4.176

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982	Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	9.103	-	-	3.925	-	-	4.277	-	-	0.000	-	-	4.176	-	-	4.176
Support - Hardware Analysis Cost																		
Hardware Analysis	-	-	5.350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Hardware Analysis Cost</i>	-	-	5.350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Reliability	-	-	1.325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	1.325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	12.653	-	-	7.554	-	-	7.043	-	-	-	-	-	8.591	-	-	8.591
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	12.653	-	-	7.554	-	-	7.043	-	-	0.000	-	-	8.591	-	-	8.591
Support - Quality Assurance Cost																		
Quality Assurance	-	-	1.776	-	-	1.500	-	-	0.692	-	-	-	-	-	0.654	-	-	0.654
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	1.776	-	-	1.500	-	-	0.692	-	-	0.000	-	-	0.654	-	-	0.654
Gross/Weapon System Cost	96,211.80	9,641	927.578	77,519.89	2,841	220.234	78,754.98	2,208	173.891	-	-	-	116,276.12	804	93.486	116,276.12	804	93.486

Remarks:

Excalibur lb FY 2018 and prior year pricing benefited from contractor funded multiyear procurement strategy to minimize unit costs based on purchase quantities of 2000 - 2500 projectiles regardless of yearly government funding. FY 2019 and future year pricing based on traditional contract strategy of unit pricing depending on individual order quantity.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982				Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	RAYTHEON MISSILE SYSTEMS / TUCSON, AZ	Option / FFP	PICATINNY ARSENAL, NJ	Dec 2017	Sep 2019	821	65,673.32	Y		
COMPLETE ROUND ^(†)		2018	RAYTHEON MISSILE SYSTEMS, CO / TUCSON, AZ	Option / FFP	PICATINNY ARSENAL, NJ	Jun 2018	Jan 2020	2,015	65,673.32	Y		
COMPLETE ROUND ^(†)		2019	RAYTHEON MISSILE SYSTEMS,CO. / TUCSON, AZ	SS / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jan 2021	2,157	74,770.00	Y		
COMPLETE ROUND ^(†)	✓	2020	RAYTHEON MISSILE SYSTEMS,CO. / TUCSON, AZ	Option / FFP	PICATINNY ARSENAL, NJ	Dec 2019	Jan 2022	804	99,121.00	Y		

^(†) indicates the presence of a P-21

Remarks:

FY 2018 awards are options to an original competitive contract awarded in 2008.
FY 2019 is a new Sole Source contract.

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Exhibit P-21, Production Schedule: PB 2020 Army			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982	
Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]			

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2018														Fiscal Year 2019														B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 7	BAL D U E A S O F 1 O C T	Calendar Year 2018														Calendar Year 2019														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 9641																																			
	1	2018	ARMY	821	0	821		A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	621					
	2	2018	ARMY	2,015	0	2,015																								2,015					
	2	2018	MC (†)	69	0	69																								69					
	2	2018	Total	2,084	0	2,084																								2,084					
	3	2019	ARMY	2,157	0	2,157																					A	-		2,157					
✓	3	2020	ARMY	804	0	804																								804					
							O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S					
							C	O	E	A	E	A	A	A	U	U	U	E	C	O	O	E	A	F	A	A	U	J	J	A	S				
							T	V	C	N	B	R	R	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G	P					

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982										Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]									

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2020															Fiscal Year 2021															BALANCE		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020															Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
COMPLETE ROUND																																					
Prior Years Deliveries: 9641																																					
	1	2018	ARMY	821	200	621	200	200	200	21																							0				
	2	2018	ARMY	2,015	0	2,015	-	-	-	179	184	184	184	184	184	184	183	183	183	183	-												0				
	2	2018	MC (†)	69	0	69	-	-	-	-	-	-	-	-	-	-	-	-	-	69												0					
	2	2018	Total	2,084	0	2,084	-	-	-	179	184	184	184	184	184	183	183	183	183	69	-	-	-	-	-	-	-	-	-	-	-	0					
	3	2019	ARMY	2,157	0	2,157	-	-	-	-	-	-	-	-	-	-	-	-	-	-	179	180	180	180	180	180	180	180	180	180	180	538					
✓	3	2020	ARMY	804	0	804			A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	804						
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37				P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982				Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]			

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2022													Fiscal Year 2023													BALANCE		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				
COMPLETE ROUND																																		
Prior Years Deliveries: 9641																																		
	1	2018	ARMY	821	821	0																												0
	2	2018	ARMY	2,015	2,015	0																												0
	2	2018	MC (†)	69	69	0																												0
	2	2018	Total	2,084	2,084	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
	3	2019	ARMY	2,157	1,619	538	180	180	178																									0
✓	3	2020	ARMY	804	0	804	-	-	-	134	134	134	134	134	134																		0	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 6600E80100 / Proj 155mm Extended Range M982
		Item Number / Title [DODIC]: E80103 / PROJ, 155mm ARTY, Extended Range M982-U Excalibur [DA58]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	RAYTHEON MISSILE SYSTEMS - TUCSON, AZ	40	200	400	12	3	21	24	12	9	19	28
2	RAYTHEON MISSILE SYSTEMS, CO - TUCSON, AZ	40	200	400	12	9	19	28	12	9	19	28
3	RAYTHEON MISSILE SYSTEMS,CO. - TUCSON, AZ	40	200	400	12	6	22	28	12	3	25	28

Remarks:
FY 2018 funded delivery period longer than 12 months due to unplanned increase in funds to support the critical munitions and to execute all available headspace on expiring contract to receive the most economical unit price.

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,573.033	182.791	270.577	-	278.873	278.873	297.390	228.937	192.484	223.115	-	3,247.200
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,573.033	182.791	270.577	-	278.873	278.873	297.390	228.937	192.484	223.115	-	3,247.200
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,573.033	182.791	270.577	-	278.873	278.873	297.390	228.937	192.484	223.115	-	3,247.200

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$278.873M for Overseas Contingency Operations (OCO); of which \$271.602M and quantity of 292,625 fuzes, 375,975 charges and 146,190 primers is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

(E27501) Artillery Propellants, Fuzes and Primers, All Types.

(E63000) ARTY, 155MM PRIMER PERCUSSION M82 SERIES

The M82 Percussion Primer is intended for use with all United States 155mm cannon field artillery systems. The M82 Series Percussion Primer is used to initiate the burning of propellant charges and consists of a cylindrical brass case with an extraction flange which contains a base plunger, an ignition element which contains Primer #34 and a container loaded with 22 grains of black powder.

This item is Code A, approved for service use.

(E99909) ARTY, FUZE MOFA M782 SERIES

The Multi-Option Fuze for Artillery (MOFA) is compatible with all bursting ammunition fired from all 105mm and 155mm cannon systems including M119, M109, and M777 series firing platforms and cannon assemblies. The MOFA provides proximity, precision time, delay and impact functions in a single fuze. The inductive fuze set feature optimizes MOFA for use with automated ammunition handling equipment. The MOFA combines proven subassemblies such as the safe and arm device with reserve batteries and a proximity sensor technology to affordably achieve enhanced performance, producibility and safety.

This item is Code A, approved for service use.

(E27502) ARTY, 155MM PROP CHG, MACS M231 SERIES

The Modular Artillery Charge System (MACS), M231 "Low Zone is intended for use with all US 155mm cannon field artillery systems in use and development. The M231 is a "low-zone" increment designed to achieve ranges from 3.0 to 12 kilometers. Each MACS increment includes propellant, an ignition system, and a combustible case. Packaging permits long-term storage and helps protect the items from unplanned stimuli.

This item is Code A, approved for service use

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E99250) ARTY, FUZE, PRECISION GUIDANCE KIT (PGK) The Precision Guidance Kit (PGK) is a course correcting fuze that provides precision accuracy and efficiency for 155mm M795 and M549A1 High Explosive (HE) projectiles by eliminating a portion of the inherent errors associated with ballistic firing solutions which effectively reduces the number of projectiles required to execute fire missions. PGK utilizes a Global Positioning System (GPS) receiver and internal Guidance and Navigation Computer to accomplish its mission with point detonating and height of burst fuzing functions. PGK is compatible with the M777A2 Lightweight 155mm Howitzer (LW155), the M109A6 Paladin Howitzer, and the M109A7 Paladin PIM Howitzer. PGK supports the National Defense Strategy and future 155mm projectiles and M777 Long Range Cannon (LRC) initiatives. This item is Code A, approved for service use.</p> <p>(ER8021) ARTY, 155MM PROP CHG, MACS M232 SERIES The Modular Artillery Charge System (MACS) M232 "High Zone" is intended for use with all United States 155mm cannon field artillery systems. The M232 "High Zone" increment is designed to achieve ranges from 10 to 40 kilometers. Each MACS increment includes propellant, an ignition system, and a combustible case. Performance enhancing additives are included in the M232 "High Zone" increment. Packaging permits long-term storage and helps protect the items from unplanned stimuli. This item is Code A, approved for service use.</p> <p>(E62208) ARTY, FUZE PD M739A1 The M739A1 Point Detonating (PD) and Delay Fuze is the Army's preferred, primary fuze for 105mm and 155mm projectiles to address point detonating/delay artillery functions. The M739A1 fuze contains an Impact Delay Module (IDM) assembly. The IDM provides fuze initiation delay based upon the completion of mechanical actions caused by projectile deceleration and will function immediately after passing through the target. This item is Code A, approved for service use.</p>		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition

P-1 Line Item Number / Title:
8750E27501 / Artillery Propellants, Fuzes and Primers, All

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E27502 / PROP CHG, 155mm ARTY MACS, M231 Series [DA12]	P-5a	A		- / 314.884	- / -	- / -	- / -	- / 7.560	- / 7.560
P-5	E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]	P-5a, P-21	A		- / 232.994	- / 36.301	- / 30.335	- / -	- / 25.666	- / 25.666
P-5	E63000 / PRIMER, 155mm ARTY Percussion, M82 Series [N523]		A		- / 40.610	- / 2.080	- / 2.447	- / -	- / 2.494	- / 2.494
P-5	E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]	P-5a, P-21	A		- / 351.293	- / 144.410	- / 217.933	- / -	- / 164.176	- / 164.176
P-5	E99909 / Multi-Option Fuze, Artillery M782 [NA09]		A		- / 10.000	- / -	- / -	- / -	- / 2.700	- / 2.700
P-5	ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]	P-5a, P-21	A		- / 623.252	- / -	- / 19.862	- / -	- / 76.277	- / 76.277
P-40	Total Gross/Weapon System Cost				- / 1,573.033	- / 182.791	- / 270.577	- / -	- / 278.873	- / 278.873

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$278.873 million for Overseas Contingency Operations, with a quantity of 292,625 fuzes, 375,975 charges and 146,190 primers for \$271.602 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$7.271 million, with a quantity of 955 PGK's for OCO for Direct War Costs in support of Operation Inherent Resolve for ISIL.

(E63000) ARTY, 155MM PRIMER PERCUSSION M82 Series
This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.494 million supports production of 146,190 primers.
TYPE CLASSIFICATION DATE: MAY 1961

(E99909) ARTY, FUZE MOFA M782 SERIES
This is a training standard item used in training and combat. FY 2020 request supports annual training and a builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.700 million supports product improvement. E99909 is a new start in FY 2020.
TYPE CLASSIFICATION: 1999

(E27502) ARTY, 155MM PROP CHG, MACS M231 Series

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 37: Artillery Ammunition		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$7.560 million supports production of 40,180 charges. E27502 is a new start in FY 2020. TYPE CLASSIFICATION DATE: 1999</p> <p>(E99250) ARTY, FUZE, PRECISION GUIDANCE KIT (PGK) This is a critical munition and war reserve item used in both training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$156.905 million supports the procurement of 16,592 PGK fuzes. FY 2020 \$7.271M million OCO for Direct War Costs supports the procurement of 955 critical Army munitions consumed in support of deployed units ongoing military operations. TYPE CLASSIFICATION DATE: October 2015</p> <p>(ER8021) ARTY, 155MM PROP CHG, MACS M232 SERIES This is a training standard item used in training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$76.277 million supports production of 335,795 charges. TYPE CLASSIFICATION DATE: 2001</p> <p>(E62208) ARTY, FUZE PD M739 Series This is a training standard item used in training and combat. FY 2020 request supports annual training and a builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$25.666 million supports production of 276,033 fuzes. TYPE CLASSIFICATION: 1982</p>		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: E27502 / PROP CHG, 155mm ARTY MACS, M231 Series [DA12]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	314.884	-	-	-	7.560	7.560
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	314.884	-	-	-	7.560	7.560
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	314.884	-	-	-	7.560	7.560

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	314.884	-	-	-	-	-	-	-	-	-	95.10	40,180	3.821	95.10	40,180	3.821
COMBUSTIBLE CASES - M231 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	44.72	41,385	1.851	44.72	41,385	1.851
CONTAINER, M231 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	59.35	10,446	0.620	59.35	10,446	0.620
IGNITION PROPELLANT, MACS ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	11.30	2,571	0.029	11.30	2,571	0.029
<i>Subtotal: Recurring Cost</i>	-	-	<i>314.884</i>	-	-	-	-	-	-	-	-	0.000	-	-	<i>6.321</i>	-	-	<i>6.321</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>314.884</i>	-	-	-	-	-	-	-	-	0.000	-	-	<i>6.321</i>	-	-	<i>6.321</i>
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.077	-	-	0.077
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	<i>0.077</i>	-	-	<i>0.077</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.162	-	-	1.162
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	<i>1.162</i>	-	-	<i>1.162</i>
Gross/Weapon System Cost	-	-	314.884	-	-	-	-	-	-	-	-	-	-	-	7.560	-	-	7.560

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: E27502 / PROP CHG, 155mm ARTY MACS, M231 Series [DA12]
ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:	
^(†) indicates the presence of a P-5a		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All				Item Number / Title [DODIC]: E27502 / PROP CHG, 155mm ARTY MACS, M231 Series [DA12]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2022	40,180	95.10	Y		
COMBUSTIBLE CASES - M231	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Sep 2021	41,385	44.72	Y		
CONTAINER, M231	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	10,446	59.35	Y		
IGNITION PROPELLANT, MACS	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	2,571	11.30	Y		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	232.994	36.301	30.335	-	25.666	25.666
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	232.994	36.301	30.335	-	25.666	25.666
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	232.994	36.301	30.335	-	25.666	25.666

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(t)	-	-	232.994	71.05	452,000	32.115	75.36	324,992	24.491	-	-	-	76.86	276,033	21.216	76.86	276,033	21.216
Subtotal: Recurring Cost	-	-	232.994	-	-	32.115	-	-	24.491	-	-	0.000	-	-	21.216	-	-	21.216
Subtotal: Hardware Cost	-	-	232.994	-	-	32.115	-	-	24.491	-	-	0.000	-	-	21.216	-	-	21.216
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	1.655	-	-	2.597	-	-	-	-	-	1.029	-	-	1.029
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	1.655	-	-	2.597	-	-	0.000	-	-	1.029	-	-	1.029
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	2.531	-	-	3.246	-	-	-	-	-	3.422	-	-	3.422
Subtotal: Support - Production Engineering Cost	-	-	-	-	-	2.531	-	-	3.246	-	-	0.000	-	-	3.422	-	-	3.422
Gross/Weapon System Cost	-	-	232.994	-	-	36.301	-	-	30.335	-	-	-	-	-	25.666	-	-	25.666

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All				Item Number / Title [DODIC]: E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	ACTION MANUFACTURING COMPANY / BRISTOL, PA	C / IDIQ	PICATINNY ARSENAL, NJ	Sep 2018	Sep 2021	272,000	71.05	Y		
COMPLETE ROUND ^(†)		2018	AMTEC CORPORATION / JANESVILLE, WI	C / IDIQ	PICATINNY ARSENAL, NJ	Sep 2018	Sep 2021	180,000	71.05	Y		
COMPLETE ROUND ^(†)		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2022	324,992	75.36	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2023	276,033	76.86	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army			Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All			Item Number / Title [DODIC]: E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]		

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2018												Fiscal Year 2019												BALANCE																							
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019																																	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P																					
COMPLETE ROUND																																																				
	1	2018	ARMY	272.000	.000	272.000																							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	272.000	
	1	2018	MC (†)	4.576	.000	4.576																							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.576
	1	2018	Total	276.576	.000	276.576																							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	276.576	
	3	2018	ARMY	180.000	.000	180.000																							A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180.000
	2	2019	ARMY	324.992	.000	324.992																																														324.992
	✓ 2	2020	ARMY	276.033	.000	276.033																																													276.033	

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Exhibit P-21, Production Schedule: PB 2020 Army																							Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity:						P-1 Line Item Number / Title:										Item Number / Title [DODIC]:														
2034A / 01 / 37						8750E27501 / Artillery Propellants, Fuzes and Primers, All										E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]														
Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020										Fiscal Year 2021							B A L A N C E							
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020										Calendar Year 2021													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N		F E B	M A R	A P R	M A Y	J U N	J U L	A U G
COMPLETE ROUND																														
	1	2018	ARMY	272.000	.000	272.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.666	249.334
	1	2018	MC (†)	4.576	.000	4.576	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.576
	1	2018	Total	276.576	.000	276.576	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.666	253.910
	3	2018	ARMY	180.000	.000	180.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.000	165.000
	2	2019	ARMY	324.992	.000	324.992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	324.992
✓	2	2020	ARMY	276.033	.000	276.033																								276.033
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All										Item Number / Title [DODIC]: E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]									

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022												Fiscal Year 2023												B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022												Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
COMPLETE ROUND																															
	1	2018	ARMY	272.000	22.666	249.334	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	.000
	1	2018	MC (†)	4.576	.000	4.576	-	4.576	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
	1	2018	Total	276.576	22.666	253.910	22.666	27.242	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	22.666	.000
	3	2018	ARMY	180.000	15.000	165.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000	.000	
	2	2019	ARMY	324.992	.000	324.992	-	-	-	-	-	5.000	27.000	27.000	27.000	27.000	27.000	30.832	30.832	30.832	30.832	30.832	30.832	30.832	30.832	30.832	30.832	30.832	30.832	.000	
✓	2	2020	ARMY	276.033	.000	276.033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115.033		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army																							Date: March 2019							
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All										Item Number / Title [DODIC]: E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]										
Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2024										Fiscal Year 2025										B A L A N C E					
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 2 3	BAL D U E A S O F 1 O C T	Calendar Year 2024										Calendar Year 2025													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R		A P R	M A Y	J U N	J U L	A U G
COMPLETE ROUND																														
	1	2018	ARMY	272.000	272.000	.000																								.000
	1	2018	MC (†)	4.576	4.576	.000																								.000
	1	2018	Total	276.576	276.576	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000
	3	2018	ARMY	180.000	180.000	.000																							.000	
	2	2019	ARMY	324.992	324.992	.000																							.000	
✓	2	2020	ARMY	276.033	161.000	115.033	23.000	23.000	23.000	23.000	23.033																		.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
		Item Number / Title [DODIC]: E62208 / FUZE, 155mm ARTY Point Detonating (PD), M739 Series [N340]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	ACTION MANUFACTURING COMPANY - BRISTOL, PA	20,000	35,000	50,000	10	10	36	46	10	10	36	46
2	TO BE SELECTED - TBS01	20,000	35,000	50,000	2	2	36	38	6	6	36	42
3	AMTEC CORPORATION - JANESVILLE, WI	2,500	5,000	10,000	10	10	36	46	10	10	36	46

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule. "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: E63000 / PRIMER,155mm ARTY Percussion, M82 Series [N523]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	40.610	2.080	2.447	-	2.494	2.494
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	40.610	2.080	2.447	-	2.494	2.494
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	40.610	2.080	2.447	-	2.494	2.494

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	40.610	7.05	240,000	1.692	12.46	115,200	1.435	-	-	-	12.46	146,190	1.822	12.46	146,190	1.822
Subtotal: Recurring Cost	-	-	40.610	-	-	1.692	-	-	1.435	-	-	0.000	-	-	1.822	-	-	1.822
Subtotal: Hardware Cost	-	-	40.610	-	-	1.692	-	-	1.435	-	-	0.000	-	-	1.822	-	-	1.822
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.026	-	-	0.075	-	-	-	-	-	0.075	-	-	0.075
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	0.026	-	-	0.075	-	-	0.000	-	-	0.075	-	-	0.075
Support - Product Improvement Cost																		
Production Qualification Test	-	-	-	-	-	-	-	-	0.372	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	-	-	-	0.372	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.362	-	-	0.564	-	-	-	-	-	0.597	-	-	0.597
Subtotal: Support - Production Engineering Cost	-	-	-	-	-	0.362	-	-	0.564	-	-	0.000	-	-	0.597	-	-	0.597
Gross/Weapon System Cost	-	-	40.610	-	-	2.080	-	-	2.447	-	-	-	-	-	2.494	-	-	2.494

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Exhibit P-5, Cost Analysis: PB 2020 Army						Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All			Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]		
ID Code (A=Service Ready, B=Not Service Ready) : A						MDAP/MAIS Code:		
Resource Summary			Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)			-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)			351.293	144.410	217.933	-	164.176	164.176
Less PY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)			351.293	144.410	217.933	-	164.176	164.176
Plus CY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)			351.293	144.410	217.933	-	164.176	164.176
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>								
Initial Spares (\$ in Millions)			-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)			-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	11,206.59	29,386	329.317	6,821.92	17,623	120.223	6,934.14	23,454	162.633	-	-	-	7,286.95	17,547	127.864	7,286.95	17,547	127.864
<i>Subtotal: Recurring Cost</i>	-	-	329.317	-	-	120.223	-	-	162.633	-	-	0.000	-	-	127.864	-	-	127.864
Non Recurring Cost																		
Rhapsody II ASIC Chips	147.00	25,000	3.675	147.00	11,909	1.751	-	-	-	-	-	-	-	-	-	-	-	-
Extended Production Capacity	-	-	0.389	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M762A1 Safe & Arm	-	-	0.804	-	-	3.737	-	-	-	-	-	-	-	-	-	-	-	-
GPS Receiver Obsolescence (M-Code Compliance)	-	-	1.330	-	-	4.827	-	-	5.043	-	-	-	-	-	5.000	-	-	5.000
PBXW-14 Booster Pellet	-	-	-	-	-	0.169	-	-	0.500	-	-	-	-	-	-	-	-	-
Melody II ASIC Chips	-	-	-	-	-	2.618	-	-	23.100	-	-	-	-	-	15.000	-	-	15.000
CINCO II Chips	-	-	-	-	-	0.856	-	-	0.710	-	-	-	-	-	-	-	-	-
Melody II Qual	-	-	-	-	-	-	-	-	2.000	-	-	-	-	-	3.075	-	-	3.075
MMIC Chips EOL Buy	-	-	-	-	-	-	-	-	2.852	-	-	-	-	-	-	-	-	-
<i>Subtotal: Non Recurring Cost</i>	-	-	6.198	-	-	13.958	-	-	34.205	-	-	0.000	-	-	23.075	-	-	23.075
<i>Subtotal: Hardware Cost</i>	-	-	335.515	-	-	134.180	-	-	196.838	-	-	0.000	-	-	150.939	-	-	150.939

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	6.017	-	-	2.000	-	-	5.922	-	-	-	-	-	2.140	-	-	2.140
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	6.017	-	-	2.000	-	-	5.922	-	-	0.000	-	-	2.140	-	-	2.140
Support - Engineering Change Proposals Cost																		
Engineering Change Proposals	-	-	1.000	-	-	0.848	-	-	6.000	-	-	-	-	-	2.320	-	-	2.320
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	1.000	-	-	0.848	-	-	6.000	-	-	0.000	-	-	2.320	-	-	2.320
Support - New Equipment Training (NET) Cost																		
Equipment	-	-	2.913	-	-	1.600	-	-	2.205	-	-	-	-	-	1.600	-	-	1.600
<i>Subtotal: Support - New Equipment Training (NET) Cost</i>	-	-	2.913	-	-	1.600	-	-	2.205	-	-	0.000	-	-	1.600	-	-	1.600
Support - Production Engineering Cost																		
Production Engineering	-	-	5.848	-	-	5.782	-	-	6.968	-	-	-	-	-	7.177	-	-	7.177
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	5.848	-	-	5.782	-	-	6.968	-	-	0.000	-	-	7.177	-	-	7.177
Gross/Weapon System Cost	-	-	351.293	-	-	144.410	-	-	217.933	-	-	-	-	-	164.176	-	-	164.176

Remarks:

Engineering Change Proposals - \$6M in FY 2019 and \$2.320M in FY 2020 for Value Engineering Change Proposal (VECP) Investment/Qualification to reduce Unit Cost (~\$600 per unit), and to mitigate future potential obsolescence risks.

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All				Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	SS / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Mar 2020	17,623	6,821.92	Y		
COMPLETE ROUND ^(†)		2019	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2021	23,454	6,934.14	Y		
COMPLETE ROUND ^(†)	✓	2020	NORTHROP GRUMMAN INNOVATION / PLYMOUTH, MN	Option / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2022	17,547	7,286.95	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army												Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37						P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All												Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]					

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2018												Fiscal Year 2019												BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
COMPLETE ROUND																															
Prior Years Deliveries: 29386																															
	1	2018	ARMY	17.623	.000	17.623																							17.623		
	1	2018	MC (†)	2.304	.000	2.304																							2.304		
	1	2018	Total	19.927	.000	19.927																							19.927		
	1	2019	ARMY	23.454	.000	23.454																							23.454		
	1	2019	MC (†)	1.593	.000	1.593																							1.593		
	1	2019	Total	25.047	.000	25.047																							25.047		
✓	1	2020	ARMY	17.547	.000	17.547																							17.547		
✓	1	2020	MC (†)	7.020	.000	7.020																							7.020		
✓	1	2020	Total OCO	24.567	.000	24.567																							24.567		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army												Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37						P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All												Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]					

Cost Elements <i>(Units in Thousands)</i>				Fiscal Year 2020														Fiscal Year 2021														B A L A N C E			
O C C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 29386																																			
1	2018	ARMY	17.623	.000	17.623	-	-	-	-	-	-	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.468	1.475			.000						
1	2018	MC (+)	2.304	.000	2.304	-	-	-	-	-	.152	.152	.152	.190	.190	.190	.190	.210	.210	.210	.225	.233							.000						
1	2018	Total	19.927	.000	19.927	-	-	-	-	-	1.620	1.620	1.620	1.658	1.658	1.658	1.658	1.678	1.678	1.678	1.693	1.708	-	-	-	-	-	-	.000						
1	2019	ARMY	23.454	.000	23.454	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.945	1.945	1.945	1.950	1.950	1.950	1.950	9.819
1	2019	MC (+)	1.593	.000	1.593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.126	.126	.126	.126	.126	.126	.139	.698
1	2019	Total	25.047	.000	25.047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.071	2.071	2.071	2.076	2.076	2.076	2.089	10.517
✓	1	2020	ARMY	17.547	.000	17.547						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.547	
✓	1	2020	MC (+)	7.020	.000	7.020						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.020	
✓	1	2020	Total OCO	24.567	.000	24.567						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.567	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army				Date: March 2019																											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37				P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All														Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]													

O C O		M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Fiscal Year 2022													Fiscal Year 2023													B A L A N C E	
								Calendar Year 2022														Calendar Year 2023													
								O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				

COMPLETE ROUND

Prior Years Deliveries: 29386

	1	2018	ARMY	17.623	17.623	.000																										.000
	1	2018	MC (*)	2.304	2.304	.000																										.000
	1	2018	Total	19.927	19.927	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000
	1	2019	ARMY	23.454	13.635	9.819	1.950	1.959	1.970	1.970	1.970																					.000
	1	2019	MC (*)	1.593	.895	.698	.139	.139	.139	.139	.142																					.000
	1	2019	Total	25.047	14.530	10.517	2.089	2.098	2.109	2.109	2.112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000
	✓ 1	2020	ARMY	17.547	.000	17.547	-	-	-	-	-	1.522	1.435	1.435	1.435	1.446	1.446	1.446	1.446	1.446	1.446	1.480	1.564								.000	
	✓ 1	2020	MC (*)	7.020	.000	7.020	-	-	-	-	-	.606	.574	.574	.574	.574	.574	.584	.585	.585	.585	.592	.613								.000	
	✓ 1	2020	Total OCO	24.567	.000	24.567	-	-	-	-	-	2.128	2.009	2.009	2.009	2.020	2.020	2.030	2.031	2.031	2.031	2.072	2.177	-	-	-	-	-	-	-	.000	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
		Item Number / Title [DODIC]: E99250 / FUZE, 155mm ARTY Precision Guidance Kit (PGK) [NA29]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NORTHROP GRUMMAN INNOVATION - PLYMOUTH, MN	333	1,100	2,200	13	9	27	36	3	6	24	30

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: E99909 / Multi-Option Fuze, Artillery M782 [NA09]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	10.000	-	-	-	2.700	2.700
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	10.000	-	-	-	2.700	2.700
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	10.000	-	-	-	2.700	2.700

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	10.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>10.000</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	<i>10.000</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Reliability	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.700	-	-	2.700
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	-	-	-	-	-	-	<i>0.000</i>	-	-	<i>2.700</i>	-	-	<i>2.700</i>
Gross/Weapon System Cost	-	-	10.000	-	-	-	-	-	-	-	-	-	-	-	2.700	-	-	2.700

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	623.252	-	19.862	-	76.277	76.277
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	623.252	-	19.862	-	76.277	76.277
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	623.252	-	19.862	-	76.277	76.277

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	621.372	-	-	-	25.50	94,650	2.414	-	-	-	53.25	335,795	17.881	53.25	335,795	17.881
PROPELLANT, M31A2 ^(†)	-	-	-	-	-	-	19.92	459,000	9.143	-	-	-	20.31	1,618,532	32.872	20.31	1,618,532	32.872
CONTAINER, M232A1 ^(†)	-	-	-	-	-	-	60.94	19,512	1.189	-	-	-	62.15	70,516	4.383	62.15	70,516	4.383
CTG CASE COMBUSTIBLE F/155MM M ^(†)	-	-	-	-	-	-	42.16	95,536	4.028	-	-	-	44.67	345,869	15.450	44.67	345,869	15.450
IGNITION PROPELLANT, MACS ^(†)	-	-	-	-	-	-	11.08	6,100	0.068	-	-	-	11.30	21,827	0.247	11.30	21,827	0.247
<i>Subtotal: Recurring Cost</i>	-	-	621.372	-	-	-	-	-	16.841	-	-	0.000	-	-	70.833	-	-	70.833
<i>Subtotal: Hardware Cost</i>	-	-	621.372	-	-	-	-	-	16.841	-	-	0.000	-	-	70.833	-	-	70.833
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	0.865	-	-	-	-	-	0.509	-	-	0.509
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.865	-	-	0.000	-	-	0.509	-	-	0.509
Support - Production Engineering Cost																		
Production Engineering	-	-	1.880	-	-	-	-	-	2.156	-	-	-	-	-	4.935	-	-	4.935

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37	P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All	Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.880	-	-	-	-	-	2.156	-	-	0.000	-	-	4.935	-	-	4.935
Gross/Weapon System Cost	-	-	623.252	-	-	-	-	-	19.862	-	-	-	-	-	76.277	-	-	76.277

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37			P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All					Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]				

Cost Elements	O C O	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
LOAD, ASSEMBLE, PACK (LAP) ^(†)		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Jun 2019	Jun 2021	94,650	25.50	Y		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2022	335,795	53.25	Y		
PROPELLANT, M31A2		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Nov 2020	459,000	19.92	Y		
PROPELLANT, M31A2	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Nov 2021	1,618,532	20.31	Y		
CONTAINER, M232A1		2019	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	19,512	60.94	Y		
CONTAINER, M232A1	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	70,516	62.15	Y		
CTG CASE COMBUSTIBLE F/155MM M		2019	ARMTEC DEFENSE PRODUCTS CO / COACHELLA, CA	C / FFP	PICATINNY ARSENAL, NJ	Jan 2019	Jan 2020	95,536	42.16	Y		
CTG CASE COMBUSTIBLE F/155MM M	✓	2020	TO BE SELECTED / TBS01	C / IDIQ	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	345,869	44.67	Y		
IGNITION PROPELLANT, MACS		2019	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	6,100	11.08	Y		
IGNITION PROPELLANT, MACS	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	21,827	11.30	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
		Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2019													Fiscal Year 2020													B A L A N C E		
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019													Calendar Year 2020													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
LOAD, ASSEMBLE, PACK (LAP)																																	
	1	2019	ARMY	94.650	.000	94.650																								94.650			
✓	1	2020	ARMY	335.795	.000	335.795																								335.795			
✓	1	2020	MC (†)	28.114	.000	28.114																								28.114			
✓	1	2020	Total OCO	363.909	.000	363.909																								363.909			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All										Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2021												Fiscal Year 2022												B A L A N C E	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 2 0	BAL D U E A S O F 1 O C T	Calendar Year 2021												Calendar Year 2022												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
LOAD, ASSEMBLE, PACK (LAP)																															
	1	2019	ARMY	94.650	.000	94.650	-	-	-	-	-	-	-	-	11.210	29.000	29.000	25.440	-	-	-	-	-	-	-	-	-	-	-	.000	
✓	1	2020	ARMY	335.795	.000	335.795	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140.795	
✓	1	2020	MC (†)	28.114	.000	28.114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
✓	1	2020	Total OCO	363.909	.000	363.909	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140.795	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019									
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37										P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All										Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]				

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2023										Fiscal Year 2024										B A L A N C E								
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	BAL DUE AS OF 1 OCT	Calendar Year 2023										Calendar Year 2024																	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R		M A Y	J U N	J U L	A U G	S E P			
LOAD, ASSEMBLE, PACK (LAP)																																		
	1	2019	ARMY	94.650	94.650	.000																												.000
✓	1	2020	ARMY	335.795	195.000	140.795	30.000	30.000	30.000	30.000	20.795																						.000	
✓	1	2020	MC (†)	28.114	28.114	.000	-	-	-	-	-																						.000	
✓	1	2020	Total OCO	363.909	223.114	140.795	30.000	30.000	30.000	30.000	20.795	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 37		P-1 Line Item Number / Title: 8750E27501 / Artillery Propellants, Fuzes and Primers, All
		Item Number / Title [DODIC]: ER8021 / PROP CHG, 155mm ARTY MACS, M232 Series [DA67]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	30,000	50,000	125,000	6	6	24	30	6	6	24	30

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 43: Mines **P-1 Line Item Number / Title:** 0442EA0800 / Mines & Clearing Charges, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	186.469	15.557	15.005	-	55.433	55.433	65.345	52.517	49.423	51.882	-	491.631
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	186.469	15.557	15.005	-	55.433	55.433	65.345	52.517	49.423	51.882	-	491.631
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	186.469	15.557	15.005	-	55.433	55.433	65.345	52.517	49.423	51.882	-	491.631

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$55.433M for Overseas Contingency Operations (OCO); of which \$55.433M and quantity of 2,954 for four different variants of mines and clearing charges is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Mines and Mine Clearing Charges, All Types.

(E72194) The M88 Practice Mine canister contains an expulsion charge and six Inert weighted simulants providing similar effects to the M87 & M87A1 tactical canisters. The use of four M88 canisters in the four corners of the M139 Volcano System provide Warfighters the live fire effect by expelling the six dumb mines marking the start and end of a training mine field. The M88 when fired expels the six inert simulants at the same distance and distributions of density to represent similar emplacement of a tactical obstacle field. The M88 canisters are a onetime use class V ammo item. This item is Code A, approved for service use.

(E72800) MK7 Mod2 The Anti-Personnel Obstacle Breaching System (APOBS) is used by dismounted troops in combat operations to clear a lane through wire obstacles and anti-personnel mines. This item is a lightweight, self-contained, 1 shot expendable system that is transported and deployed by a 2 man team. It consists of a line charge/fuze assembly and a rocket motor assembly. APOBS uses the EX126 Mod 0 rocket motor to propel a line charge over the obstacle. The line is then exploded, clearing a lane. The APOBS System is being actively used in Combat Engineering Operations. This item is Code A, approved for service use.

(E75102) The M68A2 is the training ammunition for the M58A4 Linear Demolition Charge. It is identical to the M58A4 except all explosive components have been replaced with non-explosive components of identical weight. It can be recovered after deployment by the MK22 MOD4 rocket and used up to three times. This item is Code A, approved for service use.

(E76900) The MK22 MOD4 rocket is used to deploy the M58A4 Linear Demolition Charge or the M68A2 Inert Line Charge over a target obstacle. One rocket is used with each M58A4 and up to 3 can be used with each M68A2. This item is Code A, approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 43: Mines **P-1 Line Item Number / Title:** 0442EA0800 / Mines & Clearing Charges, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E72194 / MINE, Practice, M88 (VOLCANO) [K042]				- / 19.935	- / -	- / -	- / -	- / 1.385	- / 1.385
P-5	E72800 / Anti-Pers Obstacle Breachng Sys(APOBS), MK7 w/Mods [MN79]	P-5a, P-21	A		- / 73.341	- / 15.557	- / 15.005	- / -	- / 16.194	- / 16.194
P-5	E75102 / LINE CHARGE INERT M68A2 F/MICLIC [M914]	P-5a, P-21	A		- / 35.903	- / -	- / -	- / -	- / 19.564	- / 19.564
P-5	E76900 / ROCKET, Motor 5 in, MK22 MOD 4 f/MICLIC [J143]	P-5a, P-21	A		- / 57.290	- / -	- / -	- / -	- / 18.290	- / 18.290
P-40	Total Gross/Weapon System Cost				- / 186.469	- / 15.557	- / 15.005	- / -	- / 55.433	- / 55.433

*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.

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

Justification:

The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0M for Base and \$55.433 million for Overseas Contingency Operations, with a quantity of 2,954 for four different variants of mines and clearing charges for \$55.433 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E72194) Practice M88 Volcano

This is a training standard item used in functional training. The FY 2020 request supports annual training and builds a reserve to support out year training in accordance with the Army's procuring objectives. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.385 million supports the production of 672 rounds. E72194 is a new start in FY 2020. Type Classification Date: 1989

(E72800) Anti-Personnel Obstacle Breaching Sys (APOBS), MK7 w/Mods

This is a training standard item used in training and combat. The FY 2020 request supports building of currently short war reserve stocks to meet the Army's readiness and procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$16.194 million supports the production of 1,092 rounds. Type Classification Date: 2001

(E75102) Series Line Charge for MICLIC

This is a training standard item used in training. The FY 2020 request supports replenishment of projected training losses to maintain inventory at a healthy readiness level. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$19.564 million supports the production of 300 rounds. E75102 is a new start in FY 2020. Type Classification Date: 1985

(E76900) MICLIC 5 In Rocket Motor MK 22 MOD 4

This is a training standard item used in training and combat. The FY 2020 request supports replenishment of projected training and other losses to maintain inventory at a healthy readiness level. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$18.290 million supports the production of 890 rounds. E76900 is a new start in FY 2020. Type Classification Date: 1985

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43	P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types	Item Number / Title [DODIC]: E72194 / MINE, Practice, M88 (VOLCANO) [K042]

ID Code (A=Service Ready, B=Not Service Ready) :				MDAP/MAIS Code:					
Resource Summary				Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)				-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)				19.935	-	-	-	1.385	1.385
Less PY Advance Procurement (<i>\$ in Millions</i>)				-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)				19.935	-	-	-	1.385	1.385
Plus CY Advance Procurement (<i>\$ in Millions</i>)				-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)				19.935	-	-	-	1.385	1.385
<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>)				-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)				-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total			
	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 Cost																			
Recurring Cost																			
COMPLETE ROUND	-	-	-	-	-	-	-	-	-	-	-	-	1,378.93	672	0.927	1,378.93	672	0.927	
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.927	-	-	0.927
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.927	-	-	0.927
Support - Production Engineering Cost																			
Production Engineering	-	-	19.935	-	-	-	-	-	-	-	-	-	-	-	0.458	-	-	0.458	
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	19.935	-	-	-	-	-	-	-	-	-	0.000	-	-	0.458	-	-	0.458
Gross/Weapon System Cost	-	-	19.935	-	-	-	-	-	-	-	-	-	-	-	-	1.385	-	-	1.385

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E72800 / Anti-Pers Obstacle Breachng Sys(APOBS), MK7 w/Mods [MN79]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	73.341	15.557	15.005	-	16.194	16.194
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	73.341	15.557	15.005	-	16.194	16.194
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	73.341	15.557	15.005	-	16.194	16.194

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(†)	46,538.26	1,563	72.739	12,288.75	1,176	14.452	13,377.78	966	12.923	-	-	-	13,928.06	1,092	15.209	13,928.06	1,092	15.209
Subtotal: Recurring Cost	-	-	72.739	-	-	14.452	-	-	12.923	-	-	0.000	-	-	15.209	-	-	15.209
Subtotal: Hardware Cost	-	-	72.739	-	-	14.452	-	-	12.923	-	-	0.000	-	-	15.209	-	-	15.209
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.400	-	-	1.668	-	-	-	-	-	0.575	-	-	0.575
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	0.400	-	-	1.668	-	-	0.000	-	-	0.575	-	-	0.575
Support - Production Engineering Cost																		
Production Engineering	-	-	0.602	-	-	0.694	-	-	0.400	-	-	-	-	-	0.400	-	-	0.400
Subtotal: Support - Production Engineering Cost	-	-	0.602	-	-	0.694	-	-	0.400	-	-	0.000	-	-	0.400	-	-	0.400
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.011	-	-	0.014	-	-	-	-	-	0.010	-	-	0.010
Subtotal: Support - Quality Assurance Cost	-	-	-	-	-	0.011	-	-	0.014	-	-	0.000	-	-	0.010	-	-	0.010
Gross/Weapon System Cost	-	-	73.341	-	-	15.557	-	-	15.005	-	-	-	-	-	16.194	-	-	16.194

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43			P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types				Item Number / Title [DODIC]: E72800 / Anti-Pers Obstacle Breachng Sys(APOBS), MK7 w/Mods [MN79]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Complete Round ^(†)		2018	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Jun 2019	Mar 2021	1,176	12,288.75	Y		
Complete Round ^(†)		2019	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Jun 2019	Mar 2021	966	13,377.78	Y		
Complete Round ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Sep 2021	1,092	13,928.06	Y		

^(†) indicates the presence of a P-21

Remarks:

Technical Data Package (TDP) scrub and certification issues caused delays in the Request for Proposal (RFP) release, moving the FY 2018 and FY 2019 programs contract award date to June 2019.

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Exhibit P-21, Production Schedule: PB 2020 Army																		Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43												P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types										Item Number / Title [DODIC]: E72800 / Anti-Pers Obstacle Breachng Sys(APOBS), MK7 w/Mods [MN79]							

Cost Elements (Units in Each)						Fiscal Year 2019														Fiscal Year 2020														B A L A N C E	
O C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019														Calendar Year 2020														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
Complete Round																																			
Prior Years Deliveries: 1563																																			
	1	2018	ARMY	1,176	0	1,176																								1,176					
	1	2018	MC (†)	122	0	122																								122					
	1	2018	Total	1,298	0	1,298																								1,298					
	1	2019	ARMY	966	0	966																								966					
	1	2019	MC (†)	383	0	383																								383					
	1	2019	Total	1,349	0	1,349																								1,349					
✓	1	2020	ARMY	1,092	0	1,092																								1,092					
✓	1	2020	MC (†)	613	0	613																								613					
✓	1	2020	Total OCO	1,705	0	1,705																								1,705					
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43										P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types										Item Number / Title [DODIC]: E72800 / Anti-Pers Obstacle Breachng Sys(APOBS), MK7 w/Mods [MN79]									

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2021															Fiscal Year 2022															BALANCE		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021															Calendar Year 2022															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							
Complete Round																																					
Prior Years Deliveries: 1563																																					
	1	2018	ARMY	1,176	0	1,176	-	-	-	-	-	200	200	140	236	400																		0			
	1	2018	MC (†)	122	0	122	-	-	-	-	-	30	30	30	32	-																		0			
	1	2018	Total	1,298	0	1,298	-	-	-	-	-	230	230	170	268	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0				
	1	2019	ARMY	966	0	966	-	-	-	-	-	100	-	-	-	-	400	300	130	36	-													0			
	1	2019	MC (†)	383	0	383	-	-	-	-	-	12	-	-	-	-	-	-	-	364	7												0				
	1	2019	Total	1,349	0	1,349	-	-	-	-	-	112	-	-	-	-	400	300	130	400	7	-	-	-	-	-	-	-	-	-	-	-	0				
✓	1	2020	ARMY	1,092	0	1,092	-	-	-	-	-	-	-	-	-	-	-	124	121	121	121	121	121	121	121	121						0					
✓	1	2020	MC (†)	613	0	613	-	-	-	-	-	-	-	-	-	-	-	74	70	70	70	70	70	69	60	60						0					
✓	1	2020	Total OCO	1,705	0	1,705	-	-	-	-	-	-	-	-	-	-	198	191	191	191	191	191	191	190	181	181	-	-	-	-	0						
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P							

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E72800 / Anti-Pers Obstacle Breachng Sys(APOBS), MK7 w/Mods [MN79]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	50	130	400	8	8	24	32	6	6	18	24

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E75102 / LINE CHARGE INERT M68A2 F/MICLIC [M914]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	35.903	-	-	-	19.564	19.564
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	35.903	-	-	-	19.564	19.564
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	35.903	-	-	-	19.564	19.564

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	60,898.98	300	18.270	60,898.98	300	18.270
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	18.270	-	-	18.270
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	18.270	-	-	18.270
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.887	-	-	0.887
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	0.887	-	-	0.887
Support - Production Engineering Cost																		
Production Engineering	-	-	35.903	-	-	-	-	-	-	-	-	-	-	-	0.400	-	-	0.400
Subtotal: Support - Production Engineering Cost	-	-	35.903	-	-	-	-	-	-	-	-	-	0.000	-	0.400	-	-	0.400
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.007	-	-	0.007
Subtotal: Support - Quality Assurance Cost	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	0.007	-	-	0.007
Gross/Weapon System Cost	-	-	35.903	-	-	-	-	-	-	-	-	-	-	-	19.564	-	-	19.564

^(†) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43			P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types				Item Number / Title [DODIC]: E75102 / LINE CHARGE INERT M68A2 F/MICLIC [M914]					
Cost Elements	O C O	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
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	May 2020	May 2022	300	60,898.98	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E75102 / LINE CHARGE INERT M68A2 F/MICLIC [M914]

Cost Elements <i>(Units in Each)</i>		Fiscal Year 2022														Fiscal Year 2023												BALANCE					
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022														Calendar Year 2023												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N		J U L	A U G	S E P		

COMPLETE ROUND																												
✓	1	2020	ARMY	300	0	300	-	-	-	-	-	-	-	56	56	56	56	38	38									0

							O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
							C	O	E	A	E	A	P	A	U	U	U	E	C	O	V	E	A	E	A	P	A	U	U	A	S
							T	V	C	N	B	R	R	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G	P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E75102 / LINE CHARGE INERT M68A2 F/MICLIC [M914]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	25	56	168	8	8	24	32	6	6	18	24

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43	P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types	Item Number / Title [DODIC]: E76900 / ROCKET, Motor 5 in, MK22 MOD 4 f/MICLIC [J143]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	57.290	-	-	-	18.290	18.290
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	57.290	-	-	-	18.290	18.290
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	57.290	-	-	-	18.290	18.290

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	17,785.12	890	15.829	17,785.12	890	15.829
PROPELLANT N-5 ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	15.43	62,138	0.959	15.43	62,138	0.959
EC INHIBITING TAPE ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	61.34	2,331	0.143	61.34	2,331	0.143
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	16.931	-	-	16.931
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	16.931	-	-	16.931
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.954	-	-	0.954
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	0.954	-	-	0.954
Support - Production Engineering Cost																		
Production Engineering	-	-	57.290	-	-	-	-	-	-	-	-	-	-	-	0.400	-	-	0.400
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	57.290	-	-	-	-	-	-	-	-	-	0.000	-	0.400	-	-	0.400
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.005	-	-	0.005
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	0.005	-	-	0.005

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43	P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types	Item Number / Title [DODIC]: E76900 / ROCKET, Motor 5 in, MK22 MOD 4 f/MICLIC [J143]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	57.290	-	-	-	-	-	-	-	-	-	-	-	18.290	-	-	18.290

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43			P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types				Item Number / Title [DODIC]: E76900 / ROCKET, Motor 5 in, MK22 MOD 4 f/MICLIC [J143]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	May 2020	May 2022	890	17,785.12	Y		
PROPELLANT N-5	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	May 2020	Nov 2020	62,138	15.43	Y		
EC INHIBITING TAPE	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	May 2020	Aug 2020	2,331	61.34	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E76900 / ROCKET, Motor 5 in, MK22 MOD 4 f/MICLIC [J143]

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2022										Fiscal Year 2023										BALANCE	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022										Calendar Year 2023										
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R		M A Y

LOAD, ASSEMBLE, PACK (LAP)																																
✓	1	2020	ARMY	890	0	890	-	-	-	-	-	-	-	500	390																	0

							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P
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UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 43		P-1 Line Item Number / Title: 0442EA0800 / Mines & Clearing Charges, All Types
		Item Number / Title [DODIC]: E76900 / ROCKET, Motor 5 in, MK22 MOD 4 f/MICLIC [J143]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	150	500	1,000	8	8	24	32	6	6	18	24

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 45: Rockets **P-1 Line Item Number / Title:** 2348EA4000 / Shoulder Launched Munitions, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	490.029	30.000	21.295	-	75.054	75.054	83.168	67.106	44.107	60.939	-	871.698
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	490.029	30.000	21.295	-	75.054	75.054	83.168	67.106	44.107	60.939	-	871.698
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	490.029	30.000	21.295	-	75.054	75.054	83.168	67.106	44.107	60.939	-	871.698

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	37,364.14	24,975.65	238,042.97	-	228,312.73

Description:

FY 2020 funding totals include \$0.0M for Base and \$75.054M for Overseas Contingency Operations (OCO); of which \$74.878M supporting the procurement of 6 variants of Shoulder Launched Munitions is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Shoulder Launched Munitions, All Types.

(E36101) Launcher and Cartridge 84MM M136A1 (AT4CS-RS) - The AT4 is the Army's primary shoulder launched, lightweight, anti-armor weapon. The AT4-Confined Space (CS) weapon is a safety enhanced version of the M136 AT4 Weapon. The AT4-CS is a self-contained weapon consisting of a free-flight, fin-stabilized, rocket packed in an expendable, 1-piece launch tube. The recoilless design permits accurate delivery of the 84mm high explosive Anti-Armor warhead out to 250 meters. The AT4-CS incorporates a safety modification to the propulsion system that significantly reduces the weapon's back blast and launch signature. This will allow the user to safely fire the weapon from a protected area or enclosed space during close combat operations. This item is Code A, approved for service use.

(E36403) CTG, 7.62MM Tracer, F/SUBCAL ADPTR CARL GUSTAF - The 7.62 mm 553B Sub-Caliber Adapter makes it possible to raise the level of proficiency and reduce training costs to a low level both at the firing range and during live firing exercises. This item is Code A, approved for service use.

(E36404) CTG, Gun, HEDP 502, 84MM CARL GUSTAF (MAAWS) - Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS) for rapid response forces that must have the ability to combat many types of threat, the 84 mm HEDP 502 (High Explosive Dual Purpose) is effective against light-armored vehicles, concrete and brick walls, field fortifications, and bunkers. This item is Code A, approved for service use.

(E36405) CTG, Gun, HE 441D, 84MM CARL GUSTAF (MAAWS) - Multi-Role Anti-Armor Anti-Personnel Weapon System (MAAWS) for combating troops in the open, behind cover, or in slit trenches as well as soft-skinned vehicles and similar types of targets, the 84 mm HE 441D (High Explosive) can be set for impact or air burst detonation. This item is Code A, approved for service use.

(E36406) CTG, Gun, TGT PRAC-TR 141, 84MM CARL GUSTAF (MAAWS) - The 84 mm TPT 141 (Target Practice Tracer) is the ideal training round for reducing training costs but still retaining the right weapon "feel" and live firing experience. This item is Code A, approved for service use.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 45: Rockets		P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E36901) ROCKET, PRACTICE, 21MM SUBCALIBER for Shoulder Launched Munitions (SLM) simulates the firing of unguided shoulder fired munitions. It simulates the tactical munitions flight trajectory, but with less noise and backblast. It is currently used by Navy and Marine Corps to simulate the M72 Light Anti-tank Weapon System (LAW). It has also been adapted to the M141 Bunker Defeat Munition (BDM) and is used in New Equipment Training (NET)/Mobile Training Teams (MTT). This item is Code A, approved for service use.</p> <p>(E88401) The Bunker Defeat Munition (BDM) is a single-shot, disposable, shoulder launched rocket propelled munition used to defeat earth and timber field fortifications (bunkers) out to 250 meters. The system also defeats lightly armored vehicles and breaches masonry walls using its 83 millimeter high explosive, dual-purpose rocket. The item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 45: Rockets **P-1 Line Item Number / Title:** 2348EA4000 / Shoulder Launched Munitions, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E36101 / MUNITION, 84mm Shldr Lnchd, AT-4CS(Confined Space) [CA30]	P-5a, P-21	A		- / 171.696	- / -	- / 0.450	- / -	- / 40.774	- / 40.774
P-5	E36403 / CTG, 7.62mm w/Tracer f/SUBCAL ADPTR553B CARLGSTF [A254]		A		- / 1.000	- / -	- / 0.352	- / -	- / 0.176	- / 0.176
P-5	E36404 / CTG, 84mm Gun, HEDP 502, CARLGSTF (MAAWS) [CA21]		A		- / 4.500	- / 1.500	- / 2.927	- / -	- / 1.497	- / 1.497
P-5	E36405 / CTG, 84mm Gun, HE 441D IM, CARLGSTF (MAAWS) [CA27]		A		- / 4.500	- / 1.100	- / 0.992	- / -	- / 1.000	- / 1.000
P-5	E36406 / CTG, 84mm Gun, TGT PRAC-TR 141, CARLGSTF (MAAWS) [CA10]		A		- / 4.500	- / 0.400	- / 0.497	- / -	- / 0.497	- / 0.497
P-5	E36901 / ROCKET, 21mm Subcaliber Practice Trainer, f/SLM [HA21]		A		- / 7.508	- / -	- / 1.527	- / -	- / 2.402	- / 2.402
P-5	E88401 / MUNITION, 83mm Bunker Defeat(BDM), Rkt&Lnchr, M141 [HA08]	P-5a, P-21	A		- / 296.325	- / 27.000	- / 14.550	- / -	- / 28.708	- / 28.708
P-40	Total Gross/Weapon System Cost				- / 490.029	- / 30.000	- / 21.295	- / -	- / 75.054	- / 75.054

*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.

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

Justification:

The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0M for Base and \$75.054 million for Overseas Contingency Operations, supporting the procurement of 6 variants of Shoulder Launched Munitions for \$74.878 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$0.176 million, with a quantity of 58,279 rounds for OCO for Enduring Requirements.

(E36101) Launcher and Cartridge 84MM M136A1 (AT4CS-RS) - This is a training standard used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goal. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$40.774 million supports the procurement of 9,101 Rounds. Type Classification Date: 2009

(E36403) CTG, 7.62MM TRACER 553 F/SUBCAL ADAPTR CARL GUSTAF - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goals. FY 2020 OCO for Enduring Requirements dollars in the amount of \$0.176 million supports the COCOM requirement for procurement of 58,279 Rounds to deter potential adversaries and support the European Deterrence Initiative. Type Classification Date: 2017

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 45: Rockets		P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E36404) CTG, Gun, HEDP 502, 84MM CARL GUSTAF (MAAWS) - This is a training standard item used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goal. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.497 million supports the procurement of 304 Rounds. Type Classification Date: 2017</p> <p>(E36405) CTG, Gun, HE 441D, 84MM CARL GUSTAF (MAAWS) - This is a training standard item used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goal. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.000 million supports the procurement of 205 Rounds. Type Classification Date: 2017</p> <p>(E36406) CTG, Gun, TGT PRAC-TR 141, 84MM CARL GUSTAF (MAAWS) - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goal. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.497 million supports the procurement of 299 Rounds. Type Classification Date: 2017</p> <p>(E36901) ROCKET, PRACTICE, 21MM SUBCALIBER for Shoulder Launched Munitions (SLM) - This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with the Army's procurement goal. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.402 million supports the procurement of 14,232 Rounds. Type Classification Date: 1993</p> <p>(E88401) BUNKER DEFEAT MUNITION, 83mm Rocket & Launcher, M141 - This is a training standard item used in both training and combat. The FY FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$28.708 million supports the procurement of 1,637 Rounds. Type Classification Date: 2008</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E36101 / MUNITION, 84mm Shldr Lnchd, AT-4CS(Confined Space) [CA30]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		171.696	-	0.450	-	40.774	40.774
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		171.696	-	0.450	-	40.774	40.774
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		171.696	-	0.450	-	40.774	40.774

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	18,194.74	9,263	168.538	-	-	-	4,428.84	101	0.447	-	-	-	4,278.33	9,101	38.937	4,278.33	9,101	38.937
Subtotal: Recurring Cost	-	-	168.538	-	-	-	-	-	0.447	-	-	0.000	-	-	38.937	-	-	38.937
Subtotal: Hardware Cost	-	-	168.538	-	-	-	-	-	0.447	-	-	0.000	-	-	38.937	-	-	38.937
Support - Production Engineering Cost																		
Production Engineering	-	-	3.158	-	-	-	-	-	0.003	-	-	-	-	-	1.837	-	-	1.837
Subtotal: Support - Production Engineering Cost	-	-	3.158	-	-	-	-	-	0.003	-	-	0.000	-	-	1.837	-	-	1.837
Gross/Weapon System Cost	-	-	171.696	-	-	-	-	-	0.450	-	-	-	-	-	40.774	-	-	40.774

Remarks:

Production Engineering increased due to change in planned procurement of AT-4CS munitions.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45			P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types				Item Number / Title [DODIC]: E36101 / MUNITION, 84mm Shldr Lnchd, AT-4CS(Confined Space) [CA30]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2019	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Sep 2020	101	4,428.84	Y		
COMPLETE ROUND ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Sep 2021	9,101	4,278.33	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A / 01 / 45

P-1 Line Item Number / Title:
2348EA4000 / Shoulder Launched Munitions, All Types

Item Number / Title [DODIC]:
E36101 / MUNITION, 84mm Shldr Lnchd, AT-4CS(Confined Space) [CA30]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2019													Fiscal Year 2020													BALANCE	
O C O #	M F R FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019													Calendar Year 2020													
						O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
COMPLETE ROUND																																
Prior Years Deliveries: 9263																																
	1	2019	ARMY	.101	.000	.101																									.101	.000
	1	2019	MC (†)	3.965	.000	3.965																										3.965
	1	2019	Total	4.066	.000	4.066																									.101	3.965
✓	1	2020	ARMY	9.101	.000	9.101																										9.101
✓	1	2020	MC (†)	3.702	.000	3.702																										3.702
✓	1	2020	Total OCO	12.803	.000	12.803																										12.803

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Exhibit P-21, Production Schedule: PB 2020 Army																		Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45												P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types										Item Number / Title [DODIC]: E36101 / MUNITION, 84mm Shldr Lnchd, AT-4CS(Confined Space) [CA30]							

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2021													Fiscal Year 2022													B A L A N C E				
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021													Calendar Year 2022															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
Prior Years Deliveries: 9263																																			
	1	2019	ARMY	.101	.101	.000	-																												.000
	1	2019	MC (†)	3.965	.000	3.965	3.965																												.000
	1	2019	Total	4.066	.101	3.965	3.965	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000
✓	1	2020	ARMY	9.101	.000	9.101	-	-	-	-	-	-	-	-	-	-	1.298	3.902	3.901																.000
✓	1	2020	MC (†)	3.702	.000	3.702	-	-	-	-	-	-	-	-	-	-	3.702	-	-																.000
✓	1	2020	Total OCO	12.803	.000	12.803	-	-	-	-	-	-	-	-	-	-	5.000	3.902	3.901	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45		P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types
Item Number / Title [DODIC]: E36101 / MUNITION, 84mm Shldr Lnchd, AT-4CS(Confined Space) [CA30]		

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	500	5,000	7,000	8	8	24	32	6	6	18	24

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.
 "A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E36403 / CTG, 7.62mm w/Tracer f/ SUBCAL ADPTR553B CARLGSTF [A254]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1.000	-	0.352	-	0.176	0.176
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1.000	-	0.352	-	0.176	0.176
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1.000	-	0.352	-	0.176	0.176

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	1.000	-	-	-	2.63	133,758	0.352	-	-	-	2.68	58,279	0.156	2.68	58,279	0.156
<i>Subtotal: Recurring Cost</i>	-	-	1.000	-	-	-	-	-	0.352	-	-	0.000	-	-	0.156	-	-	0.156
<i>Subtotal: Hardware Cost</i>	-	-	1.000	-	-	-	-	-	0.352	-	-	0.000	-	-	0.156	-	-	0.156
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.020	-	-	0.020
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.020	-	-	0.020
Gross/Weapon System Cost	-	-	1.000	-	-	-	-	-	0.352	-	-	-	-	-	0.176	-	-	0.176

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E36404 / CTG, 84mm Gun, HEDP 502, CARLGSTF (MAAWS) [CA21]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	4.500	1.500	2.927	-	1.497	1.497
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	4.500	1.500	2.927	-	1.497	1.497
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	4.500	1.500	2.927	-	1.497	1.497

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	4,599.56	834	3.836	4,090.00	216	0.883	4,171.80	637	2.657	-	-	-	4,252.52	304	1.293	4,252.52	304	1.293
<i>Subtotal: Recurring Cost</i>	-	-	3.836	-	-	0.883	-	-	2.657	-	-	0.000	-	-	1.293	-	-	1.293
<i>Subtotal: Hardware Cost</i>	-	-	3.836	-	-	0.883	-	-	2.657	-	-	0.000	-	-	1.293	-	-	1.293
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.084	-	-	0.086	-	-	-	-	-	0.033	-	-	0.033
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.084	-	-	0.086	-	-	0.000	-	-	0.033	-	-	0.033
Support - Production Engineering Cost																		
Production Engineering	-	-	0.664	-	-	0.532	-	-	0.184	-	-	-	-	-	0.171	-	-	0.171
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.664	-	-	0.532	-	-	0.184	-	-	0.000	-	-	0.171	-	-	0.171
Gross/Weapon System Cost	-	-	4.500	-	-	1.500	-	-	2.927	-	-	-	-	-	1.497	-	-	1.497

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E36405 / CTG, 84mm Gun, HE 441D IM, CARLGSTF (MAAWS) [CA27]

ID Code (A=Service Ready, B=Not Service Ready) : A				MDAP/MAIS Code:			
Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		4.500	1.100	0.992	-	1.000	1.000
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		4.500	1.100	0.992	-	1.000	1.000
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		4.500	1.100	0.992	-	1.000	1.000
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>							
Initial Spares (\$ in Millions)		-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)		-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	4,599.56	834	3.836	4,028.00	163	0.657	4,108.56	189	0.777	-	-	-	4,188.06	205	0.859	4,188.06	205	0.859
<i>Subtotal: Recurring Cost</i>	-	-	3.836	-	-	0.657	-	-	0.777	-	-	0.000	-	-	0.859	-	-	0.859
<i>Subtotal: Hardware Cost</i>	-	-	3.836	-	-	0.657	-	-	0.777	-	-	0.000	-	-	0.859	-	-	0.859
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.091	-	-	0.092	-	-	-	-	-	0.026	-	-	0.026
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.091	-	-	0.092	-	-	0.000	-	-	0.026	-	-	0.026
Support - Production Engineering Cost																		
Production Engineering	-	-	0.664	-	-	0.353	-	-	0.123	-	-	-	-	-	0.115	-	-	0.115
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.664	-	-	0.353	-	-	0.123	-	-	0.000	-	-	0.115	-	-	0.115
Gross/Weapon System Cost	-	-	4.500	-	-	1.100	-	-	0.992	-	-	-	-	-	1.000	-	-	1.000

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E36406 / CTG, 84mm Gun, TGT PRAC-TR 141, CARLGSTF (MAAWS) [CA10]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	4.500	0.400	0.497	-	0.497	0.497
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	4.500	0.400	0.497	-	0.497	0.497
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	4.500	0.400	0.497	-	0.497	0.497

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	615.65	6,233	3.837	1,406.00	134	0.188	1,434.12	279	0.400	-	-	-	1,461.87	299	0.437	1,461.87	299	0.437
<i>Subtotal: Recurring Cost</i>	-	-	3.837	-	-	0.188	-	-	0.400	-	-	0.000	-	-	0.437	-	-	0.437
<i>Subtotal: Hardware Cost</i>	-	-	3.837	-	-	0.188	-	-	0.400	-	-	0.000	-	-	0.437	-	-	0.437
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	0.034	-	-	0.035	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.034	-	-	0.035	-	-	0.000	-	-	0.003	-	-	0.003
Support - Production Engineering Cost																		
Production Engineering	-	-	0.663	-	-	0.177	-	-	0.062	-	-	-	-	-	0.057	-	-	0.057
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.663	-	-	0.177	-	-	0.062	-	-	0.000	-	-	0.057	-	-	0.057
Gross/Weapon System Cost	-	-	4.500	-	-	0.400	-	-	0.497	-	-	-	-	-	0.497	-	-	0.497

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E36901 / ROCKET, 21mm Subcaliber Practice Trainer, f/SLM [HA21]

ID Code (A=Service Ready, B=Not Service Ready) : A				MDAP/MAIS Code:				
Resource Summary			Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)			-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)			7.508	-	1.527	-	2.402	2.402
Less PY Advance Procurement (<i>\$ in Millions</i>)			-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)			7.508	-	1.527	-	2.402	2.402
Plus CY Advance Procurement (<i>\$ in Millions</i>)			-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)			7.508	-	1.527	-	2.402	2.402
<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>)			-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)			-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	360.53	19,005	6.852	-	-	-	155.64	8,628	1.343	-	-	-	158.65	14,232	2.258	158.65	14,232	2.258
<i>Subtotal: Recurring Cost</i>	-	-	6.852	-	-	-	-	-	1.343	-	-	0.000	-	-	2.258	-	-	2.258
<i>Subtotal: Hardware Cost</i>	-	-	6.852	-	-	-	-	-	1.343	-	-	0.000	-	-	2.258	-	-	2.258
Support - Production Engineering Cost																		
Production Engineering	-	-	0.656	-	-	-	-	-	0.184	-	-	-	-	-	0.144	-	-	0.144
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.656	-	-	-	-	-	0.184	-	-	0.000	-	-	0.144	-	-	0.144
Gross/Weapon System Cost	-	-	7.508	-	-	-	-	-	1.527	-	-	-	-	-	2.402	-	-	2.402

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types	Item Number / Title [DODIC]: E88401 / MUNITION, 83mm Bunker Defeat(BDM), Rkt&Lnchr, M141 [HA08]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	296.325	27.000	14.550	-	28.708	28.708
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	296.325	27.000	14.550	-	28.708	28.708
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	296.325	27.000	14.550	-	28.708	28.708

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
BUNKER DEFEAT MUNITION (BDM) ^(†)	144,512.56	2,041	294.950	15,583.22	1,680	26.180	15,894.89	914	14.528	-	-	-	16,534.40	1,637	27.067	16,534.40	1,637	27.067
<i>Subtotal: Recurring Cost</i>	-	-	294.950	-	-	26.180	-	-	14.528	-	-	0.000	-	-	27.067	-	-	27.067
<i>Subtotal: Hardware Cost</i>	-	-	294.950	-	-	26.180	-	-	14.528	-	-	0.000	-	-	27.067	-	-	27.067
Support - Production Engineering Cost																		
Production Engineering	-	-	1.374	-	-	0.820	-	-	0.022	-	-	-	-	-	1.641	-	-	1.641
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.374	-	-	0.820	-	-	0.022	-	-	0.000	-	-	1.641	-	-	1.641
Gross/Weapon System Cost	-	-	296.325	-	-	27.000	-	-	14.550	-	-	-	-	-	28.708	-	-	28.708

Remarks:

Production Engineering increased due to change in planned procurement of BDM munitions.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45			P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types				Item Number / Title [DODIC]: E88401 / MUNITION, 83mm Bunker Defeat(BDM), Rkt&Lnchr, M141 [HA08]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
BUNKER DEFEAT MUNITION (BDM) ^(†)		2018	TO BE SELECTED / TBS01	C / FPIF	PICATINNY ARSENAL, NJ	Mar 2019	Jun 2020	1,680	15,583.22	Y		
BUNKER DEFEAT MUNITION (BDM) ^(†)		2019	TO BE SELECTED / TBS01	C / FPIF	PICATINNY ARSENAL, NJ	Mar 2019	Jun 2020	914	15,894.89	Y		
BUNKER DEFEAT MUNITION (BDM) ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FPIF	PICATINNY ARSENAL, NJ	Mar 2020	Jun 2021	1,637	16,534.40	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45										P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types										Item Number / Title [DODIC]: E88401 / MUNITION, 83mm Bunker Defeat(BDM), Rkt&Lnchr, M141 [HA08]									

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2021													Fiscal Year 2022													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 2 0	BAL D U E A 	Calendar Year 2021													Calendar Year 2022													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			
BUNKER DEFEAT MUNITION (BDM)																																	
Prior Years Deliveries: 2041																																	
	1	2018	ARMY	1,680	616	1,064	133	133	133	133	133	133	133	133																0			
	1	2019	ARMY	914	514	400	50	50	50	50	50	50	50	50																0			
✓	1	2020	ARMY	1,637	0	1,637	-	-	-	-	-	-	-	-	700	700	237													0			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P			

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45		P-1 Line Item Number / Title: 2348EA4000 / Shoulder Launched Munitions, All Types
		Item Number / Title [DODIC]: E88401 / MUNITION, 83mm Bunker Defeat(BDM), Rkt&Lnchr, M141 [HA08]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	100	700	1,400	8	8	18	26	6	6	15	21

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 45: Rockets **P-1 Line Item Number / Title:** 3246E37300 / Rocket, Hydra 70, All Types

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	315.988	296.375	275.685	-	255.453	255.453	230.404	88.597	150.214	63.510	Continuing	Continuing
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	315.988	296.375	275.685	-	255.453	255.453	230.404	88.597	150.214	63.510	Continuing	Continuing
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	315.988	296.375	275.685	-	255.453	255.453	230.404	88.597	150.214	63.510	Continuing	Continuing

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$255.453M for Overseas Contingency Operations (OCO); of which \$175.994M and quantity of 16,001 unguided Hydra-70 rockets and 3,692 guided Hydra-70 rockets is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Aviation Rocket and Small Guided Munition Product Office is the executive procurement agent for all services and Foreign Military customers, for all variants of aviation rockets. This budget line procures all aviation rockets and small guided munition types in support of Army operational, training and war reserve requirements. The systems provide combat overmatch capability and ensures the availability of munitions to support combat operations. Aviation rockets and small guided munitions are used on manned and unmanned platforms by Army, Navy, Air Force, Special Operations and Foreign Military aircraft. The unguided systems perform a number of roles including anti-materiel, anti-personnel, air-to-ground suppression and illumination. The guided systems are used to provide increased accuracy over the unguided munitions in precision strikes against lightly armored and soft point targets enabling better conformance to restricted rules of engagement. This Hydra-70 rocket funding supports the entire aviation rocket system and small guided munitions to include resolution of obsolescence, safety, insensitive munitions, reliability, weapon integration activities, test sets, engineering changes, production issues, lifetime buys of obsolete components and guidance section testing and repair kits.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 45: Rockets **P-1 Line Item Number / Title:** 3246E37300 / Rocket, Hydra 70, All Types

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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided	P-5a, P-21			- / 255.525	- / 171.649	- / 123.368	- / -	- / 74.243	- / 74.243
P-5	E37413 / Aviation Rocket Procurement, Guided	P-5a, P-21			- / 60.463	- / 124.726	- / 152.317	- / -	- / 181.210	- / 181.210
P-40	Total Gross/Weapon System Cost				- / 315.988	- / 296.375	- / 275.685	- / -	- / 255.453	- / 255.453

*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.

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

Justification:
 FY 2020 funding totals include \$0.0 million for Base and \$255.453 million for Overseas Contingency Operations, with a quantity of 16,001 unguided Hydra-70 rockets and 3,692 guided Hydra-70 rockets for \$175.994 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations funding also includes \$79.459 million for OCO for Direct War Costs to procure a quantity of 12,321 unguided Hydra-70 Rockets and 1,730 guided Hydra-70 rockets to replace and replenish rocket expended in wartime operations.

The Army intends to convert any price advantage created through contract negotiations, other service procurement, and/or Foreign Military Sales (FMS) to increase procurement of 2.75 rockets.

"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."

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types	Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	255.525	171.649	123.368	-	74.243	74.243
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	255.525	171.649	123.368	-	74.243	74.243
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	255.525	171.649	123.368	-	74.243	74.243

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Flyaway Cost																		
Recurring Cost																		
Complete Round(†)	1,086.58	183,007	198.852	879.62	159,690	140.466	1,119.31	91,240	102.126	-	-	-	717.44	28,322	20.319	717.44	28,322	20.319
Engineering Services	-	-	-	-	-	2.038	-	-	2.018	-	-	-	-	-	2.322	-	-	2.322
<i>Subtotal: Recurring Cost</i>	-	-	<i>198.852</i>	-	-	<i>142.505</i>	-	-	<i>104.144</i>	-	-	<i>0.000</i>	-	-	<i>22.642</i>	-	-	<i>22.642</i>
<i>Subtotal: Flyaway Cost</i>	-	-	<i>198.852</i>	-	-	<i>142.505</i>	-	-	<i>104.144</i>	-	-	<i>0.000</i>	-	-	<i>22.642</i>	-	-	<i>22.642</i>
Support - Industrial Facilities Cost																		
Radford Army Ammunition Plant (AAP)	-	-	17.217	-	-	20.117	-	-	12.641	-	-	-	-	-	45.517	-	-	45.517
<i>Subtotal: Support - Industrial Facilities Cost</i>	-	-	<i>17.217</i>	-	-	<i>20.117</i>	-	-	<i>12.641</i>	-	-	<i>0.000</i>	-	-	<i>45.517</i>	-	-	<i>45.517</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	33.897	-	-	2.834	-	-	3.125	-	-	-	-	-	2.902	-	-	2.902
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>33.897</i>	-	-	<i>2.834</i>	-	-	<i>3.125</i>	-	-	<i>0.000</i>	-	-	<i>2.902</i>	-	-	<i>2.902</i>
Support - Program Management Cost																		
Government Management	-	-	5.559	-	-	6.194	-	-	3.458	-	-	-	-	-	3.182	-	-	3.182
<i>Subtotal: Support - Program Management Cost</i>	-	-	<i>5.559</i>	-	-	<i>6.194</i>	-	-	<i>3.458</i>	-	-	<i>0.000</i>	-	-	<i>3.182</i>	-	-	<i>3.182</i>
Gross/Weapon System Cost	-	-	255.525	-	-	171.649	-	-	123.368	-	-	-	-	-	74.243	-	-	74.243

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types	Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Remarks:
Support - Production Engineering Cost and Support - Program Management Cost are shared between E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided and E37413 / Aviation Rocket Procurement, Guided baby lines based on an apportionment percentage, therefore fluctuate based on funding distribution between the two baby lines.

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45			P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types				Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Complete Round ^(†)		2017	General Dynamics / Williston, VT	C / FFP	Redstone Arsenal, AL	Sep 2017	Feb 2019	52,998	1,328.72	Y		Apr 2013
Complete Round ^(†)		2018	General Dynamics / Williston, VT	C / FFP	Redstone Arsenal, AL	Jun 2018	May 2020	159,690	879.62	Y		Apr 2013
Complete Round ^(†)		2019	TBD / TBD	C / FFP	Redstone Arsenal, AL	May 2019	Apr 2021	91,240	1,119.31	Y		Aug 2018
Complete Round ^(†)	✓	2020	TBD / TBD	C / FFP	Redstone Arsenal, AL	May 2020	Apr 2022	28,322	717.44	Y		Aug 2018

^(†) indicates the presence of a P-21

Remarks:

- QTY EA for delivery schedule.
- Contractor minimum sustainment rate for the total of all variants is 100,000 rockets annually.
- FY19 is new competitive contract award with 4 option years.

- Other services and FMS customers are shown on the P-21 delivery schedule.

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45		P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types
		Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2019													Fiscal Year 2020													B A L A N C E			
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 8	BAL D U E A S O F 1 O C T	Calendar Year 2019													Calendar Year 2020															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
Complete Round																																			
Prior Years Deliveries: 130009																																			
1	2017	AF (+)	33.081	.000	33.081	-	-	-	-	-	-	-	-	-	-	-	2.984	-	14.043	-	5.441	6.872	3.741								.000				
1	2017	ARMY	52.998	.000	52.998	-	-	-	-	1.840	3.780	-	4.656	-	3.855	2.479	2.000	4.300	6.300	4.300	7.100	4.300	8.088								.000				
1	2017	FMS (+)	147.211	.000	147.211	-	-	-	-	-	-	-	-	16.992	-	-	6.912	16.295	12.346	32.074	25.728	13.488	23.376								.000				
1	2017	NAVY (+)	50.883	.000	50.883	-	-	-	NAVY (+)	-	-	-	5.537	-	8.000	.755	16.490	3.273	9.185	-	-	-	7.643								.000				
1	2017	OTH (+)	111.078	.000	111.078	-	-	-	-	-	-	-	-	12.000	-	-	6.912	15.260	12.000	17.770	25.728	13.488	7.920								.000				
1	2017	SOCOM (+)	.835	.000	.835	-	-	-	-	-	-	-	-	-	-	.835	-	-	-	-	-	-	-								.000				
1	2017	Total	396.086	.000	396.086	-	-	-	-	1.840	3.780	-	10.193	28.992	11.855	4.069	35.298	39.128	53.874	54.144	63.997	38.148	50.768								.000				
1	2018	AF (+)	16.578	.000	16.578	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				5.843	-	-		10.735				
1	2018	ARMY	159.690	.000	159.690	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				18.864	4.500	12.252	-	20.370	103.704			
1	2018	FMS (+)	121.216	.000	121.216	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				14.880	-	47.880	-	13.056	-	45.400		
1	2018	NAVY (+)	101.601	.000	101.601	-	-	-	NAVY (+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-				10.000	-	-	-	16.267	-	75.334		
1	2018	OTH (+)	43.816	.000	43.816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				14.880	-	14.880	-	13.056	-	1.000		
1	2018	Total	442.901	.000	442.901	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				29.760	28.864	67.260	18.095	42.379	20.370	236.173		
2	2019	AF (+)	88.581	.000	88.581								A -	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	88.581		
2	2019	ARMY	91.240	.000	91.240								A -	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	91.240	
2	2019	NAVY (+)	8.245	.000	8.245								A -	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	8.245	
2	2019	Total	188.066	.000	188.066								-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-	-	-	188.066	
✓	2	2020	AF (+)	65.139	.000	65.139																						A -	-	-	-	-	-	-	65.139
✓	2	2020	ARMY	28.322	.000	28.322																						A -	-	-	-	-	-	-	28.322
✓	2	2020	NAVY (+)	8.120	.000	8.120																						A -	-	-	-	-	-	-	8.120
✓	2	2020	Total OCO	101.581	.000	101.581																						-	-	-	-	-	-	-	101.581

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Exhibit P-21, Production Schedule: PB 2020 Army																				Date: March 2019									
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45										P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types										Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2021													Fiscal Year 2022													B A L A N C E							
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 2 0	BAL D U E A S O F 1 O C T	Calendar Year 2021													Calendar Year 2022																			
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P									
Complete Round																																							
Prior Years Deliveries: 130009																																							
	1	2017	AF (+)	33.081	33.081	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000					
	1	2017	ARMY	52.998	52.998	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000					
	1	2017	FMS (+)	147.211	147.211	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2017	NAVY (+)	50.883	50.883	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2017	OTH (+)	111.078	111.078	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2017	SOCOM (+)	.835	.835	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2017	Total	396.086	396.086	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2018	AF (+)	16.578	5.843	10.735	5.256	.040	5.439	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2018	ARMY	159.690	55.986	103.704	-	15.120	-	20.456	33.852	34.276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2018	FMS (+)	121.216	75.816	45.400	12.336	-	14.112	5.520	12.432	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2018	NAVY (+)	101.601	26.267	75.334	-	18.433	-	23.525	17.115	16.261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2018	OTH (+)	43.816	42.816	1.000	-	-	-	-	-	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000						
	1	2018	Total	442.901	206.728	236.173	17.592	33.593	19.551	49.501	63.399	52.537	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000							
	2	2019	AF (+)	88.581	.000	88.581	-	-	-	-	-	-	7.382	7.381	7.381	7.381	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	7.382	.000							
	2	2019	ARMY	91.240	.000	91.240	-	-	-	-	-	-	7.604	7.604	7.604	7.604	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	7.603	.000							
	2	2019	NAVY (+)	8.245	.000	8.245	-	-	-	-	-	-	.688	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.687	.000							
	2	2019	Total	188.066	.000	188.066	-	-	-	-	-	-	15.674	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	15.672	.000								
✓	2	2020	AF (+)	65.139	.000	65.139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.429	5.428	5.428	5.428	5.428	5.428	32.570	
✓	2	2020	ARMY	28.322	.000	28.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.361	2.361	2.360	2.360	2.360	2.360	14.160
✓	2	2020	NAVY (+)	8.120	.000	8.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.677	.676	.676	.676	.676	.676	4.062
✓	2	2020	Total OCO	101.581	.000	101.581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.467	8.465	8.464	8.464	8.464	8.464	8.465	50.792
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P									

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Exhibit P-21, Production Schedule: PB 2020 Army																							Date: March 2019									
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45										P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types										Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided												
Cost Elements (Units in Thousands)					Fiscal Year 2023													Fiscal Year 2024												BALANCE		
OCO #	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	BAL DUE AS OF 1 OCT	Calendar Year 2023													Calendar Year 2024												
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG		SEP	
Complete Round																																
Prior Years Deliveries: 130009																																
1	2017	AF (+)	33.081	33.081	.000																									.000		
1	2017	ARMY	52.998	52.998	.000																									.000		
1	2017	FMS (+)	147.211	147.211	.000																									.000		
1	2017	NAVY (+)	50.883	50.883	.000																									.000		
1	2017	OTH (+)	111.078	111.078	.000																									.000		
1	2017	SOCOM (+)	.835	.835	.000																									.000		
1	2017	Total	396.086	396.086	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
1	2018	AF (+)	16.578	16.578	.000																									.000		
1	2018	ARMY	159.690	159.690	.000																									.000		
1	2018	FMS (+)	121.216	121.216	.000																									.000		
1	2018	NAVY (+)	101.601	101.601	.000																									.000		
1	2018	OTH (+)	43.816	43.816	.000																									.000		
1	2018	Total	442.901	442.901	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
2	2019	AF (+)	88.581	88.581	.000																									.000		
2	2019	ARMY	91.240	91.240	.000																									.000		
2	2019	NAVY (+)	8.245	8.245	.000																									.000		
2	2019	Total	188.066	188.066	.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
✓	2	2020	AF (+)	65.139	32.569	32.570	5.428	5.428	5.428	5.428	5.429	5.429																		.000		
✓	2	2020	ARMY	28.322	14.162	14.160	2.360	2.360	2.360	2.360	2.360	2.360																		.000		
✓	2	2020	NAVY (+)	8.120	4.058	4.062	.677	.677	.677	.677	.677	.677																		.000		
✓	2	2020	Total OCO	101.581	50.789	50.792	8.465	8.465	8.465	8.465	8.466	8.466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
							O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S		
							C	O	E	A	E	A	A	A	U	U	U	E	C	O	D	A	E	A	A	A	U	U	U	E		
							T	V	C	N	B	R	R	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G	P		

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45		P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types
		Item Number / Title [DODIC]: E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	General Dynamics - Williston, VT	100,000	250,000	340,000	7	6	18	24	7	6	18	24
2	TBD - TBD	100,000	250,000	340,000	0	0	0	0	0	0	0	0

Remarks:
 Production rates for MSR, 1-8-5 and Max are actual quantities. System will not validate with below instructions.

(‡) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule. "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45		P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types
		Item Number / Title [DODIC]: E37413 / Aviation Rocket Procurement, Guided

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	60.463	124.726	152.317	-	181.210	181.210
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	60.463	124.726	152.317	-	181.210	181.210
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	60.463	124.726	152.317	-	181.210	181.210

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Flyaway Cost																		
Recurring Cost																		
Complete Round ^(†)	21,724.41	2,569	55.810	22,820.00	4,720	107.710	25,204.20	4,880	122.996	-	-	-	25,244.02	5,422	136.873	25,244.02	5,422	136.873
Complete Round, Unguided section	-	-	-	655.32	4,720	3.093	1,184.69	4,880	5.781	-	-	-	740.11	5,422	4.013	740.11	5,422	4.013
Engineering Services	-	-	-	-	-	-	-	-	0.253	-	-	-	-	-	0.258	-	-	0.258
<i>Subtotal: Recurring Cost</i>	-	-	55.810	-	-	110.804	-	-	129.031	-	-	0.000	-	-	141.144	-	-	141.144
<i>Subtotal: Flyaway Cost</i>	-	-	55.810	-	-	110.804	-	-	129.031	-	-	0.000	-	-	141.144	-	-	141.144
Support - Industrial Facilities Cost																		
Radford Army Ammunition Plant (AAP)	-	-	0.370	-	-	6.103	-	-	0.536	-	-	-	-	-	16.354	-	-	16.354
Equipment Acquisition or Modernization	-	-	0.855	-	-	2.559	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Industrial Facilities Cost</i>	-	-	1.225	-	-	8.662	-	-	0.536	-	-	0.000	-	-	16.354	-	-	16.354
Support - Production Engineering Cost																		
Production Engineering	-	-	1.635	-	-	1.350	-	-	11.097	-	-	-	-	-	12.168	-	-	12.168
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.635	-	-	1.350	-	-	11.097	-	-	0.000	-	-	12.168	-	-	12.168
Support - Program Management Cost																		
Government Management	-	-	1.793	-	-	3.910	-	-	11.654	-	-	-	-	-	11.544	-	-	11.544

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45	P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types	Item Number / Title [DODIC]: E37413 / Aviation Rocket Procurement, Guided
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Program Management Cost</i>	-	-	1.793	-	-	3.910	-	-	11.654	-	-	0.000	-	-	11.544	-	-	11.544
Gross/Weapon System Cost	-	-	60.463	-	-	124.726	-	-	152.317	-	-	-	-	-	181.210	-	-	181.210

Remarks:

Support - Production Engineering Cost and Support - Program Management Cost are shared between E37412 / AMMO-Hydra, Aviation Rocket Procurement, Unguided and E37413 / Aviation Rocket Procurement, Guided baby lines based on an apportionment percentage, therefore fluctuate based on funding distribution between the two baby lines.

FY18 Industrial Facilities \$2.5M - Ramp to rate for APKWS.

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45			P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types				Item Number / Title [DODIC]: E37413 / Aviation Rocket Procurement, Guided					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Complete Round ^(†)		2017	BAE Systems / Nashua, NH	SS / FFP	Pax River, MD	Mar 2017	May 2018	2,080	23,788.00	N		
Complete Round ^(†)		2018	BAE Systems / Nashua, NH	SS / FFP	Pax River, MD	Mar 2018	Mar 2019	4,720	22,820.00	N		
Complete Round ^(†)		2019	BAE Systems / Nashua, NH	SS / FFP	Pax River, MD	Mar 2019	Mar 2020	4,880	25,204.20	N		
Complete Round ^(†)	✓	2020	BAE Systems / Nashua, NH	SS / FFP	Pax River, MD	Mar 2020	Mar 2021	5,422	25,244.02	N		

^(†) indicates the presence of a P-21

Remarks:

- QTY EA for delivery schedule.
- FY17 & FY18 are contract option years.
- Contract managed by Navy

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45										P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types										Item Number / Title [DODIC]: E37413 / Aviation Rocket Procurement, Guided									

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2019														Fiscal Year 2020														BALANCE		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019														Calendar Year 2020															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						
Complete Round																																				
Prior Years Deliveries: 489																																				
	1	2017	ARMY	2,080	2,080	0																														0
	1	2018	ARMY	4,720	0	4,720	-	-	-	-	-	560	-	1,120	6	640	-	240	-	1,040	-	-	1,114												0	
	1	2019	ARMY	4,880	0	4,880						A -	-	-	-	-	-	-	-	-	-	-												2,080		
✓	1	2020	ARMY	5,422	0	5,422																													5,422	

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45										P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types										Item Number / Title [DODIC]: E37413 / Aviation Rocket Procurement, Guided									

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2021													Fiscal Year 2022													BALANCE				
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021													Calendar Year 2022																
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						
Complete Round																																				
Prior Years Deliveries: 489																																				
	1	2017	ARMY	2,080	2,080	0																														0
	1	2018	ARMY	4,720	4,720	0																														0
	1	2019	ARMY	4,880	2,800	2,080	400	400	400	400	480																									0
✓	1	2020	ARMY	5,422	0	5,422	-	-	-	-	-	451	451	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	452	0	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 45		P-1 Line Item Number / Title: 3246E37300 / Rocket, Hydra 70, All Types
		Item Number / Title [DODIC]: E37413 / Aviation Rocket Procurement, Guided

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	BAE Systems - Nashua, NH	2,000	12,000	25,000	0	6	11	17	0	2	11	13

Remarks:
Guidance systems are procured on a Navy contract.

APKWS production rates increased to accommodate increased warfighter operational usage. Minimum Sustaining Rate is satisfied by multi-service procurements. Maximum production rate is based on two shifts and does not include the potential for surge capability.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition	P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	137.914	7.441	8.928	-	7.595	7.595	8.900	8.200	10.000	6.606	-	195.584
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	137.914	7.441	8.928	-	7.595	7.595	8.900	8.200	10.000	6.606	-	195.584
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	137.914	7.441	8.928	-	7.595	7.595	8.900	8.200	10.000	6.606	-	195.584

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$7.595M for Overseas Contingency Operations (OCO); of which \$7.595M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Cartridge Actuated Devices (CAD) and Propellant Actuated Devices (PAD) all types are used in various escape and jettison systems on all types of Army aircraft. They are required to support aircraft escape, safety, and jettison systems and mission essential needs. Due to the individual unique service lives, the yearly requirement of items and their respective quantities is variable. Items are subject to shelf and service life restrictions and, therefore, require replacement at specified intervals.

Safety CAD/PAD devices are procured yearly and are made up of many different end items, including but no limited to: MS81-87 Shielded Det Cord; MS94-97 Canopy Egress Assembly; MS91-92 Flexible Det Cord; MT06/DWEA Initiator Cartridge; SP02/03 Det Cord Assembly; WB53/MT20/TY60 Fire Bottle Cartridge; MD66/JM92 Stores Release Cartridge; MJ20 Thruster Assembly and Cartridge; MJ20 Inert Thruster without Cartridge; MJ21 Impulse Cartridge; MU02 Hoist Cutter Cartridge; MU34 Hoist Refire Kit; M514 Hoist Cutter Cartridge; DWGS Cable Cutter Assembly; JM96 Chinook Impulse Cartridge; MD65 Initiator Cartridge - Air Volcano stores release.

This funding line also procures product improvement program (PIP) items for the new Underwater Emergency Egress System (UEES). The UEES items allow safe removal of the Apache canopy system in a submerged water environment and safe activation in a fuel soaked environment without fuel ignition. These items include but are not limited to: JN79-82 Canopy Egress Assembly; XW55 Delay Initiator; and new versions of the SP02/03 Det Cord Assembly and MS82/85 Shielded Det Cord.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition	P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	EA0003 / CAD/PAD, All Other	P-5a			- / 137.914	- / 7.441	- / 8.928	- / -	- / 7.595	- / 7.595
P-40	Total Gross/Weapon System Cost				- / 137.914	- / 7.441	- / 8.928	- / -	- / 7.595	- / 7.595

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$7.595 million for Overseas Contingency Operations, \$7.595 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 procurement funding will be used for procurement of Apache Underwater Emergency Egress System components, replenishment of the initiator cartridge for the Blackhawk, and various CAD/PADs that need replacement due to limited shelf life and/or install life. The FY 2020 program is required to assure availability of replacement items when needed or for mandatory "time-change" procedures for already installed devices to avoid grounding aircraft or rendering aircraft partially mission capable. This funding is required to support fleet requirements that take into account the aircraft inventory, maintenance cycle, shelf/install life, procurement lead-times, and expenditures. Due the variability of these factors, actual CAD/PAD end items and the quantities procured may vary.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types	Item Number / Title [DODIC]: EA0003 / CAD/PAD, All Other

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	137.914	7.441	8.928	-	7.595	7.595
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	137.914	7.441	8.928	-	7.595	7.595
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	137.914	7.441	8.928	-	7.595	7.595

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
MS81 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	639.15	300	0.192	639.15	300	0.192
MS82 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	639.15	300	0.192	639.15	300	0.192
MS83 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	639.15	300	0.192	639.15	300	0.192
MS85 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	639.15	300	0.192	639.15	300	0.192
MS86 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	639.15	300	0.192	639.15	300	0.192
MS87 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	639.15	300	0.192	639.15	300	0.192
MS82 UEES1 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	540.75	500	0.270	540.75	500	0.270
MS82 UEES2 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	540.75	500	0.270	540.75	500	0.270
MS85 UEES1 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	540.75	500	0.270	540.75	500	0.270
MS85 UEES2 Shielded Det Cord ^(†)	-	-	-	-	-	-	-	-	-	-	-	-	540.75	500	0.270	540.75	500	0.270

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Exhibit P-5, Cost Analysis: PB 2020 Army												Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47						P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types						Item Number / Title [DODIC]: EA0003 / CAD/PAD, All Other					
ID Code (A=Service Ready, B=Not Service Ready) :												MDAP/MAIS Code:					

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
JN79 Canopy Egress Assembly ^(†)	-	-	-	8,400.00	120	1.008	8,400.00	200	1.680	-	-	-	8,820.00	155	1.367	8,820.00	155	1.367
JN80 Canopy Egress Assembly ^(†)	-	-	-	8,400.00	120	1.008	8,400.00	200	1.680	-	-	-	8,820.00	155	1.367	8,820.00	155	1.367
SP02/03 UEES Det Cord Assembly ^(†)	-	-	-	-	-	-	900.00	600	0.540	-	-	-	990.00	250	0.248	990.00	250	0.248
XW55 Delay Initiator ^(†)	-	-	-	1,240.00	500	0.620	-	-	-	-	-	-	1,296.90	500	0.648	1,296.90	500	0.648
MJ21 Impulse Cartridge ^(†)	-	-	-	340.00	300	0.102	-	-	-	-	-	-	385.00	250	0.096	385.00	250	0.096
JN81 Canopy Egress Assembly ^(†)	-	-	-	8,400.00	120	1.008	8,400.00	200	1.680	-	-	-	-	-	-	-	-	-
JN82 Canopy Egress Assembly ^(†)	-	-	-	8,400.00	120	1.008	8,400.00	200	1.680	-	-	-	-	-	-	-	-	-
MS94 Window Cutting Assembly ^(†)	-	-	-	2,175.00	150	0.326	-	-	-	-	-	-	-	-	-	-	-	-
MS95 Window Cutting Assembly ^(†)	-	-	-	2,400.00	185	0.444	2,400.00	60	0.144	-	-	-	-	-	-	-	-	-
MS96 Window Cutting Assembly ^(†)	-	-	-	2,400.00	165	0.396	2,400.00	60	0.144	-	-	-	-	-	-	-	-	-
MS97 Window Cutting Assembly ^(†)	-	-	-	2,400.00	115	0.276	-	-	-	-	-	-	-	-	-	-	-	-
DWEA Initiator Cartridge ^(†)	-	-	-	-	-	-	825.00	400	0.330	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	6.196	-	-	7.878	-	-	0.000	-	-	5.958	-	-	5.958
Non Recurring Cost																		
Prior Years (Multiple DODICs)	-	-	137.914	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MJ20/MJ21 Decoupling Project	-	-	-	-	-	0.147	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	137.914	-	-	0.147	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	137.914	-	-	6.343	-	-	7.878	-	-	0.000	-	-	5.958	-	-	5.958
Support - Hardware Analysis Cost																		
Hardware Analysis	-	-	-	-	-	0.030	-	-	-	-	-	-	-	-	0.050	-	-	0.050
Subtotal: Support - Hardware Analysis Cost	-	-	-	-	-	0.030	-	-	-	-	-	0.000	-	-	0.050	-	-	0.050
Support - Production Engineering Cost																		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types	Item Number / Title [DODIC]: EA0003 / CAD/PAD, All Other
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Production Engineering	-	-	-	-	-	1.067	-	-	1.050	-	-	-	-	-	1.587	-	-	1.587
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	1.067	-	-	1.050	-	-	0.000	-	-	1.587	-	-	1.587
Gross/Weapon System Cost	-	-	137.914	-	-	7.441	-	-	8.928	-	-	-	-	-	7.595	-	-	7.595

Remarks:

All CAD/PADs listed across the FYDP are based on the Army fleet's actual need. These requirements are determined by analyzing number of Army aircraft, on-hand inventory, actual expenditures, shelf life, install life, expiration dates, procurement lead times, and projected contract delivery dates. The number of CAD/PADs procured is to ensure adequate assets are available for fleet support and operational readiness.

Footnotes:

- 1) Starting FY 2020, CAD/PAD additionally includes recurring Cost Analysis and Procurement History and Planning details that were not included FY 2019 and prior.
- 2) FY 2018 and FY 2019 Hardware Analysis are assessed on two different CAD/PAD end items.
- 3) Production Engineering funding provided to Naval Surface Warfare Center - Indian Head Explosive Ordnance Disposal Technology Division.

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types	Item Number / Title [DODIC]: EA0003 / CAD/PAD, All Other
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
MS81 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	300	639.15	Y		
MS82 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	300	639.15	Y		
MS83 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	300	639.15	Y		
MS85 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	300	639.15	Y		
MS86 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	300	639.15	Y		
MS87 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	300	639.15	Y		
MS82 UEES1 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	500	540.75	Y		
MS82 UEES2 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	500	540.75	Y		
MS85 UEES1 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	500	540.75	Y		
MS85 UEES2 Shielded Det Cord	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	500	540.75	Y		
JN79 Canopy Egress Assembly		2018	Pacific Scientific / Hollister, CA	SS / FFP	NAVSUP	Dec 2018	Dec 2019	120	8,400.00	Y		
JN79 Canopy Egress Assembly		2019	TBD / TBD	SS / FFP	NAVSUP	Mar 2019	Mar 2020	200	8,400.00	Y		
JN79 Canopy Egress Assembly	✓	2020	TBD / TBD	SS / FFP	NAVSUP	Mar 2020	Mar 2021	155	8,820.00	Y		
JN80 Canopy Egress Assembly		2018	Pacific Scientific / Hollister, CA	SS / FFP	NAVSUP	Dec 2018	Dec 2019	120	8,400.00	Y		
JN80 Canopy Egress Assembly		2019	TBD / TBD	SS / FFP	NAVSUP	Mar 2019	Mar 2020	200	8,400.00	Y		
JN80 Canopy Egress Assembly	✓	2020	TBD / TBD	SS / FFP	NAVSUP	Mar 2020	Mar 2021	155	8,820.00	Y		
SP02/03 UEES Det Cord Assembly		2019	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	600	900.00	Y		
SP02/03 UEES Det Cord Assembly	✓	2020	TBD / TBD	C / FFP	NAVSUP	Mar 2020	Mar 2021	250	990.00	Y		
XW55 Delay Initiator		2018	TBD / TBD	SS / FFP	NAVSUP	Mar 2019	Mar 2020	500	1,240.00	Y		
XW55 Delay Initiator	✓	2020	TBD / TBD	SS / FFP	NAVSUP	Mar 2020	Mar 2021	500	1,296.90	Y		
MJ21 Impulse Cartridge		2018	Pacific Scientific / Chandler, AZ	SS / FFP	NAVSUP	Sep 2018	Sep 2019	300	340.00	Y		
MJ21 Impulse Cartridge	✓	2020	TBD / TBD	SS / FFP	NAVSUP	Mar 2020	Mar 2021	250	385.00	Y		
JN81 Canopy Egress Assembly		2018	Pacific Scientific / Hollister, CA	SS / FFP	NAVSUP	Dec 2018	Dec 2019	120	8,400.00	Y		
JN81 Canopy Egress Assembly		2019	TBD / TBD	SS / FFP	NAVSUP	Mar 2019	Mar 2020	200	8,400.00	Y		
JN82 Canopy Egress Assembly		2018	Pacific Scientific / Hollister, CA	SS / FFP	NAVSUP	Dec 2018	Dec 2019	120	8,400.00	Y		
JN82 Canopy Egress Assembly		2019	TBD / TBD	SS / FFP	NAVSUP	Mar 2019	Mar 2020	200	8,400.00	Y		
MS94 Window Cutting Assembly		2018	UTC Aerospace Systems / Fairfield, CA	C / FFP	NAVSUP	Mar 2018	Mar 2019	150	2,175.00	Y		
MS95 Window Cutting Assembly		2018	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	185	2,400.00	Y		
MS95 Window Cutting Assembly		2019	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	60	2,400.00	Y		
MS96 Window Cutting Assembly		2018	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	165	2,400.00	Y		
MS96 Window Cutting Assembly		2019	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	60	2,400.00	Y		
MS97 Window Cutting Assembly		2018	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	115	2,400.00	Y		

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2420E61000 / CAD/PAD, All Types	Item Number / Title [DODIC]: EA0003 / CAD/PAD, All Other
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
DWEA Initiator Cartridge		2019	TBD / TBD	C / FFP	NAVSUP	Mar 2019	Mar 2020	400	825.00	Y		

Remarks:
 All procurement contracts are awarded by Naval Surface Warfare Center (NSWC) at Indian Head. This funding is required to support fleet requirements that take into account the aircraft inventory, maintenance cycle, shelf/install life, procurement lead-times, and expenditures. Due the variability of these factors, actual CAD/PAD end items procured may vary.

FY 2018 procurement for legacy MS95-97 Window Cutting Assembly emerged late due to requirement for replacements at specified intervals and procurement lead time of Underwater Emergency Egress System (UEES) variant JN80-82. FY 2018 and FY 2019 requirements will be executed as a tandem buy to achieve a more economical procurement.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	523.745	19.345	44.661	-	51.651	51.651	54.245	41.263	34.619	34.687	-	804.216
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	523.745	19.345	44.661	-	51.651	51.651	54.245	41.263	34.619	34.687	-	804.216
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	523.745	19.345	44.661	-	51.651	51.651	54.245	41.263	34.619	34.687	-	804.216

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$51.651M for Overseas Contingency Operations (OCO); of which \$51.651M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Demolition Munitions, All Types.

(E45404) The M17A1 Receiver, Radio Frequency Remote Activation Munition System (RF-RAMS) (DODIC MP47) is a single use item, which is capable of functioning non electric blasting caps or detonation cord. The M17A1 provides the un-tethered capability to wirelessly function/initiate demolition charges or munitions up to and beyond 5 KM line-of-sight/non line-of-sight, once it receives the correct programmed coded signal from the RF-RAMS transmitter. The Receiver is programmed in the field by an RF-RAMS Transmitter and subsequently responds only to that transmitter. This item is Code A, approved for service use.

(E50510) Demo Kit, Blasting: Munition Array Charge, XM335, is the neutralizing component to the Standoff Robotic Explosive Hazard Detection System (SREHD), formerly known as the Autonomous Mine Detection System (AMDS). SREHD provides increased survivability through mine and explosive hazards stand-off detection, marking and neutralization capability for the dismounted soldier. The SREHD system is a single payload mounted on a Man Transportable Robotic System (MTRS) platform to conduct counter explosive hazard detection, marking, and neutralization missions without reconfiguration by combining the detect/mark system with the ability to deploy a neutralizer. To neutralize explosive hazards, the SREHD payload deploys the XM335, a three shape charge array, on top of the target. The shape charges are tailored to penetrate overburden, casing and impact detonate the explosive fill. The neutralizer is detonated using the existing Remote Activation Munition System (RAMS), along with the M50 Shock Tube Initiator. The SREHD system is currently in Low Rate Initial Production (LRIP). This item is Code B, not approved for service use.

(E50601) Charge Demolition Block Comp C-4 1-1/4 LB M112 is the primary demolition explosive used by the U.S. Army. The M112 Demolition Block is used for general demolition and, in particular, for destruction of captured enemy ammunition. The block demolition charge consists of 1-1/4 pounds of composition C-4 plastic explosive packed in a mylar-film bag. Pressure sensitive adhesive tape is provided on one of the rectangular surfaces, allowing quick emplacement by the individual soldier on the object to be destroyed. The explosive may be cut and/or removed from its wrapper and hand molded into a desired shape suited to the target. Upon detonation, the shock wave destroys the target by cutting, breaching or cratering. This item is Code A, approved for service use.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E50703) Bangalore Torpedo 2.5 FT M1A3 is used to clear paths through barbed wire entanglements and minefields. Bangalore torpedoes are also used for clearing heavy undergrowth of bamboo and may also be used as a cratering charge, especially in connection with shaped charges against reinforced concrete targets. This item is Code A, approved for service use.</p> <p>(E50800) 1/4 LB TNT Block Demolition Charge is one of three TNT charges. TNT demolition charges have a high detonating velocity and are particularly well suited to cutting or breaching hard surface materials. When a charge is detonated, the explosive is converted into compressed gas. The gas exerts pressure in the form of a shock wave which demolishes the target by cutting, breaching, or cratering. The type of demolition achieved depends on the placement of the charge in relation to the target. Unlike the 1 pound and 1/2 pound versions, which are rectangular, the 1/4 pound block is issued in a cylindrical, waterproof, olive-drab cardboard container or an alternative plastic cylindrical container. The cardboard container design have metal ends with a threaded cap well in one end. The plastic designs also have one end with a threaded cap well in one end. This item is Code A, approved for service use.</p> <p>(E51300) 40LB Cratering Demolition Block Charge is a demolition charge designed to destroy roads, bridge abutments, runways, buildings, fortifications and other concrete structures. It uses a low velocity explosive which destroys by a lifting and heaving motion rather than the cutting action of high velocity charges. This item is Code A, approved for service use.</p> <p>(E51400) M186 Demolition Charge is a 50 foot roll of flexible explosive. It is 3 inches wide and 1/4 inch thick. It can be easily cut and formed into various shapes and is primarily used as a cutting charge. This item is Code A, approved for service use.</p> <p>(E52000) The M4A1 Selectable Light Weight Attack Munition (SLAM) is a multipurpose munition designed to be readily portable and hand-emplaced against lightly armored vehicles, parked aircraft, wheeled or tracked support vehicles, and ammunition or fuel storage sites. The SLAM can be used either day or night during all weather conditions. Man-in-the-loop is required in all attack modes. The improved M4A1 SLAM has several producibility and safety enhancements; these include charges to the mode/time selector switch, housing base and cover assembly and passive sensor assembly. A battery bleed resistor was added for improved safety. This item is Code A, approved for service use.</p> <p>(E52500) Cap Blasting Electric M6 is used to initiate high explosives. It is initiated by an electrical charge from a blasting machine or other source of electric power. Blasting cap M6 consists of a base charge of Rapid Detonating Explosive (RDX), an intermediate charge of lead azide and an ignition charge of smokeless powder, potassium chlorate and lead salt of dinitro cresol in an aluminum alloy cup. Two 12-foot lead wires, connected by a bridge wire in the ignition charge, extend through a rubber plug assembly in the open end of the cup. This item is Code A, approved for service use.</p> <p>(E54100) Detonating Cord is used to prime and detonate explosive charges. Unlike the time fuze, which burns slowly, detonating cord burns almost instantaneously. It is used to link a series of near simultaneous charges. The Type 1, Class E detonating cord consists of a core of high velocity explosive in a seamless textile tube. The tube is covered with a thin layer of asphalt and sheathed in an outer cover of plastic coated textile. The plastic outer cover is smooth and colored olive drab. This item is Code A, approved for service use.</p> <p>(E56500) Time Blasting Fuze M700 is used to initiate an M7 non-electric blasting cap, which in turn initiates a main charge. It is ignited with an M60 or M81 firing device. The fuze is olive drab with a single yellow band spaced every 18 inches, and a double yellow band spaced every 90 inches to enable the soldier to cut the desired length of fuze without additional measuring tools. The soldier attaches the fuze to the blasting cap with crimping pliers. This item is Code A, Approved for service use.</p> <p>(E59100) CTG, .50cal Blnk Elec Initiated, MK209 Series(EOD) This cartridge is electrical impuled initiated and used in Explosive Ordnance Disposal (EOD) tools and equipment. This is a training standard item used in training and combat. It is an electrically initiated, gas producing device. It is initiated with an MK1-2 squib in place of the percussion primer. This item is Code A, approved for service use.</p> <p>(E60200) Cutter CTG Actuated 2 Sec Delay M21 is a cartridge actuated device that is used in aerial delivery systems for cargo. It severs a reefing line which allows a parachute to fully deploy. The cutter is installed in a mounting bracket which is attached to the parachute. Major components consist of a case, firing pin assembly, lanyard, knife assembly, delay assembly, and cotter pin. This item is Code A, approved for service use.</p> <p>(E76728) MK 788-0, Main Charge Disrupter (MCD) is a device used to render-safe unexploded ordnance (UXO). Upon initiation, the device attacks and neutralizes the main charge explosive by generating reactions up to and including low-order detonations. It is a non-developmental item (NDI) consisting of an energetic tool (ET), a demolition material interface adapter, and an emplacement stand. The MCD</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>provides EOD with an improved neutralization capability in situations where the use of more traditional methods (attacking the fuzing mechanism or high-order detonation) is not possible or desired. This item is Code B, not approved for service use.</p> <p>(E78201) The M980 Demolition Charge is a 20 pound, 38 foot roll of flexible explosive. It is 10 inches wide and .083 inches thick. It can be easily cut and formed into various shapes and is primarily used as a cutting charge. This item is Code A, approved for service use.</p> <p>(E81302) Cap Blasting Non-Elec, W/30 ft Shock Tube is part of the family of Modernized Demolition Initiators (MDI). It consists of a blasting cap which is factory sealed to a length of shock tube. The tube is activated using an M81 igniter. A shock wave travels the length of the tube, with a delay measured in milliseconds, and ignites the blasting cap which in turn initiates the main charge. The MDI is not susceptible to electrostatic discharge or Radio Frequency (RF) jamming. The 30 foot length is generally used as a linking charge for a series of demolitions. This item is Code A, approved for service use.</p> <p>(E81305) Non-Elec Delay Blast Cap M14 is part of the family of Modernized Demolition Initiators (MDI). This item is used as a branch line to a primed charge or as a transmission line to facilitate the blast wave. The M11 can be used to ignite the M11/M16, M12/M13, M151/M152 or detonating cord. It is a high strength cap (equal to or better than #12 commercial cap) factory crimped to a 30 foot length of shock tube. The opposite end has a factory sealed crimp to protect it from moisture. The M11 has two flags; a YELLOW flag (2 meters from the cap) and a RED flag (1 meter from the cap). The M11 also has a special plastic connector (called a "J" hook), which facilitates quick and easy attachment onto a detonating cord (e.g., a ring main). This item is Code A, approved for service use.</p> <p>(E81306) 70 FT Non-Elec Shock Tube Blast Cap M15 is part of the Modernized Demolition Initiators (MDI). The M15 is a non-electric 70 foot length of shock tube with slightly different size factory crimped detonators at each end containing different delay elements. The shorter detonator is a low strength, 25 milliseconds delay designed to initiate other pieces of shock tube in the priming system, while the longer detonator is a high strength, 200 millisecond delay designed to initiate explosives. Both detonators are also slightly larger in diameter than a standard blasting cap and do not fit into a standard cap well. The M15 has two flags; a YELLOW flag (2 meters from the high strength cap) and a RED flag (1 meter from the high strength cap). The M15 also has a special plastic holder attached to the shorter detonator to facilitate connection to other shock tubes. This item is Code A, approved for service use.</p> <p>(E81307) Igniter, Time Fuze and Shock Tube, M81 is part of the family of Modernized Demolition Initiators (MDI). The M81 is a device, hand held by the individual Soldier, with a small primer charge that will activate the M700 Time Fuze as well as a shock tube. It is the primary device for all non-electrical demolition initiation. This item is Code A, approved for service use.</p> <p>(E94100) Demolition Booster Charge M151 is part of the family of Modernized Demolition Initiators (MDI). The M151 booster is a no delay, non-electric insensitive initiation system with a length of 10 feet. It has a solid core, low strength/high velocity detonating cord and a booster, which contains only secondary explosives, with an initiation output equivalent to an M7 Blasting Cap. The M151 is well suited for situations requiring simultaneous initiation and detonation (i.e. beam cutting). Booster explosive sensitivity is comparable to detonating cord, which allows for usage involving burial and pre-priming of the explosive charge. The M151 is suitable as branch lines; however it cannot be used as a main line or ring main. The M151 booster contains a detonating clip and two pentagonal shaped tags on the detonating cord. This item is Code A, approved for service use.</p> <p>(E96200) Booster, Demo Charge M152 is part of the family of Modernized Demolition Initiators (MDI). This item physically represents the actual M152, except it is inert. It is used for training and is reusable. The color of the detonating cord is bronze. The ID tags legibly display "M152 Inert". The blasting cap has four holes drilled on the circumference using a #46-48 drill size to establish an unobstructed view through the cap. These holes are 90 degrees apart. The blasting caps are also labeled "inert" on two sides, opposite each other. This item is Code A, approved for service use.</p> <p>(E99902) Blast Cap Non-Electric W/200 FT Shock Tube M20 Inert is part of the family of Modernized Demolition Initiators (MDI). This item physically represents the actual M19, except it is inert. It is used for training and is reusable. The color of the shock tube is bronze. The blasting cap has four holes drilled on the circumference using a #35-43 drill size to establish an unobstructed view through the cap. These holes are 90 degrees apart. The blasting caps are also labeled "inert" on two sides, opposite each other. This item is Code A, approved for service use.</p> <p>(E99903) Blast Cap, Non-Elec: 500Ft Minitube, M21 is part of the family of Modernized Demolition Initiators (MDI). It consists of an initiating component used to activate standard military explosives and demolition devices. The MDI is not susceptible to electrostatic discharge or Radio Frequency (RF) jamming. This item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E99905) Blast Cap, Non-Elec, 1000Ft Minitube, M23 is part of the family of Modernized Demolition Initiators (MDI). It consists of an initiating component used to activate standard military explosives and demolition devices. The MDI is not susceptible to electrostatic discharge or Radio Frequency (RF) jamming. This item is Code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date: March 2019**

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition **P-1 Line Item Number / Title:** 2790E55400 / Demolition Munitions, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E45404 / Receiver, Radio Firing-Remote Actv MunSys(RF-RAMS) [MP47]	P-5a	A		- / 12.006	- / 1.200	- / 0.005	- / -	- / 5.688	- / 5.688
P-5	E50510 / DEMO KIT, BLASTING: Munition Array Charge, XM335 [MP57]		B		- / -	- / 1.586	- / 2.350	- / -	- / -	- / -
P-5	E50601 / CHARGE, Demo Blk Comp C-4 1-1/4 lb, M112 [M023]		A		- / 233.452	- / 0.200	- / 2.615	- / -	- / 2.439	- / 2.439
P-5	E50703 / DEMO KIT, BANGALORE TORPEDO, M1A3 (2.5 foot) [MP03]		A		- / -	- / -	- / -	- / -	- / 1.429	- / 1.429
P-5	E50800 / CHARGE, Demo Blk TNT 1/4 lb [M030]		A		- / 5.935	- / -	- / 0.406	- / -	- / 1.512	- / 1.512
P-5	E51300 / CHARGE, Demo Cratering 40 lb [M039]		A		- / 40.560	- / -	- / -	- / -	- / 0.410	- / 0.410
P-5	E51400 / CHARGE, Demo, (50ft), Sheet Explosive, M186 [M060]		A		- / 8.445	- / 2.017	- / 1.489	- / -	- / 2.421	- / 2.421
P-5	E52000 / MUNITION, Selectable Lightweight Attack (SLAM), M4 [MP12]	P-5a, P-21	A		- / 38.934	- / 0.816	- / 16.070	- / -	- / 14.639	- / 14.639
P-5	E52500 / CAP, Blasting Elec, M6 [M130]		A		- / 16.218	- / 1.641	- / 1.660	- / -	- / 1.703	- / 1.703
P-5	E54100 / CORD, Detonating Type 1 [M456]		A		- / 30.542	- / 3.300	- / -	- / -	- / 2.805	- / 2.805
P-5	E56500 / FUZE, Blasting Time, M700 [M670]		A		- / 4.714	- / 0.350	- / 0.737	- / -	- / 0.600	- / 0.600
P-5	E59100 / CTG, .50cal Blink Elec Initiated, MK209 Series(EOD) [SS01]	P-5a	A		- / 2.005	- / 1.209	- / 6.001	- / -	- / 1.292	- / 1.292
P-5	E60200 / CUTTER, Cartridge Actuated, M21, 2 Second Delay [M500]	P-5a, P-21	A		- / 38.144	- / -	- / -	- / -	- / 7.225	- / 7.225
P-5	E76728 / Disrupter, Main Charge, MK 788-0 [DWDF]		B		- / 2.297	- / 0.651	- / 2.289	- / -	- / -	- / -
P-5	E78201 / CHARGE, Demo (38FT) Sheet Explosive, PBXW-202 [M980]		A		- / 6.547	- / 0.281	- / -	- / -	- / -	- / -
P-5	E81302 / CAP, Blasting Non-Elec, w/30Ft Shock Tube [ML47]		A		- / 6.781	- / -	- / 0.158	- / -	- / -	- / -
P-5	E81305 / CAP BLASTING NON-ELEC, DELAY, M14 [MN06]		A		- / 14.630	- / -	- / 0.167	- / -	- / -	- / -
P-5	E81306 / CAP BLASTING NON-ELEC, DELAY, W/70 FT TUBE, M15 [MN07]		A		- / 3.943	- / -	- / 0.168	- / -	- / 1.178	- / 1.178
P-5	E81307 / IGNITER, Time Fuze and Shock Tube, M81 [MN08]		A		- / 17.491	- / 0.697	- / -	- / -	- / -	- / -
P-5	E94100 / BOOSTER, Demo Charge, M151 [MN68]		A		- / 7.060	- / -	- / 0.168	- / -	- / -	- / -
P-5	E96200 / BOOSTER, DEMO CHARGE M152 INERT [MN75]		A		- / -	- / -	- / 0.168	- / -	- / -	- / -
P-5	E99902 / Blast Cap, Non-Elec: Inert, 200Ft Minitube, M20 [MN87]		A		- / 0.610	- / -	- / 0.200	- / -	- / -	- / -
P-5	E99903 / CAP, Blasting Non-Elec, w/500Ft Minitube, M21 [MN88]	P-5a	A		- / 15.499	- / 2.647	- / 5.295	- / -	- / 3.421	- / 3.421
P-5	E99905 / CAP, Blast, Non-Elec, 1000Ft Minitube, M23 [MN90]		A		- / 17.932	- / 2.750	- / 4.715	- / -	- / 4.889	- / 4.889
P-40	Total Gross/Weapon System Cost				- / 523.745	- / 19.345	- / 44.661	- / -	- / 51.651	- / 51.651

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

Justification:

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>The FY 2020 Budget support critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station and the combined training centers. Test requirements support the development, fielding, safety and quality assurance of Army munitions and equipment throughout their life-cycle.</p> <p>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.</p> <p>FY 2020 funding totals include \$0.0 million for Base and \$51.651 million for Overseas Contingency Operations, with \$51.651 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.</p> <p>FY 2020 OCO for Base Requirements procurement dollars support production of 15 variants of Demolitions.</p> <p>(E45404) M17A1 Receiver, Radio Frequency Remote Activation Munition System (RF-RAMS) This is a training standard item used in training and combat. Request supports annual training and builds a war reserve in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.688 million supports the production of 1,718 M17A1 Receivers, Radio Frequency Remote Activation Munition Systems. TYPE CLASSIFICATION DATE: 2006</p> <p>(E50510) Demo Kit, Blasting: Munition Array Charge, XM335 This is a training standard item used in both training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals.</p> <p>(E50601) Charge Demo BLK Comp C-4 1-1/4 LB M112 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.439 million supports the production of 52,375 Demolitions Blocks, C-4. TYPE CLASSIFICATION DATE: 1964</p> <p>(E50703) Bangalore Torpedo 2.5 FT M1A3 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.429 million supports the production of 754 Bangalore Torpedoes. This is a new start in FY 2020. TYPE CLASSIFICATION DATE: 1958</p> <p>(E50800) 1/4 LB TNT Block Demolition Charge This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.512 million supports the production of 128,392 Demolition Block Charges. TYPE CLASSIFICATION DATE: June 1968</p> <p>(E51300) 40LB Cratering Demolition Block Charge This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.410 million supports the production of 304 Cratering Demolition Block Charges. This is a new start in FY 2020. TYPE CLASSIFICATION DATE: 1958</p> <p>(E51400) M186 Demolition Charge</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.421 million supports the production of 73,018 Demolition Charges. TYPE CLASSIFICATION DATE: 1968</p> <p>(E52000) Selectable Light Weight Attack Munition (SLAM) This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$14.639 million supports the production of 3,178 SLAMs. TYPE CLASSIFICATION DATE: 2011</p> <p>(E52500) Cap, Blasting Electric M6 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.703 million supports the production of 45,396 Blasting Caps. TYPE CLASSIFICATION DATE: January 1960</p> <p>(E54100) Detonating Cord, Type 1 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.805 million supports the production of 6,817,701 Detonating Cords. TYPE CLASSIFICATION DATE: 1958</p> <p>(E56500) Time Blasting Fuze M700 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.600 million supports the production of 544,690 Blasting Fuzes. TYPE CLASSIFICATION DATE: January 1958</p> <p>(E59100) CTG, .50cal Blnk Elec Initiated, MK209 Series(EOD) This cartridge is electrical impuled initiated and used in Explosive Ordnance Disposal (EOD) tools and equipment. This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.292 million supports production of 10,013 Cartridges. TYPE CLASSIFICATION DATE: EOD Item Navy Configured</p> <p>(E60200) Cutter CTG Actuated 2 Sec delay M21 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$7.225 million supports the production of 10,912 Cutters. This is a new start in FY 2020. TYPE CLASSIFICATION DATE: 1980</p> <p>(E76728) MK 788-0, Main Charge Disrupter This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: EOD Item Navy Configured</p> <p>(E78201) M980 Demolition Charge, 38 foot Sheet Explosive This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: EOD Item Navy Configured</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E81302) Cap Blasting Non-Electric, W/30 ft Shock Tube is part of the family of Modernized Demolition Initiators. This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: April 1996</p> <p>(E81305) Non-Elec Delay Blast Cap M14 This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: April 1996</p> <p>(E81306) 70 FT Non-Elec Shock Tube Blast Cap M15 This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.178 million supports procurement of 40,160 Blasting Caps. TYPE CLASSIFICATION DATE: April 1996</p> <p>(E81307) Igniter, Time Fuze and Shock Tube, M81 This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: April 1996</p> <p>(E94100) Demolition Booster Charge M151 This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: April 2000</p> <p>(E96200) Booster, Demo Charge M152 This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: April 2000</p> <p>(E99902) Blast Cap Non-Elec W/200 FT Shock Tube M20 Inert This is a training standard item used in training and combat. Request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: September 2002</p> <p>(E99903) Blast Cap, Non-Elec: 500Ft Minitube, M21 is part of the family of Modern Demolition Initiators (MDI). This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.421 million supports production of 45,556 Blasting Caps. TYPE CLASSIFICATION DATE: April 1996</p> <p>(E99905) Blast Cap, Non-Elec, 1000Ft Minitube, M23 is part of the family of Modern Demolition Initiators (MDI). This is a training standard item used in training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$4.889 million supports production of 42,420 Blasting Caps. TYPE CLASSIFICATION DATE: April 1996</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E45404 / Receiver, Radio Firing-Remote Actv MunSys(RF-RAMS) [MP47]

ID Code (A=Service Ready, B=Not Service Ready) : A				MDAP/MAIS Code:					
Resource Summary				Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)				-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)				12.006	1.200	0.005	-	5.688	5.688
Less PY Advance Procurement (\$ in Millions)				-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)				12.006	1.200	0.005	-	5.688	5.688
Plus CY Advance Procurement (\$ in Millions)				-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)				12.006	1.200	0.005	-	5.688	5.688
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>									
Initial Spares (\$ in Millions)				-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)				-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	-	-	11.959	-	-	-	2,333.96	2	0.005	-	-	-	2,364.45	1,718	4.062	2,364.45	1,718	4.062
<i>Subtotal: Recurring Cost</i>	-	-	<i>11.959</i>	-	-	-	-	-	<i>0.005</i>	-	-	<i>0.000</i>	-	-	<i>4.062</i>	-	-	<i>4.062</i>
<i>Subtotal: Hardware Cost</i>	-	-	11.959	-	-	-	-	-	0.005	-	-	0.000	-	-	4.062	-	-	4.062
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.327	-	-	0.327
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.327	-	-	0.327
Support - Production Engineering Cost																		
Production Engineering	-	-	0.047	-	-	1.200	-	-	0.000	-	-	-	-	-	1.299	-	-	1.299
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.047	-	-	1.200	-	-	0.000	-	-	0.000	-	-	1.299	-	-	1.299
Gross/Weapon System Cost	-	-	12.006	-	-	1.200	-	-	0.005	-	-	-	-	-	5.688	-	-	5.688

Remarks:
Production Engineering increased commensurate with the change in planned procurement of RF RAMS.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types					Item Number / Title [DODIC]: E45404 / Receiver, Radio Firing-Remote Actv MunSys(RF-RAMS) [MP47]				
Cost Elements	O C O	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
COMPLETE ROUND		2019	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Sep 2021	2	2,333.96	Y		
COMPLETE ROUND	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Sep 2021	1,718	2,364.45	Y		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E50510 / DEMO KIT, BLASTING: Munition Array Charge, XM335 [MP57]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	-	1.586	2.350	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	-	1.586	2.350	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	-	1.586	2.350	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	-	1,616.66	144	0.233	1,955.34	755	1.476	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	<i>0.233</i>	-	-	<i>1.476</i>	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	<i>0.233</i>	-	-	<i>1.476</i>	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	0.055	-	-	-	-	-	-	-	-	-
First Article Test	-	-	-	-	-	0.700	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	<i>0.700</i>	-	-	<i>0.055</i>	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.654	-	-	0.819	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	<i>0.654</i>	-	-	<i>0.819</i>	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	-	-	-	1.586	-	-	2.350	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E50601 / CHARGE, Demo Blk Comp C-4 1-1/4 lb, M112 [M023]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)		-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)		233.452	0.200	2.615	-	2.439	2.439
Less PY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)		233.452	0.200	2.615	-	2.439	2.439
Plus CY Advance Procurement (\$ in Millions)		-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)		233.452	0.200	2.615	-	2.439	2.439

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP)	-	-	13.282	-	-	-	8.43	54,917	0.463	-	-	-	8.59	52,375	0.450	8.59	52,375	0.450
COMP C-4 CLASS 3	-	-	213.491	-	-	-	19.84	72,490	1.438	-	-	-	20.23	69,134	1.399	20.23	69,134	1.399
<i>Subtotal: Recurring Cost</i>	-	-	226.773	-	-	-	-	-	1.901	-	-	0.000	-	-	1.848	-	-	1.848
<i>Subtotal: Hardware Cost</i>	-	-	226.773	-	-	-	-	-	1.901	-	-	0.000	-	-	1.848	-	-	1.848
Support - Product Improvement Cost																		
Production Qualification Test	-	-	0.595	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.595	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	6.076	-	-	0.200	-	-	0.710	-	-	-	-	-	0.589	-	-	0.589
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	6.076	-	-	0.200	-	-	0.710	-	-	0.000	-	-	0.589	-	-	0.589
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.008	-	-	-	-	-	0.003	-	-	-	-	-	0.002	-	-	0.002
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.008	-	-	-	-	-	0.003	-	-	0.000	-	-	0.002	-	-	0.002
Gross/Weapon System Cost	-	-	233.452	-	-	0.200	-	-	2.615	-	-	-	-	-	2.439	-	-	2.439

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E50703 / DEMO KIT, BANGALORE TORPEDO, M1A3 (2.5 foot) [MP03]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	-	-	-	-	1.429	1.429
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	-	-	-	1.429	1.429
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	-	-	-	-	1.429	1.429

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total			
	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 Cost																			
Recurring Cost																			
COMPLETE ROUND	-	-	-	-	-	-	-	-	-	-	-	-	1,561.68	754	1.178	1,561.68	754	1.178	
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	1.178	-	-	1.178
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	1.178	-	-	1.178
Support - Acceptance Testing Cost																			
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.200	-	-	0.200	
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.200	-	-	0.200
Support - Production Engineering Cost																			
Production Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.051	-	-	0.051	
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.051	-	-	0.051
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.429	-	-	1.429	

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E50800 / CHARGE, Demo Blk TNT 1/4 lb [M030]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	5.935	-	0.406	-	1.512	1.512
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5.935	-	0.406	-	1.512	1.512
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5.935	-	0.406	-	1.512	1.512

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	5.935	-	-	-	7.84	5,021	0.039	-	-	-	7.99	128,392	1.026	7.99	128,392	1.026
<i>Subtotal: Recurring Cost</i>	-	-	5.935	-	-	-	-	-	0.039	-	-	0.000	-	-	1.026	-	-	1.026
Subtotal: Hardware Cost	-	-	5.935	-	-	-	-	-	0.039	-	-	0.000	-	-	1.026	-	-	1.026
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.075	-	-	0.075
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.075	-	-	0.075
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.367	-	-	-	-	-	0.406	-	-	0.406
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.367	-	-	0.000	-	-	0.406	-	-	0.406
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.005	-	-	0.005
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.005	-	-	0.005
Gross/Weapon System Cost	-	-	5.935	-	-	-	-	-	0.406	-	-	-	-	-	1.512	-	-	1.512

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E51300 / CHARGE, Demo Cratering 40 lb [M039]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	40.560	-	-	-	0.410	0.410
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	40.560	-	-	-	0.410	0.410
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	40.560	-	-	-	0.410	0.410

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP)	-	-	13.100	-	-	-	-	-	-	-	-	-	548.07	304	0.167	548.07	304	0.167
COMP B TYPE I GRADE A	-	-	17.632	-	-	-	-	-	-	-	-	-	13.52	11,071	0.150	13.52	11,071	0.150
ALUMINUM POWDER FLAKED	-	-	1.241	-	-	-	-	-	-	-	-	-	3.27	3,213	0.011	3.27	3,213	0.011
COMP D-2	-	-	8.072	-	-	-	-	-	-	-	-	-	89.21	767	0.068	89.21	767	0.068
<i>Subtotal: Recurring Cost</i>	-	-	40.045	-	-	-	-	-	-	-	-	-	0.000	-	0.395	-	-	0.395
<i>Subtotal: Hardware Cost</i>	-	-	40.045	-	-	-	-	-	-	-	-	-	0.000	-	0.395	-	-	0.395
Support - Production Engineering Cost																		
Production Engineering	-	-	0.515	-	-	-	-	-	-	-	-	-	-	-	0.015	-	-	0.015
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.515	-	-	-	-	-	-	-	-	-	0.000	-	0.015	-	-	0.015
Gross/Weapon System Cost	-	-	40.560	-	-	-	-	-	-	-	-	-	-	-	0.410	-	-	0.410

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E51400 / CHARGE, Demo, (50ft), Sheet Explosive, M186 [M060]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	8.445	2.017	1.489	-	2.421	2.421
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	8.445	2.017	1.489	-	2.421	2.421
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	8.445	2.017	1.489	-	2.421	2.421

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	8.003	31.83	47,053	1.498	27.60	40,463	1.117	-	-	-	28.27	73,018	2.064	28.27	73,018	2.064
<i>Subtotal: Recurring Cost</i>	-	-	<i>8.003</i>	-	-	<i>1.498</i>	-	-	<i>1.117</i>	-	-	<i>0.000</i>	-	-	<i>2.064</i>	-	-	<i>2.064</i>
Subtotal: Hardware Cost	-	-	8.003	-	-	1.498	-	-	1.117	-	-	0.000	-	-	2.064	-	-	2.064
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.179	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	<i>0.179</i>	-	-	-	-	-	-	-	-	-	-	-	-
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	-	-	-	0.012	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	-	-	-	<i>0.012</i>	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.435	-	-	0.326	-	-	0.370	-	-	-	-	-	0.355	-	-	0.355
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.435</i>	-	-	<i>0.326</i>	-	-	<i>0.370</i>	-	-	<i>0.000</i>	-	-	<i>0.355</i>	-	-	<i>0.355</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.007	-	-	0.003	-	-	0.003	-	-	-	-	-	0.002	-	-	0.002
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.007</i>	-	-	<i>0.003</i>	-	-	<i>0.003</i>	-	-	<i>0.000</i>	-	-	<i>0.002</i>	-	-	<i>0.002</i>
Gross/Weapon System Cost	-	-	8.445	-	-	2.017	-	-	1.489	-	-	-	-	-	2.421	-	-	2.421

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E51400 / CHARGE, Demo, (50ft), Sheet Explosive, M186 [M060]
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E52000 / MUNITION, Selectable Lightweight Attack (SLAM), M4 [MP12]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	38.934	0.816	16.070	-	14.639	14.639
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	38.934	0.816	16.070	-	14.639	14.639
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	38.934	0.816	16.070	-	14.639	14.639

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(†)	-	-	37.711	-	-	-	3,953.64	3,152	12.462	-	-	-	4,030.14	3,178	12.808	4,030.14	3,178	12.808
<i>Subtotal: Recurring Cost</i>	-	-	37.711	-	-	-	-	-	12.462	-	-	0.000	-	-	12.808	-	-	12.808
Subtotal: Hardware Cost	-	-	37.711	-	-	-	-	-	12.462	-	-	0.000	-	-	12.808	-	-	12.808
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	1.576	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	1.576	-	-	-	-	-	-	-	-	-
Support - Engineering Change Proposals Cost																		
Engineering Change Proposals	-	-	-	-	-	-	-	-	0.300	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	-	-	-	-	-	-	0.300	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	1.223	-	-	0.816	-	-	1.732	-	-	-	-	-	1.831	-	-	1.831
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.223	-	-	0.816	-	-	1.732	-	-	0.000	-	-	1.831	-	-	1.831
Gross/Weapon System Cost	-	-	38.934	-	-	0.816	-	-	16.070	-	-	-	-	-	14.639	-	-	14.639

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types					Item Number / Title [DODIC]: E52000 / MUNITION, Selectable Lightweight Attack (SLAM), M4 [MP12]				
Cost Elements	O C O	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
Complete Round ^(†)		2019	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Sep 2019	Dec 2020	3,152	3,953.64	Y		
Complete Round ^(†)	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Mar 2021	3,178	4,030.14	Y		

^(†) indicates the presence of a P-21

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Exhibit P-21, Production Schedule: PB 2020 Army																								Date: March 2019										
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47											P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types											Item Number / Title [DODIC]: E52000 / MUNITION, Selectable Lightweight Attack (SLAM), M4 [MP12]												
Cost Elements <i>(Units in Each)</i>						Fiscal Year 2019													Fiscal Year 2020													B A L A N C E		
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019													Calendar Year 2020														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				
Complete Round																																		
	1	2019	ARMY	3,152	0	3,152												A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,152	
✓	1	2020	ARMY	3,178	0	3,178																												3,178
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P				

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47										P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types										Item Number / Title [DODIC]: E52000 / MUNITION, Selectable Lightweight Attack (SLAM), M4 [MP12]									

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2021												Fiscal Year 2022												BALANCE		
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	Calendar Year 2021												Calendar Year 2022												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L		A U G	S E P
Complete Round																															
	1	2019	ARMY	3,152	0	3,152	-	-	788	788	788	788																	0		
✓	1	2020	ARMY	3,178	0	3,178	-	-	-	-	-	796	794	794	794														0		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E52000 / MUNITION, Selectable Lightweight Attack (SLAM), M4 [MP12]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	TO BE SELECTED - TBS01	500	1,000	2,000	8	8	15	23	6	6	12	18

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E52500 / CAP, Blasting Elec, M6 [M130]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	16.218	1.641	1.660	-	1.703	1.703
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	16.218	1.641	1.660	-	1.703	1.703
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	16.218	1.641	1.660	-	1.703	1.703

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	27.48	579,048	15.912	30.42	37,000	1.126	31.33	38,304	1.200	-	-	-	32.27	45,396	1.465	32.27	45,396	1.465
<i>Subtotal: Recurring Cost</i>	-	-	15.912	-	-	1.126	-	-	1.200	-	-	0.000	-	-	1.465	-	-	1.465
Subtotal: Hardware Cost	-	-	15.912	-	-	1.126	-	-	1.200	-	-	0.000	-	-	1.465	-	-	1.465
Support - Product Improvement Cost																		
Production Verification Test	-	-	-	-	-	0.202	-	-	0.326	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	0.202	-	-	0.326	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.301	-	-	0.312	-	-	0.134	-	-	-	-	-	0.237	-	-	0.237
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.301	-	-	0.312	-	-	0.134	-	-	0.000	-	-	0.237	-	-	0.237
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.004	-	-	0.001	-	-	-	-	-	-	-	-	0.001	-	-	0.001
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.004	-	-	0.001	-	-	-	-	-	0.000	-	-	0.001	-	-	0.001
Gross/Weapon System Cost	-	-	16.218	-	-	1.641	-	-	1.660	-	-	-	-	-	1.703	-	-	1.703

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E54100 / CORD, Detonating Type 1 [M456]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	30.542	3.300	-	-	2.805	2.805
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	30.542	3.300	-	-	2.805	2.805
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	30.542	3.300	-	-	2.805	2.805

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	0.33	90,848,485	29.980	0.34	7,488,898	2.546	-	-	-	-	-	-	0.36	6,817,701	2.454	0.36	6,817,701	2.454
<i>Subtotal: Recurring Cost</i>	-	-	29.980	-	-	2.546	-	-	-	-	-	0.000	-	-	2.454	-	-	2.454
Subtotal: Hardware Cost	-	-	29.980	-	-	2.546	-	-	-	-	-	0.000	-	-	2.454	-	-	2.454
Support - Production Engineering Cost																		
Production Engineering	-	-	0.556	-	-	0.752	-	-	-	-	-	-	-	-	0.348	-	-	0.348
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.556	-	-	0.752	-	-	-	-	-	0.000	-	-	0.348	-	-	0.348
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.006	-	-	0.002	-	-	-	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.006	-	-	0.002	-	-	-	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	30.542	-	-	3.300	-	-	-	-	-	-	-	-	2.805	-	-	2.805

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E56500 / FUZE, Blasting Time, M700 [M670]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	4.714	0.350	0.737	-	0.600	0.600
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	4.714	0.350	0.737	-	0.600	0.600
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	4.714	0.350	0.737	-	0.600	0.600

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	4.489	0.58	269,829	0.157	0.59	563,690	0.333	-	-	-	0.59	544,690	0.321	0.59	544,690	0.321
<i>Subtotal: Recurring Cost</i>	-	-	<i>4.489</i>	-	-	<i>0.157</i>	-	-	<i>0.333</i>	-	-	<i>0.000</i>	-	-	<i>0.321</i>	-	-	<i>0.321</i>
Subtotal: Hardware Cost	-	-	4.489	-	-	0.157	-	-	0.333	-	-	0.000	-	-	0.321	-	-	0.321
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	0.050	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	<i>0.050</i>	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.221	-	-	0.190	-	-	0.348	-	-	-	-	-	0.276	-	-	0.276
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.221</i>	-	-	<i>0.190</i>	-	-	<i>0.348</i>	-	-	<i>0.000</i>	-	-	<i>0.276</i>	-	-	<i>0.276</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.004	-	-	0.003	-	-	0.006	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.004</i>	-	-	<i>0.003</i>	-	-	<i>0.006</i>	-	-	<i>0.000</i>	-	-	<i>0.003</i>	-	-	<i>0.003</i>
Gross/Weapon System Cost	-	-	4.714	-	-	0.350	-	-	0.737	-	-	-	-	-	0.600	-	-	0.600

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E59100 / CTG, .50cal Blnk Elec Initiated, MK209 Series(EOD) [SS01]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2.005	1.209	6.001	-	1.292	1.292
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2.005	1.209	6.001	-	1.292	1.292
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2.005	1.209	6.001	-	1.292	1.292

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(t)	234.28	8,126	1.904	114.33	9,145	1.046	116.70	48,063	5.609	-	-	-	118.22	10,013	1.184	118.22	10,013	1.184
<i>Subtotal: Recurring Cost</i>	-	-	<i>1.904</i>	-	-	<i>1.046</i>	-	-	<i>5.609</i>	-	-	<i>0.000</i>	-	-	<i>1.184</i>	-	-	<i>1.184</i>
Subtotal: Hardware Cost	-	-	1.904	-	-	1.046	-	-	5.609	-	-	0.000	-	-	1.184	-	-	1.184
Support - Production Engineering Cost																		
Production Engineering	-	-	0.101	-	-	0.163	-	-	0.392	-	-	-	-	-	0.108	-	-	0.108
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.101</i>	-	-	<i>0.163</i>	-	-	<i>0.392</i>	-	-	<i>0.000</i>	-	-	<i>0.108</i>	-	-	<i>0.108</i>
Gross/Weapon System Cost	-	-	2.005	-	-	1.209	-	-	6.001	-	-	-	-	-	1.292	-	-	1.292

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types					Item Number / Title [DODIC]: E59100 / CTG, .50cal Blnk Elec Initiated, MK209 Series(EOD) [SS01]				
Cost Elements	O C O	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
Complete Round		2018	NAVAL SURF WARFARE CNTR / LEONARDTOWN, MD	C / FFP	PICATINNY ARSENAL, NJ	Sep 2018	Sep 2019	9,145	114.33	Y		
Complete Round		2019	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Jun 2020	48,063	116.70	Y		
Complete Round	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Jun 2021	10,013	118.22	Y		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E60200 / CUTTER, Cartridge Actuated, M21, 2 Second Delay [M500]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	38.144	-	-	-	7.225	7.225
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	38.144	-	-	-	7.225	7.225
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	38.144	-	-	-	7.225	7.225

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(t)	-	-	38.144	-	-	-	-	-	-	-	-	-	638.89	10,912	6.972	638.89	10,912	6.972
Subtotal: Recurring Cost	-	-	38.144	-	-	-	-	-	-	-	-	0.000	-	-	6.972	-	-	6.972
Subtotal: Hardware Cost	-	-	38.144	-	-	-	-	-	-	-	-	0.000	-	-	6.972	-	-	6.972
Support - Production Engineering Cost																		
Production Engineering	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	0.253	-	-	0.253
Subtotal: Support - Production Engineering Cost	-	-	0.000	-	-	-	-	-	-	-	-	0.000	-	-	0.253	-	-	0.253
Gross/Weapon System Cost	-	-	38.144	-	-	-	-	-	-	-	-	-	-	-	7.225	-	-	7.225

Remarks:

FY 2020 is a delivery order to an existing contract.

^(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types				Item Number / Title [DODIC]: E60200 / CUTTER, Cartridge Actuated, M21, 2 Second Delay [M500]					
Cost Elements	O C O	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
Complete Round ^(†)	✓	2020	NAVAL SURF WARFARE CNTR / LEONARDTOWN, MD	PO	ROCK ISLAND ARSENAL, IL	Mar 2020	Jun 2021	10,912	638.89	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2020 is a delivery order to an existing contract.

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Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019								
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47										P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types										Item Number / Title [DODIC]: E60200 / CUTTER, Cartridge Actuated, M21, 2 Second Delay [M500]			

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2020														Fiscal Year 2021														BALANCE																				
OC	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021																																
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP																							
Complete Round																																																					
✓	1	2020	ARMY	10.912	.000	10.912																																															

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Exhibit P-21, Production Schedule: PB 2020 Army								Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47				P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types				Item Number / Title [DODIC]: E60200 / CUTTER, Cartridge Actuated, M21, 2 Second Delay [M500]				
MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	NAVAL SURF WARFARE CNTR - LEONARDTOWN, MD	250	3,000	6,000	8	8	18	26	6	6	15	21

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E76728 / Disrupter, Main Charge, MK 788-0 [DWDF]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2.297	0.651	2.289	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2.297	0.651	2.289	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2.297	0.651	2.289	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	2.198	292.50	2,028	0.593	257.50	8,233	2.120	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>2.198</i>	-	-	<i>0.593</i>	-	-	<i>2.120</i>	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	2.198	-	-	0.593	-	-	2.120	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.093	-	-	0.052	-	-	0.169	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.093</i>	-	-	<i>0.052</i>	-	-	<i>0.169</i>	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.006	-	-	0.006	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.006</i>	-	-	<i>0.006</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	2.297	-	-	0.651	-	-	2.289	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E78201 / CHARGE, Demo (38FT) Sheet Explosive, PBXW-202 [M980]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	6.547	0.281	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	6.547	0.281	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	6.547	0.281	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	6.465	15.71	17,886	0.281	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>6.465</i>	-	-	<i>0.281</i>	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	6.465	-	-	0.281	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.081	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.081</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.001	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.001</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	6.547	-	-	0.281	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E81302 / CAP, Blasting Non-Elec, w/30Ft Shock Tube [ML47]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	6.781	-	0.158	-	-	-
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	6.781	-	0.158	-	-	-
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	6.781	-	0.158	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	23.41	283,254	6.631	-	-	-	28.22	3,122	0.088	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	6.631	-	-	-	-	-	0.088	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	6.631	-	-	-	-	-	0.088	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	0.047	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.047	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.150	-	-	-	-	-	0.023	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.150	-	-	-	-	-	0.023	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	6.781	-	-	-	-	-	0.158	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E81305 / CAP BLASTING NON-ELEC, DELAY, M14 [MN06]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	14.630	-	0.167	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	14.630	-	0.167	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	14.630	-	0.167	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	17.29	846,096	14.629	-	-	-	10.82	9,865	0.107	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	14.629	-	-	-	-	-	0.107	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	14.629	-	-	-	-	-	0.107	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.001	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.001	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	14.630	-	-	-	-	-	0.167	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E81306 / CAP BLASTING NON-ELEC, DELAY, W/70 FT TUBE, M15 [MN07]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	3.943	-	0.168	-	1.178	1.178
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	3.943	-	0.168	-	1.178	1.178
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	3.943	-	0.168	-	1.178	1.178

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	3.943	-	-	-	23.33	6,113	0.143	-	-	-	23.74	40,160	0.953	23.74	40,160	0.953
<i>Subtotal: Recurring Cost</i>	-	-	3.943	-	-	-	-	-	0.143	-	-	0.000	-	-	0.953	-	-	0.953
Subtotal: Hardware Cost	-	-	3.943	-	-	-	-	-	0.143	-	-	0.000	-	-	0.953	-	-	0.953
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.050	-	-	0.050
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.050	-	-	0.050
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.025	-	-	-	-	-	0.174	-	-	0.174
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.025	-	-	0.000	-	-	0.174	-	-	0.174
Gross/Weapon System Cost	-	-	3.943	-	-	-	-	-	0.168	-	-	-	-	-	1.178	-	-	1.178

Remarks:

Production Engineering costs increased in FY 2020 due to a larger quantity buy. In addition, this item is part of the Modernized Demolitions Initiators family of items with engineering support costs calculated based on quantities and distributed among all items.

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E81307 / IGNITER, Time Fuze and Shock Tube, M81 [MN08]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	17.491	0.697	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	17.491	0.697	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	17.491	0.697	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	16.759	5.28	60,000	0.317	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>16.759</i>	-	-	<i>0.317</i>	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	16.759	-	-	0.317	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.732	-	-	0.380	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.732</i>	-	-	<i>0.380</i>	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	17.491	-	-	0.697	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E94100 / BOOSTER, Demo Charge, M151 [MN68]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	7.060	-	0.168	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	7.060	-	0.168	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	7.060	-	0.168	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	7.060	-	-	-	6.68	16,122	0.108	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	7.060	-	-	-	-	-	0.108	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	7.060	-	-	-	-	-	0.108	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	7.060	-	-	-	-	-	0.168	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E96200 / BOOSTER, DEMO CHARGE M152 INERT [MN75]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	-	0.168	-	-	-
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	-	0.168	-	-	-
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	-	-	0.168	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	-	-	-	-	7.59	14,180	0.108	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	0.108	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	0.108	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.035	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.025	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	0.168	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types	Item Number / Title [DODIC]: E99902 / Blast Cap, Non-Elec: Inert, 200Ft Minitube, M20 [MN87]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.610	-	0.200	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.610	-	0.200	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.610	-	0.200	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	58.92	10,353	0.610	-	-	-	65.43	2,595	0.170	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	0.610	-	-	-	-	-	0.170	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	0.610	-	-	-	-	-	0.170	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.000	-	-	-	-	-	0.030	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.000	-	-	-	-	-	0.030	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	0.610	-	-	-	-	-	0.200	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E99903 / CAP, Blasting Non-Elec, w/500Ft Minitube, M21 [MN88]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	15.499	2.647	5.295	-	3.421	3.421
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	15.499	2.647	5.295	-	3.421	3.421
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	15.499	2.647	5.295	-	3.421	3.421

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(†)	-	-	14.016	55.35	35,240	1.951	56.60	79,415	4.495	-	-	-	61.78	45,556	2.814	61.78	45,556	2.814
Subtotal: Recurring Cost	-	-	14.016	-	-	1.951	-	-	4.495	-	-	0.000	-	-	2.814	-	-	2.814
Subtotal: Hardware Cost	-	-	14.016	-	-	1.951	-	-	4.495	-	-	0.000	-	-	2.814	-	-	2.814
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.100	-	-	0.100
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.100	-	-	0.100
Support - Production Engineering Cost																		
Production Engineering	-	-	1.483	-	-	0.696	-	-	0.800	-	-	-	-	-	0.506	-	-	0.506
Subtotal: Support - Production Engineering Cost	-	-	1.483	-	-	0.696	-	-	0.800	-	-	0.000	-	-	0.506	-	-	0.506
Gross/Weapon System Cost	-	-	15.499	-	-	2.647	-	-	5.295	-	-	-	-	-	3.421	-	-	3.421

^(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types				Item Number / Title [DODIC]: E99903 / CAP, Blasting Non-Elec, w/500Ft Minitube, M21 [MN88]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Complete Round		2018	ENSIGN-BICKFORD AEROSPACE & / SIMSBURY, CT	C / FFP	PICATINNY ARSENAL, NJ	Mar 2018	Mar 2019	35,240	55.35	Y		
Complete Round		2019	ENSIGN-BICKFORD AEROSPACE & / SIMSBURY, CT	C / FFP	PICATINNY ARSENAL, NJ	Mar 2019	Mar 2020	79,415	56.60	Y		
Complete Round	✓	2020	TO BE SELECTED / TBS01	C / FFP	PICATINNY ARSENAL, NJ	Mar 2020	Sep 2021	45,556	61.78	Y		

Remarks:
FY 2018 - FY 2019 are delivery orders to an existing contract.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 2790E55400 / Demolition Munitions, All Types
		Item Number / Title [DODIC]: E99905 / CAP, Blast, Non-Elec, 1000Ft Minitube, M23 [MN90]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	17.932	2.750	4.715	-	4.889	4.889
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	17.932	2.750	4.715	-	4.889	4.889
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	17.932	2.750	4.715	-	4.889	4.889

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	16.921	83.05	26,080	2.166	83.33	48,032	4.003	-	-	-	95.83	42,420	4.065	95.84	42,420	4.065
<i>Subtotal: Recurring Cost</i>	-	-	<i>16.921</i>	-	-	<i>2.166</i>	-	-	<i>4.003</i>	-	-	<i>0.000</i>	-	-	<i>4.065</i>	-	-	<i>4.065</i>
Subtotal: Hardware Cost	-	-	16.921	-	-	2.166	-	-	4.003	-	-	0.000	-	-	4.065	-	-	4.065
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.100	-	-	0.100
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	-	-	-	<i>0.000</i>	-	-	<i>0.100</i>	-	-	<i>0.100</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	1.011	-	-	0.584	-	-	0.713	-	-	-	-	-	0.723	-	-	0.723
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>1.011</i>	-	-	<i>0.584</i>	-	-	<i>0.713</i>	-	-	<i>0.000</i>	-	-	<i>0.723</i>	-	-	<i>0.723</i>
Gross/Weapon System Cost	-	-	17.932	-	-	2.750	-	-	4.715	-	-	-	-	-	4.889	-	-	4.889

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
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ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	1,096.474	32.615	39.904	-	40.592	40.592	36.850	73.782	62.629	65.910	-	1,448.756
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	1,096.474	32.615	39.904	-	40.592	40.592	36.850	73.782	62.629	65.910	-	1,448.756
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	1,096.474	32.615	39.904	-	40.592	40.592	36.850	73.782	62.629	65.910	-	1,448.756

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$40.592M for Overseas Contingency Operations (OCO); of which \$40.592M and is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Grenades, All Types.

(E31900) FUZE GRENADE HAND PRAC M228

Fuze Grenade Hand Practice M228 is a pyrotechnic delay-igniting fuze (delay time of 4 to 5.5 seconds) for use with the M69 practice grenade body. The assembled grenade is identical in size, shape and weight to the M67 fragmentation hand grenade, and is used to learn and practice grenade throwing skills. The fuze contains a primer and a pyrotechnic delay column. A striker, striker spring, safety lever, safety pin with pull ring, safety clip, and igniter assembly are assembled to the body. This item is Code A, approved for service use.

(E32000) GRENADE HAND FRAG DELAY M67

Grenade Hand Fragmentation Delay M67 consists of a 2.5-inch diameter steel sphere that is designed to burst into numerous fragments when detonated. The grenade body is filled with 5.4 ounces of high explosive, Composition B. Each grenade is fitted with an M213 fuze that initiates the explosive charge 4 to 5.5 seconds after release of the safety lever. The M67 Hand Grenade provides the Warfighter with the capability to conduct pre-mobilization training, and close combat operations. This item is Code A, approved for service use.

(E32200) GRENADE HAND INCENDIARY M14

Grenade Hand Incendiary M14 provides the Warfighter with the capability to destroy weapon caches, artillery pieces, and vehicles by means of a chemical reaction that produces intense heat, called a thermite reaction. In this reaction, powdered aluminum metal and iron oxide react to produce a stream of molten iron and aluminum oxide. This reaction produces a tremendous amount of heat, burning at 2,200 degrees Celsius (3,992 degrees Fahrenheit). Other advantages include its ability to function without an external oxygen source, allowing it to burn underwater. This item is Code A, approved for service use.

(E33010) GRENADE HAND OFFENSIVE XM111

The XM111 Offensive Hand Grenade consists of a 2.5 inch diameter plastic hexagonal body that is designed to burst and provide overpressure effective against enemy troops in indoor and close combat environments where fragments are not desired to reduce collateral damage. The grenade body is filled with 8oz of high explosive Pax-3. Each grenade is fitted with an M213 fuze that initiates the explosive

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>charge 4 to 5.5 seconds after release of safety lever. The XM111 provides the warfighter with the capability to conduct pre-mobilization training and the capability to conduct close combat operations. This item will be code A, approved for service use upon achieving Full Materiel Release, which is anticipated in 3QFY22.</p> <p>(E34001) GRENADE HAND SMOKE GREEN M18 Grenade Hand Smoke Green M18 is used by the Warfighter for ground-to-air or ground-to-ground signaling while conducting training and combat operations. Each grenade will emit smoke for 50 to 90 seconds. The grenade body is made of thin sheet metal, filled with starter patches and a green smoke composition. The Hand Grenade Fuze M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mix, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever, and safety pin with pull ring. This item is Code A, approved for service use.</p> <p>(E34002) GRENADE HAND SMOKE YELLOW M18 Grenade Hand Smoke Yellow M18 is used by the Warfighter for ground-to-air or ground-to-ground signaling while conducting training and combat operations. Each grenade will emit smoke for 50 to 90 seconds. The grenade body is made of thin sheet metal, filled with starter patches and a yellow smoke composition. The Hand Grenade Fuze M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mix, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever, and safety pin with pull ring. This item is Code A, approved for service use.</p> <p>(E34003) GRENADE HAND SMOKE RED M18 Grenade Hand Smoke Red M18 is used by the Warfighter for ground-to-air or ground-to-ground signaling while conducting training and combat operations. Each grenade will emit smoke for 50 to 90 seconds. The grenade body is made of thin sheet metal, filled with starter patches and a red smoke composition. The Hand Grenade Fuze M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mix, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever, and safety pin with pull ring. This item is Code A, approved for service use.</p> <p>(E34004) GRENADE HAND SMOKE VIOLET M18 Grenade Hand Smoke Violet M18 is used by the Warfighter for ground-to-air or ground-to-ground signaling while conducting training and combat operations. Each grenade will emit smoke for 50 to 90 seconds. The grenade body is made of thin sheet metal, filled with starter patches and a violet smoke composition. The Hand Grenade Fuze M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mix, pyrotechnic delay column and ignition mixture. Assembled to the body are a striker, striker spring, safety lever, and safety pin with pull ring. This item is Code A, approved for service use.</p> <p>(E34005) HAND SMOKE VISUAL RESTRICTED TERRAIN M106 Grenade Hand Smoke Visual Restricted M106 rapidly produces a short duration obscurant cloud that provides the Warfighter the capability to obscure the light visible spectrum within restrictive terrain, such as caves and urban structures. It is non-toxic and designed to be safer than current smoke grenades. The fill is non-combustible Titanium Dioxide. This item is code A, approved for service use.</p> <p>(E34250) GRENADE HAND OFFENSIVE MK3 SERIES W/FUZE MK3 Hand Grenade consists of a 2.5 inch diameter plastic hexagonal body that is designed to burst and provide overpressure effective against enemy troops in indoor and close combat environments where fragments are not desired to reduce collateral damage. The grenade body is filled with 8oz of high explosive Pax-3. Each grenade is fitted with an M213 fuze that initiates the explosive charge 4 to 5.5 seconds after release of safety lever. MK3 will be replaced by XM111 (funding for the XM111 will be realigned to E33010 in FY 2020). XM111 provides the warfighter with the capability to conduct pre-mobilization raining and the capability to conduct close combat operations.</p> <p>(E35800) BODY GRENADE HAND PRAC M69 Body, Grenade Hand Practice M69 is a reusable metal fuze body used with the M228 practice hand grenade fuze, which provides a pyrotechnic delay smoke and bang effect to simulate the M67 fragmentation grenade. The assembled grenade (body and fuze) is identical in size, shape and weight to the M67 fragmentation hand grenade and is used to learn and practice grenade throwing skills. This item is Code A, approved for service use.</p> <p>(E35801) BODY GRENADE HAND PRAC XM112 Body, Grenade Hand Practice XM112 is a reusable metal fuze body used with the M228 practice hand grenade fuze, which provides a pyrotechnic delay smoke and bang effect to simulate the XM111 offensive hand grenade. The assembled grenade (body and fuze) is identical in size, shape and weight to the XM111 offensive hand grenade and is used to learn and practice grenade throwing skills. This item will be code A, approved for service use upon achieving Full Materiel Release, which is anticipated 3QFY22.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E69300) GRENADE HAND SMOKE WHITE M83 Grenade Hand Smoke (White) M83 provides the Warfighter the capability to generate white smoke for screening activities while conducting small unit operations. It is also used for ground-to-air signaling. This grenade is the tactical replacement for the M8 HC Smoke Grenade, which was found to be carcinogenic. The duration of smoke screen or signal is 25 to 70 seconds, average burn time. The grenade body is a cylinder of thin sheet metal. It is filled with non-toxic smoke mixture topped with a starter patch. The Hand Grenade Fuze M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mix, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever, and safety pin with pull ring. This item is Code A, approved for service use.</p> <p>(E00500) GRENADE 66MM VEH LNCHD WHITE SMK SCREENING TNGM82 M82 Simulant Smoke Grenade (G978) is a 66mm projectile trainer fielded to train in the handling, usage and deployment of the M76 infra-red, M81 graphite and brass flake and L8 Red Phosphorus grenades. The M82 contains the same internal and external components of the tactical M76 grenade except for a new fill material (titanium dioxide in place of the brass flake powder) along with a reduction in the amount of black powder in the propellant. The grenade is electrically initiated and propellant-launched to disseminate a visual screen cloud at a distance of about 30m meters away from combat equipped vehicle. This item is code A, approved for service use.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date: March 2019**

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition

P-1 Line Item Number / Title:
4582E34000 / Grenades, All Types

ID Code (A=Service Ready, B=Not Service Ready): B **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E00500 / GRENADE 66MM VEH LNCHD WHITE SMK SCREENING TNG M82 [G978]		A		- / 21.077	- / -	- / -	- / -	- / 4.084	- / 4.084
P-5	E31900 / FUZE, Grenade, Hand, Practice, M228 [G878]		A		- / 265.823	- / 2.504	- / 4.780	- / -	- / 4.900	- / 4.900
P-5	E32000 / GRENADE, Hand, Frag, Delay, M67 [G881]	P-5a	A		- / 317.113	- / 20.181	- / 3.689	- / -	- / 5.058	- / 5.058
P-5	E32200 / GRENADE HAND INCENDIARY M14 [G900]		A		- / 13.207	- / -	- / -	- / -	- / 1.329	- / 1.329
P-5	E33010 / GRENADE, Hand, Offensive, XM111		A		- / -	- / -	- / -	- / -	- / 2.310	- / 2.310
P-5	E34001 / GRENADE, Hand, Smoke, Green, M18 [G940]		A		- / 165.980	- / 2.987	- / 4.758	- / -	- / 2.480	- / 2.480
P-5	E34002 / GRENADE, Hand, Smoke, Yellow, M18 [G945]		A		- / 89.428	- / 2.799	- / 9.395	- / -	- / 2.145	- / 2.145
P-40a	E34003 / GRENADE, Hand, Smoke, Red, M18		A		- / 44.102	- / -	- / 7.500	- / -	- / -	- / -
P-5	E34004 / GRENADE, Hand, Smoke, Violet, M18 [G955]		A		- / 53.654	- / 0.728	- / 3.237	- / -	- / 0.973	- / 0.973
P-5	E34005 / GRENADE, Hand Smoke Visual Restricted Terrain M106 [GG25]	P-5a, P-21	A		- / 13.822	- / -	- / -	- / -	- / 11.289	- / 11.289
P-5	E34250 / GRENADE, HAND, OFFENSIVE, MK3 SERIES, W/FUZE [GG37]		B		- / -	- / -	- / 0.939	- / -	- / -	- / -
P-5	E35800 / BODY GRENADE HAND PRAC M69 [G811]		A		- / 1.730	- / 0.500	- / 2.483	- / -	- / 3.290	- / 3.290
P-5	E35801 / GRENADE, Hand, Body, Practice, Offensive, XM112 [GG38]		A		- / -	- / -	- / 0.533	- / -	- / 2.734	- / 2.734
P-5	E69300 / GRENADE, Hand, Smoke, White, M83 [G982]		A		- / 110.538	- / 2.916	- / 2.590	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				- / 1,096.474	- / 32.615	- / 39.904	- / -	- / 40.592	- / 40.592

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements IAW Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combat Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$40.592 million for Overseas Contingency Operations, with \$40.592 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$40.592 million supports procurement of eleven variants of Grenades.

(E31900) FUZE GRENADE HAND PRAC M228

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>This is a training unique item not used in combat. FY 2020 procurement supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$4.900 million supports recapitalization of 952,999 of fuzes and the procurement of 184,092 new fuzes. TYPE CLASSIFICATION DATE: March 1971</p> <p>(E32000) GRENADE HAND FRAG DELAY M67 This is a training standard item used in both training and combat. FY 2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.058 million supports the procurement of 90,060 grenades. TYPE CLASSIFICATION DATE: March 1970</p> <p>(E32200) GRENADE HAND INCENDIARY M14 This is a training standard item used in both training and combat. FY 2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.329 million supports the procurement of 8,851 grenades. E32200 is a new start in FY 2020. TYPE CLASSIFICATION DATE: 1942</p> <p>(E33010) GRENADE HAND OFFENSIVE XM111 This is a training standard item used in both training and combat. FY 2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.310 million supports the procurement of 11,750 grenades. E33010 is a new start in FY 2020. Type Classification Standard is projected for 3QFY19. Full Materiel Release is projected for 3QFY22.</p> <p>(E34001) GRENADE HAND SMOKE GREEN M18 This is a training standard item used in both training and combat. FY 2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.480 million supports the procurement of 25,363 grenades. TYPE CLASSIFICATION DATE: September 1943</p> <p>(E34002) GRENADE HAND SMOKE YELLOW M18 This is a training standard item used in both training and combat. FY 2020 procurement supports annual training and builds war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.145 million supports the procurement of 21,654 grenades. TYPE CLASSIFICATION DATE: September 1943</p> <p>(E34003) GRENADE HAND SMOKE RED M18 This is a training standard item used in both training and combat. The request supports annual training and builds war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: September 1943</p> <p>(E34004) GRENADE HAND SMOKE VIOLET M18 This is a training standard item used in both training and in combat. FY 2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.973 million supports the procurement of 9,038 grenades. TYPE CLASSIFICATION DATE: September 1943</p> <p>(E34005) HAND SMOKE VISUAL RESTRICTED TERRAIN M106 This is a training standard item used in both training and combat. FY 2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$11.289 million supports the procurement of 69,321 grenades. E34005 is a new start in FY 2020. TYPE CLASSIFICATION DATE: April 2008</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(E35800) BODY GRENADE HAND PRAC M69 This is a training unique item not used in combat. FY 2020 procurement supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.290 million supports the procurement of 179,632 grenades. TYPE CLASSIFICATION DATE: March 1971</p> <p>(E35801) GRENADE HAND BODY PRACTICE OFFENSIVE XM112 This is a training unique item not used in combat. FY2020 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.734 million supports the procurement of 149,085 grenades. Type Classification Standard is projected for 4QFY19. Full Materiel Release for this item is projected for 3QFY22.</p> <p>(E69300) GRENADE HAND SMOKE WHITE M83 This is a training standard item used in both training and combat. This request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: July 1994</p> <p>(E34250) GRENADE HAND OFFENSIVE MK3 SERIES This is a training standard item used in both training and combat. FY 2018 procurement supports annual training and builds a war reserve inventory in accordance with Army's procurement goals.</p> <p>(E00500) GRENADE 66M VEH LNCHD WHITE SMK SCREENING TNG M82 This is a training unique item not used in combat. FY 2020 procurement supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$4.084 million supports the procurement of 15,883 grenades. E00500 is a new start in FY 2020. TYPE CLASSIFICATION DATE: Jul 1992.</p>		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E00500 / GRENADE 66MM VEH LNCHD WHITE SMK SCREENING TNG M82 [G978]

ID Code (A=Service Ready, B=Not Service Ready) : A				MDAP/MAIS Code:				
Resource Summary			Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)			-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)			21.077	-	-	-	4.084	4.084
Less PY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)			21.077	-	-	-	4.084	4.084
Plus CY Advance Procurement (\$ in Millions)			-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)			21.077	-	-	-	4.084	4.084
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>								
Initial Spares (\$ in Millions)			-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)			-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total			
	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 Cost																			
Recurring Cost																			
COMPLETE ROUND	-	-	-	-	-	-	-	-	-	-	-	-	248.11	15,883	3.941	248.11	15,883	3.941	
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	3.941	-	-	3.941
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	3.941	-	-	3.941
Support - Production Engineering Cost																			
Production Engineering	-	-	21.077	-	-	-	-	-	-	-	-	-	-	-	0.143	-	-	0.143	
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	21.077	-	-	-	-	-	-	-	-	-	0.000	-	-	0.143	-	-	0.143
Gross/Weapon System Cost	-	-	21.077	-	-	-	-	-	-	-	-	-	-	-	-	4.084	-	-	4.084

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
		Item Number / Title [DODIC]: E31900 / FUZE, Grenade, Hand, Practice, M228 [G878]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	265.823	2.504	4.780	-	4.900	4.900
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	265.823	2.504	4.780	-	4.900	4.900
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	265.823	2.504	4.780	-	4.900	4.900

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	7.20	36,245,265	260.966	-	-	-	9.38	189,168	1.774	-	-	-	10.73	184,092	1.975	10.73	184,092	1.975
<i>Subtotal: Recurring Cost</i>	-	-	260.966	-	-	-	-	-	1.774	-	-	0.000	-	-	1.975	-	-	1.975
<i>Subtotal: Hardware Cost</i>	-	-	260.966	-	-	-	-	-	1.774	-	-	0.000	-	-	1.975	-	-	1.975
Support - Product Improvement Cost																		
Safety	-	-	3.307	-	-	1.527	-	-	2.118	-	-	-	-	-	2.116	-	-	2.116
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	3.307	-	-	1.527	-	-	2.118	-	-	0.000	-	-	2.116	-	-	2.116
Support - Production Engineering Cost																		
Production Engineering	-	-	1.379	-	-	0.677	-	-	0.655	-	-	-	-	-	0.668	-	-	0.668
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.379	-	-	0.677	-	-	0.655	-	-	0.000	-	-	0.668	-	-	0.668
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.004	-	-	0.005	-	-	-	-	-	0.007	-	-	0.007
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	0.004	-	-	0.005	-	-	0.000	-	-	0.007	-	-	0.007
Support - Staging and Transportation Cost																		
Staging and Transportation	-	-	0.158	-	-	0.296	-	-	0.227	-	-	-	-	-	0.134	-	-	0.134
<i>Subtotal: Support - Staging and Transportation Cost</i>	-	-	0.158	-	-	0.296	-	-	0.227	-	-	0.000	-	-	0.134	-	-	0.134

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E31900 / FUZE, Grenade, Hand, Practice, M228 [G878]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	265.823	-	-	2.504	-	-	4.780	-	-	-	-	-	4.900	-	-	4.900

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E32000 / GRENADE, Hand, Frag, Delay, M67 [G881]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	317.113	20.181	3.689	-	5.058	5.058
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	317.113	20.181	3.689	-	5.058	5.058
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	317.113	20.181	3.689	-	5.058	5.058

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE GRENADE ^(f)	31.59	9,849,579	311.148	37.38	447,735	16.736	43.16	43,295	1.869	-	-	-	42.51	90,060	3.828	42.51	90,060	3.828
Subtotal: Recurring Cost	-	-	311.148	-	-	16.736	-	-	1.869	-	-	0.000	-	-	3.828	-	-	3.828
Subtotal: Hardware Cost	-	-	311.148	-	-	16.736	-	-	1.869	-	-	0.000	-	-	3.828	-	-	3.828
Support - Product Improvement Cost																		
Safety	-	-	-	-	-	0.350	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Product Improvement Cost	-	-	-	-	-	0.350	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	5.163	-	-	3.038	-	-	1.813	-	-	-	-	-	1.225	-	-	1.225
Subtotal: Support - Production Engineering Cost	-	-	5.163	-	-	3.038	-	-	1.813	-	-	0.000	-	-	1.225	-	-	1.225
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.043	-	-	0.014	-	-	0.007	-	-	-	-	-	0.004	-	-	0.004
Subtotal: Support - Quality Assurance Cost	-	-	0.043	-	-	0.014	-	-	0.007	-	-	0.000	-	-	0.004	-	-	0.004
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.759	-	-	0.042	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Study & Analysis Cost	-	-	0.759	-	-	0.042	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E32000 / GRENADE, Hand, Frag, Delay, M67 [G881]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	317.113	-	-	20.181	-	-	3.689	-	-	-	-	-	5.058	-	-	5.058

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types				Item Number / Title [DODIC]: E32000 / GRENADE, Hand, Frag, Delay, M67 [G881]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE GRENADE		2018	DAY & ZIMMERMANN LONE STAR / TEXARKANA, TX	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	Sep 2020	447,735	37.38	Y		
COMPLETE GRENADE		2019	DAY & ZIMMERMANN LONE STAR / TEXARKANA, TX	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Sep 2021	43,295	43.16	Y		
COMPLETE GRENADE	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2022	90,060	42.51	Y		

Remarks:
FY 2018 - FY 2019 are delivery orders to an existing contract

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E32200 / GRENADE HAND INCENDIARY M14 [G900]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	13.207	-	-	-	1.329	1.329
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	13.207	-	-	-	1.329	1.329
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	13.207	-	-	-	1.329	1.329

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	0.08	56,000	0.004	-	-	-	-	-	-	-	-	-	132.60	8,851	1.174	132.60	8,851	1.174
FUZE,HAND GRENADE M201	-	-	-	-	-	-	-	-	-	-	-	-	9.63	9,205	0.089	9.63	9,205	0.089
Grenade, Metal Parts Set	0.01	65,000	0.001	-	-	-	-	-	-	-	-	-	2.08	9,559	0.020	2.08	9,559	0.020
<i>Subtotal: Recurring Cost</i>	-	-	<i>0.005</i>	-	-	-	-	-	-	-	-	<i>0.000</i>	-	-	<i>1.282</i>	-	-	<i>1.282</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>0.005</i>	-	-	-	-	-	-	-	-	<i>0.000</i>	-	-	<i>1.282</i>	-	-	<i>1.282</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	13.202	-	-	-	-	-	-	-	-	-	-	-	0.047	-	-	0.047
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>13.202</i>	-	-	-	-	-	-	-	-	<i>0.000</i>	-	-	<i>0.047</i>	-	-	<i>0.047</i>
Gross/Weapon System Cost	-	-	13.207	-	-	-	-	-	-	-	-	-	-	-	1.329	-	-	1.329

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E33010 / GRENADE, Hand, Offensive, XM111

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	-	-	-	2.310	2.310
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	-	-	-	2.310	2.310
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	-	-	-	-	2.310	2.310

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Dollars)</i>	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	-	-	-	-	-	-	-	-	-	-	95.00	11,750	1.116	94.98	11,750	1.116
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	1.116	-	-	1.116
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	1.116	-	-	1.116
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.194	-	-	1.194
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	1.194	-	-	1.194
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.310	-	-	2.310

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
		Item Number / Title [DODIC]: E34001 / GRENADE, Hand, Smoke, Green, M18 [G940]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	165.980	2.987	4.758	-	2.480	2.480
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	165.980	2.987	4.758	-	2.480	2.480
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	165.980	2.987	4.758	-	2.480	2.480

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	41.94	3,901,798	163.641	47.39	34,944	1.656	46.15	70,520	3.254	-	-	-	57.43	25,363	1.457	57.43	25,363	1.457
FUZE,HAND GRENADE M201	8.08	96,256	0.778	9.00	36,342	0.327	8.57	73,353	0.629	-	-	-	9.63	26,377	0.254	9.63	26,377	0.254
Grenade, Metal Parts Set	1.90	96,958	0.184	1.95	37,740	0.074	1.90	76,174	0.145	-	-	-	2.08	27,392	0.057	2.08	27,392	0.057
<i>Subtotal: Recurring Cost</i>	-	-	<i>164.603</i>	-	-	<i>2.057</i>	-	-	<i>4.028</i>	-	-	<i>0.000</i>	-	-	<i>1.768</i>	-	-	<i>1.768</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>164.603</i>	-	-	<i>2.057</i>	-	-	<i>4.028</i>	-	-	<i>0.000</i>	-	-	<i>1.768</i>	-	-	<i>1.768</i>
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	0.061	-	-	0.115	-	-	0.149	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	<i>0.061</i>	-	-	<i>0.115</i>	-	-	<i>0.149</i>	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Production Verification Test	-	-	-	-	-	-	-	-	0.201	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	-	-	-	<i>0.201</i>	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.646	-	-	0.809	-	-	0.374	-	-	-	-	-	0.706	-	-	0.706
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.646</i>	-	-	<i>0.809</i>	-	-	<i>0.374</i>	-	-	<i>0.000</i>	-	-	<i>0.706</i>	-	-	<i>0.706</i>

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34001 / GRENADE, Hand, Smoke, Green, M18 [G940]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.006	-	-	0.006	-	-	0.006	-	-	-	-	-	0.007	-	-	0.007
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.006	-	-	0.006	-	-	0.006	-	-	0.000	-	-	0.007	-	-	0.007
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.664	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	0.664	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	165.980	-	-	2.987	-	-	4.758	-	-	-	-	-	2.480	-	-	2.480

Remarks:

Production Engineering increased due to change in planned procurement and reflects the pro-rated share for the family of Grenades support.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34002 / GRENADE, Hand, Smoke, Yellow, M18 [G945]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	89.428	2.799	9.395	-	2.145	2.145
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	89.428	2.799	9.395	-	2.145	2.145
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	89.428	2.799	9.395	-	2.145	2.145

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	42.99	2,032,333	87.370	48.44	36,202	1.754	47.15	146,689	6.916	-	-	-	58.82	21,654	1.274	58.82	21,654	1.274
FUZE,HAND GRENADE M201	8.04	72,659	0.584	9.00	37,651	0.339	8.57	152,557	1.307	-	-	-	9.63	22,520	0.217	9.63	22,520	0.217
Grenade, Metal Parts Set	1.90	73,453	0.140	1.95	39,099	0.076	1.90	158,424	0.301	-	-	-	2.08	23,386	0.049	2.08	23,386	0.049
<i>Subtotal: Recurring Cost</i>	-	-	<i>88.094</i>	-	-	<i>2.169</i>	-	-	<i>8.525</i>	-	-	<i>0.000</i>	-	-	<i>1.539</i>	-	-	<i>1.539</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>88.094</i>	-	-	<i>2.169</i>	-	-	<i>8.525</i>	-	-	<i>0.000</i>	-	-	<i>1.539</i>	-	-	<i>1.539</i>
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	0.039	-	-	0.051	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	<i>0.039</i>	-	-	<i>0.051</i>	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Production Verification Test	-	-	-	-	-	0.051	-	-	0.010	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	<i>0.051</i>	-	-	<i>0.010</i>	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.854	-	-	0.525	-	-	0.636	-	-	-	-	-	0.603	-	-	0.603
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.854</i>	-	-	<i>0.525</i>	-	-	<i>0.636</i>	-	-	<i>0.000</i>	-	-	<i>0.603</i>	-	-	<i>0.603</i>

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34002 / GRENADE, Hand, Smoke, Yellow, M18 [G945]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.015	-	-	0.003	-	-	0.004	-	-	-	-	-	0.002	-	-	0.002
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.015	-	-	0.003	-	-	0.004	-	-	0.000	-	-	0.002	-	-	0.002
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.426	-	-	-	-	-	0.221	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	0.426	-	-	-	-	-	0.221	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	89.428	-	-	2.799	-	-	9.395	-	-	-	-	-	2.145	-	-	2.145

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Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47 **P-1 Line Item Number / Title:** 4582E34000 / Grenades, All Types **Aggregated Items Title:** Various

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
			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)
GRENADE, Hand, Smoke, Red, M18																				
E34003 / GRENADE, Hand, Smoke, Red, M18	A		-	-	44.102	-	-	-	-	-	7.500	-	-	-	-	-	-	-	-	-
Subtotal: GRENADE, Hand, Smoke, Red, M18			-	-	44.102	-	-	-	-	-	7.500	-	-	-	-	-	-	-	-	-
Total			-	-	44.102	-	-	-	-	-	7.500	-	-	-	-	-	-	-	-	-

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

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34004 / GRENADE, Hand, Smoke, Violet, M18 [G955]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	53.654	0.728	3.237	-	0.973	0.973
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	53.654	0.728	3.237	-	0.973	0.973
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	53.654	0.728	3.237	-	0.973	0.973

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	44.60	1,183,201	52.771	55.69	7,163	0.399	54.32	42,201	2.292	-	-	-	66.95	9,038	0.605	66.95	9,038	0.605
FUZE,HAND GRENADE M201	8.03	33,316	0.268	9.00	7,450	0.067	8.57	43,889	0.376	-	-	-	9.63	9,399	0.091	9.63	9,399	0.091
Grenade, Metal Parts Set	1.90	34,597	0.066	1.95	7,736	0.015	1.90	45,577	0.087	-	-	-	2.08	9,761	0.020	2.08	9,761	0.020
<i>Subtotal: Recurring Cost</i>	-	-	<i>53.104</i>	-	-	<i>0.481</i>	-	-	<i>2.755</i>	-	-	<i>0.000</i>	-	-	<i>0.716</i>	-	-	<i>0.716</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>53.104</i>	-	-	<i>0.481</i>	-	-	<i>2.755</i>	-	-	<i>0.000</i>	-	-	<i>0.716</i>	-	-	<i>0.716</i>
Support - Product Improvement Cost																		
Safety	-	-	-	-	-	-	-	-	0.258	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	-	-	-	<i>0.258</i>	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.535	-	-	0.245	-	-	0.222	-	-	-	-	-	0.255	-	-	0.255
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.535</i>	-	-	<i>0.245</i>	-	-	<i>0.222</i>	-	-	<i>0.000</i>	-	-	<i>0.255</i>	-	-	<i>0.255</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.015	-	-	0.002	-	-	0.001	-	-	-	-	-	0.002	-	-	0.002
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.015</i>	-	-	<i>0.002</i>	-	-	<i>0.001</i>	-	-	<i>0.000</i>	-	-	<i>0.002</i>	-	-	<i>0.002</i>

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34004 / GRENADE, Hand, Smoke, Violet, M18 [G955]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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	-	-	53.654	-	-	0.728	-	-	3.237	-	-	-	-	-	0.973	-	-	0.973

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34005 / GRENADE, Hand Smoke Visual Restricted Terrain M106 [GG25]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	13.822	-	-	-	11.289	11.289
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	13.822	-	-	-	11.289	11.289
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	13.822	-	-	-	11.289	11.289

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round ^(t)	-	-	9.696	-	-	-	-	-	-	-	-	-	157.15	69,321	10.894	157.15	69,321	10.894
<i>Subtotal: Recurring Cost</i>	-	-	9.696	-	-	-	-	-	-	-	-	0.000	-	-	10.894	-	-	10.894
<i>Subtotal: Hardware Cost</i>	-	-	9.696	-	-	-	-	-	-	-	-	0.000	-	-	10.894	-	-	10.894
Support - Production Engineering Cost																		
Production Engineering	-	-	4.126	-	-	-	-	-	-	-	-	-	-	-	0.395	-	-	0.395
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	4.126	-	-	-	-	-	-	-	-	0.000	-	-	0.395	-	-	0.395
Gross/Weapon System Cost	-	-	13.822	-	-	-	-	-	-	-	-	-	-	-	11.289	-	-	11.289

(t) indicates the presence of a P-5a

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types				Item Number / Title [DODIC]: E34005 / GRENADE, Hand Smoke Visual Restricted Terrain M106 [GG25]					
Cost Elements	O C O	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
Complete Round ^(†)	✓	2020	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	PICATINNY ARSENAL, NJ	Mar 2020	Jun 2021	69,321	157.15	Y		

^(†) indicates the presence of a P-21

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
Item Number / Title [DODIC]: E34005 / GRENADE, Hand Smoke Visual Restricted Terrain M106 [GG25]	

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020											Fiscal Year 2021										BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020											Calendar Year 2021										
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y		J U N

Complete Round																																		
✓	1	2020	ARMY	69.321	.000	69.321										A	-	-	-	-	-	-	-	-	-	-	-	-	-	13.864	13.864	13.864	13.864	13.865

O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
C	O	E	A	E	A	P	A	U	U	U	E	C	O	V	E	A	E	A	A	U	U	U	P	T	V	C	A	B	A	P	A	U	U	U	E	
T	V	C	N	B	R	R	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G	P	

UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army															Date: March 2019														
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47										P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types										Item Number / Title [DODIC]: E34005 / GRENADE, Hand Smoke Visual Restricted Terrain M106 [GG25]									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2022														Fiscal Year 2023														BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022														Calendar Year 2023														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

Complete Round

✓	1	2020	ARMY	69.321	55.456	13.865	13.865																													.000
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O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P										
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UNCLASSIFIED

Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types
Item Number / Title [DODIC]: E34005 / GRENADE, Hand Smoke Visual Restricted Terrain M106 [GG25]		

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	PINE BLUFF ARSENAL - PINE BLUFF, AR	8,000	16,000	32,000	8	8	18	26	6	6	15	21

Remarks:

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"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E34250 / GRENADE, HAND, OFFENSIVE, MK3 SERIES, W/FUZE [GG37]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	-	-	0.939	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	-	-	0.939	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	-	-	0.939	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	-	-	-	-	93.64	7,437	0.696	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	0.696	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	0.696	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.243	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.243	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	0.939	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E35800 / BODY GRENADE HAND PRAC M69 [G811]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1.730	0.500	2.483	-	3.290	3.290
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1.730	0.500	2.483	-	3.290	3.290
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1.730	0.500	2.483	-	3.290	3.290

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	1.730	-	-	-	15.25	151,511	2.311	-	-	-	15.54	179,632	2.791	15.54	179,632	2.791
<i>Subtotal: Recurring Cost</i>	-	-	1.730	-	-	-	-	-	2.311	-	-	0.000	-	-	2.791	-	-	2.791
Subtotal: Hardware Cost	-	-	1.730	-	-	-	-	-	2.311	-	-	0.000	-	-	2.791	-	-	2.791
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.493	-	-	0.169	-	-	-	-	-	0.490	-	-	0.490
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	0.493	-	-	0.169	-	-	0.000	-	-	0.490	-	-	0.490
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.007	-	-	0.004	-	-	-	-	-	0.007	-	-	0.007
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	0.007	-	-	0.004	-	-	0.000	-	-	0.007	-	-	0.007
Gross/Weapon System Cost	-	-	1.730	-	-	0.500	-	-	2.483	-	-	-	-	-	3.290	-	-	3.290

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E35801 / GRENADE, Hand, Body, Practice, Offensive, XM112 [GG38]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	-	-	0.533	-	2.734	2.734
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	-	-	0.533	-	2.734	2.734
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	-	-	0.533	-	2.734	2.734

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	34.80	-	18.34	18.34

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	-	-	-	-	14.98	15,317	0.229	-	-	-	16.17	149,085	2.411	16.17	149,085	2.411
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	0.229	-	-	0.000	-	-	2.411	-	-	2.411
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	0.229	-	-	0.000	-	-	2.411	-	-	2.411
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.304	-	-	-	-	-	0.322	-	-	0.322
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.304	-	-	0.000	-	-	0.322	-	-	0.322
Gross/Weapon System Cost	-	-	-	-	-	-	34.80	-	0.533	-	-	-	18.34	-	2.734	18.34	-	2.734

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E69300 / GRENADE, Hand, Smoke, White, M83 [G982]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	110.538	2.916	2.590	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	110.538	2.916	2.590	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	110.538	2.916	2.590	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP)	27.13	3,956,324	107.335	34.52	41,824	1.444	33.34	51,859	1.729	-	-	-	-	-	-	-	-	-
FUZE,HAND GRENADE M201	8.20	54,284	0.445	9.00	43,497	0.391	8.57	53,933	0.462	-	-	-	-	-	-	-	-	-
GRENADE, METAL PARTS SET	1.90	166,420	0.316	1.95	45,170	0.088	1.90	56,008	0.106	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	<i>108.096</i>	-	-	<i>1.923</i>	-	-	<i>2.298</i>	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	<i>108.096</i>	-	-	<i>1.923</i>	-	-	<i>2.298</i>	-	-	-	-	-	-	-	-	-
Support - Engineering Change Proposals Cost																		
Engineering Change Proposals	-	-	-	-	-	0.007	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	-	-	-	<i>0.007</i>	-	-	-	-	-	-	-	-	-	-	-	-
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	0.064	-	-	0.173	-	-	0.027	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	<i>0.064</i>	-	-	<i>0.173</i>	-	-	<i>0.027</i>	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Safety	-	-	-	-	-	0.098	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	-	-	-	<i>0.098</i>	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 4582E34000 / Grenades, All Types	Item Number / Title [DODIC]: E69300 / GRENADE, Hand, Smoke, White, M83 [G982]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Production Engineering Cost																		
Production Engineering	-	-	1.667	-	-	0.705	-	-	0.258	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.667	-	-	0.705	-	-	0.258	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.015	-	-	0.010	-	-	0.007	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.015	-	-	0.010	-	-	0.007	-	-	-	-	-	-	-	-	-
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.696	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	0.696	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	110.538	-	-	2.916	-	-	2.590	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	393.980	3.096	8.121	-	18.609	18.609	8.835	15.687	21.540	37.317	-	507.185
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	393.980	3.096	8.121	-	18.609	18.609	8.835	15.687	21.540	37.317	-	507.185
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	393.980	3.096	8.121	-	18.609	18.609	8.835	15.687	21.540	37.317	-	507.185

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$18.609M for Overseas Contingency Operations (OCO); of which \$18.609M supporting production of four variants of signals is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Signals, All Types.

(E42010) Flares And Markers, Watercraft

The marker is launched from high-speed aircraft or helicopters in either day or night to mark the course of enemy submarines in antisubmarine warfare operations. They can be used for any type of air to sea surface marking that are referenced by smoke and flame. This item is Code A, approved for service use.

(E62900) SMOKE POT PRACTICE M8

The M8 Smoke Pot is a five-gallon metal pail containing about 25 pounds of environmentally acceptable smoke mixture. It is initiated by a pyrotechnic delay igniting fuze. After ignition and about a 25-second delay, a dense smoke cloud is produced for screening purposes to conceal troop, vehicle, or other march movements. It is deployed in a similar manner as the service smoke pots, M4 series and M5. It is used by the individual Soldier in squad, company and battalion units. This item is Code A, approved for service use.

(E44600) Signal Kit Personnel Distress Red FP AP/25S-5

The Personnel Distress Signal Kit (Red) is primarily used by downed airmen or others exposed to emergency escape and evasion situations. There are seven (7) red signals in a Kit, one (1) hand fired launcher, and one (1) bandoleer assembly. The signals are propelled by a rocket motor with a time delay and are capable of penetrating foliage. This item is Code A, approved for service use.

(E46500) Signal, Hand Held White Star Cluster M159

The Family of Hand Held Signals are individually launched pyrotechnics used for signaling and illumination. The payload is launched by a small, fin stabilized rocket and reaches a height of 725 feet. The M159 is a white star cluster used primarily for signaling. The payload is a cluster of five flares that burn for approximately 10 seconds. This item is Code A, approved for service use.

(E46700) Signal, Hand Held Red Parachute Flare M126A1

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 6038E46900 / Signals, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>The Family of Hand Held Signals are individually launched pyrotechnics used for signaling and illumination. The payload is launched by a small, fin stabilized rocket and reaches a height of 725 feet. The M126A1 is a red parachute flare used primarily as a distress signal. The flare burns for approximately 30 seconds. This item is Code A, approved for service use.</p> <p>(E46800) Signal, Hand Held White Parachute Flare M127 The Family of Hand Held Signals are individually launched pyrotechnics used for signaling and illumination. The payload is launched by a small, fin stabilized rocket and reaches a height of 725 feet. The M127A1 is a white parachute flare used primarily for illumination. The flare burns for approximately 30 seconds. This item is Code A, approved for service use.</p> <p>(E47000) Signal, Hand Held Green Star Cluster M125A1 The Family of Hand Held Signals which are individually launched pyrotechnics used for signaling and illumination. The payload is launched by a small, fin stabilized rocket and reaches a height of 725 feet. M125A1 is a green star cluster signal used for signaling and illuminating missions. The payload is a cluster of five flares that burn for approximately 10 seconds. This item is Code A, approved for service use.</p> <p>(E49100) Flare, AC Countermeasure, M206 Magnesium Teflon IR The M206 flares are part of a family of advanced infrared (IR) decoy flares designed for use by Army helicopters and fixed wing aircraft to meet advanced threats in current and future operational environments. This flare is a Magnesium Teflon Viton flare. When used together with the M212, a spectrally matched flare, and the M211, a pyrophoric alloy material payload that reacts with air to emit intense Infrared (IR) radiation, it provides protection against a wide range of surface to air threats. This item is Code A, approved for service use.</p>		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition

P-1 Line Item Number / Title:
6038E46900 / Signals, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E42010 / Flares and Markers, Watercraft [L580]		A		- / 1.985	- / 0.091	- / 0.000	- / -	- / 0.744	- / 0.744
P-5	E44600 / SIGNAL KIT, Personnel Distress, A/P25S-5 Series [L119]		A		- / 19.184	- / -	- / 2.091	- / -	- / -	- / -
P-5	E46500 / Signal, Hand Held White Star Cluster M159 [L307]		A		- / 31.504	- / -	- / 2.403	- / -	- / -	- / -
P-5	E46700 / Signal, Hand Held Red Parachute Flare M126A1 [LA80]		A		- / 21.316	- / 1.473	- / -	- / -	- / -	- / -
P-5	E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]	P-5a, P-21	A		- / 140.382	- / 0.519	- / 1.031	- / -	- / 7.549	- / 7.549
P-5	E47000 / Signal, Hand Held Green Star Cluster M125A1 [L314]	P-5a	A		- / 52.063	- / -	- / 0.724	- / -	- / 5.150	- / 5.150
P-5	E49100 / Flare, AC Countermeasure, M206 Magnesium Teflon IR [L410]		A		- / 74.756	- / 1.013	- / 0.000	- / -	- / -	- / -
P-5	E62900 / SMOKE POT, Practice, M8 [K511]	P-5a	A		- / 52.790	- / -	- / 1.872	- / -	- / 5.166	- / 5.166
P-40	Total Gross/Weapon System Cost				- / 393.980	- / 3.096	- / 8.121	- / -	- / 18.609	- / 18.609

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$18.609 million for Overseas Contingency Operations, supporting production of four variants of signals for \$18.609 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

(E42010) Flares and Markers, Watercraft
This is a training standard item used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.744 million supports the procurement of 1,612 Markers.
TYPE CLASSIFICATION DATE: 2011

(E62900) Smoke Pot Practice M8
This is a training standard item used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.166 million supports the procurement of 3,721 smoke pots.
TYPE CLASSIFICATION DATE: 1994

(E44600) Signal Kit Personnel Distress Red FP

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 6038E46900 / Signals, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>This is a training standard item used in both training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals. TYPE CLASSIFICATION DATE: 1972</p> <p>(E46500) Signal, Hand Held White Star Cluster M159 This is a training standard item used in both training and in combat. The request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals. TYPE CLASSIFICATION DATE: 1983</p> <p>(E46700) Signal, Hand Held Red Parachute Flare M126A1 This is a training standard item used in both training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals. TYPE CLASSIFICATION DATE: 1983</p> <p>(E46800) Signal, Hand Held White Parachute Flare M127A1 This is a training standard item used both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$7.549 million supports the procurement of 114,845 Signals. TYPE CLASSIFICATION DATE: 1983</p> <p>(E47000) Signal, Hand Held Green Star Cluster M125A1 This is a training standard item used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$5.150 million supports the procurement of 81,323 Signals. TYPE CLASSIFICATION DATE: 1983</p> <p>(E49100) Flare, AC Countermeasure, M206 Magnesium Teflon IR This is a training standard item used in both training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army procurement goals. TYPE CLASSIFICATION DATE: 1978</p>		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E42010 / Flares and Markers, Watercraft [L580]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1.985	0.091	0.000	-	0.744	0.744
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1.985	0.091	0.000	-	0.744	0.744
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1.985	0.091	0.000	-	0.744	0.744

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	1.594	-	-	-	-	-	-	-	-	-	252.79	1,612	0.407	252.79	1,612	0.407
Subtotal: Recurring Cost	-	-	1.594	-	-	-	-	-	-	-	-	0.000	-	-	0.407	-	-	0.407
Subtotal: Hardware Cost	-	-	1.594	-	-	-	-	-	-	-	-	0.000	-	-	0.407	-	-	0.407
Support - Acceptance Testing Cost																		
Acceptance Test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.189	-	-	0.189
Subtotal: Support - Acceptance Testing Cost	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.189	-	-	0.189
Support - Production Engineering Cost																		
Production Engineering	-	-	0.391	-	-	0.091	-	-	-	-	-	-	-	-	0.142	-	-	0.142
Subtotal: Support - Production Engineering Cost	-	-	0.391	-	-	0.091	-	-	-	-	-	0.000	-	-	0.142	-	-	0.142
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.005	-	-	0.005
Subtotal: Support - Quality Assurance Cost	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	0.005	-	-	0.005
Gross/Weapon System Cost	-	-	1.985	-	-	0.091	-	-	0.000	-	-	-	-	-	0.744	-	-	0.744

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E44600 / SIGNAL KIT, Personnel Distress, A/P25S-5 Series [L119]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	19.184	-	2.091	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	19.184	-	2.091	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	19.184	-	2.091	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	19.008	-	-	-	160.07	12,362	1.979	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	19.008	-	-	-	-	-	1.979	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	19.008	-	-	-	-	-	1.979	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.174	-	-	-	-	-	0.105	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	-	-	0.174	-	-	-	-	-	0.105	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.002	-	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-
Subtotal: Support - Quality Assurance Cost	-	-	0.002	-	-	-	-	-	0.008	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	19.184	-	-	-	-	-	2.091	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E46500 / Signal, Hand Held White Star Cluster M159 [L307]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	31.504	-	2.403	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	31.504	-	2.403	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	31.504	-	2.403	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	-	-	31.358	-	-	-	54.71	36,263	1.984	-	-	-	-	-	-	-	-	-
Box Metal M548	-	-	0.042	-	-	-	46.24	1,527	0.071	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	31.400	-	-	-	-	-	2.055	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	31.400	-	-	-	-	-	2.055	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.101	-	-	-	-	-	0.345	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.101	-	-	-	-	-	0.345	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.003	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.003	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	31.504	-	-	-	-	-	2.403	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E46700 / Signal, Hand Held Red Parachute Flare M126A1 [LA80]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	21.316	1.473	-	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	21.316	1.473	-	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	21.316	1.473	-	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap)	-	-	21.131	50.46	22,194	1.120	-	-	-	-	-	-	-	-	-	-	-	-
Box Metal M548	-	-	0.185	44.87	934	0.042	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	21.316	-	-	1.162	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	21.316	-	-	1.162	-	-	-	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.017	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	0.017	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	0.292	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	0.292	-	-	-	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	0.003	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	21.316	-	-	1.473	-	-	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	140.382	0.519	1.031	-	7.549	7.549
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	140.382	0.519	1.031	-	7.549	7.549
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	140.382	0.519	1.031	-	7.549	7.549

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap) ^(†)	-	-	139.891	50.46	5,690	0.287	72.39	10,782	0.781	-	-	-	58.68	114,845	6.739	58.68	114,845	6.739
Box Metal M548 ^(†)	-	-	0.153	48.69	240	0.012	46.24	454	0.021	-	-	-	47.16	4,834	0.228	47.16	4,834	0.228
<i>Subtotal: Recurring Cost</i>	-	-	<i>140.044</i>	-	-	<i>0.299</i>	-	-	<i>0.802</i>	-	-	<i>0.000</i>	-	-	<i>6.967</i>	-	-	<i>6.967</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>140.044</i>	-	-	<i>0.299</i>	-	-	<i>0.802</i>	-	-	<i>0.000</i>	-	-	<i>6.967</i>	-	-	<i>6.967</i>
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	0.021	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	<i>0.021</i>	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.337	-	-	0.192	-	-	0.226	-	-	-	-	-	0.578	-	-	0.578
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.337</i>	-	-	<i>0.192</i>	-	-	<i>0.226</i>	-	-	<i>0.000</i>	-	-	<i>0.578</i>	-	-	<i>0.578</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.001	-	-	0.007	-	-	0.004	-	-	-	-	-	0.004	-	-	0.004
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.001</i>	-	-	<i>0.007</i>	-	-	<i>0.004</i>	-	-	<i>0.000</i>	-	-	<i>0.004</i>	-	-	<i>0.004</i>
Gross/Weapon System Cost	-	-	140.382	-	-	0.519	-	-	1.031	-	-	-	-	-	7.549	-	-	7.549

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
Remarks: Production Engineering increased due to significant change in planned procurement of signals and reflects the pro-rated share for the family of Hand Held Signal support. (t) indicates the presence of a P-5a		

UNCLASSIFIED

Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019				
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 6038E46900 / Signals, All Types				Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]				

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Load, Assemble, Pack (Lap) ^(†)		2018	SECURITY SIGNALS INC / CORDOVA, TN	C / FFP	ROCK ISLAND ARSENAL, IL	Jul 2018	Oct 2019	5,690	50.46	Y		
Load, Assemble, Pack (Lap) ^(†)		2019	SECURITY SIGNALS INC / CORDOVA, TN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Jun 2020	10,782	72.39	Y		
Load, Assemble, Pack (Lap) ^(†)	✓	2020	SECURITY SIGNALS INC / CORDOVA, TN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Jun 2021	114,845	58.68	Y		
Box Metal M548		2018	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Sep 2018	May 2019	240	48.69	Y		
Box Metal M548		2019	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Nov 2019	454	46.24	Y		
Box Metal M548	✓	2020	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Nov 2020	4,834	47.16	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018 - FY 2020 are delivery orders to an existing contract.

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 6038E46900 / Signals, All Types
		Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2018												Fiscal Year 2019												BALANCE	
O C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P
Load, Assemble, Pack (Lap)																															
	1	2018	ARMY	5.690	.000	5.690																								5.690	
	1	2019	ARMY	10.782	.000	10.782																								10.782	
✓	1	2020	ARMY	114.845	.000	114.845																								114.845	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	

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Exhibit P-21, Production Schedule: PB 2020 Army																		Date: March 2019											
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47										P-1 Line Item Number / Title: 6038E46900 / Signals, All Types										Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]									

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2020														Fiscal Year 2021														BALANCE	
O C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
Load, Assemble, Pack (Lap)																																			
	1	2018	ARMY	5.690	.000	5.690	5.690																						.000						
	1	2019	ARMY	10.782	.000	10.782	-	-	-	-	-	-	-	10.782															.000						
✓	1	2020	ARMY	114.845	.000	114.845																							25.092						

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Exhibit P-21, Production Schedule: PB 2020 Army	Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]

Cost Elements <i>(Units in Thousands)</i>						Fiscal Year 2022													Fiscal Year 2023											B A L A N C E	
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022													Calendar Year 2023											
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G		S E P

Load, Assemble, Pack (Lap)																																
	1	2018	ARMY	5.690	5.690	.000																				.000						
	1	2019	ARMY	10.782	10.782	.000																				.000						
✓	1	2020	ARMY	114.845	89.753	25.092	25.092	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	.000

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 6038E46900 / Signals, All Types
		Item Number / Title [DODIC]: E46800 / Signal, Hand Held White Parachute Flare M127A1 [L312]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	SECURITY SIGNALS INC - CORDOVA, TN	5,000	32,000	64,000	8	8	18	26	6	6	15	21

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E47000 / Signal, Hand Held Green Star Cluster M125A1 [L314]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	52.063	-	0.724	-	5.150	5.150
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	52.063	-	0.724	-	5.150	5.150
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	52.063	-	0.724	-	5.150	5.150

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Load, Assemble, Pack (Lap) ^(t)	-	-	51.003	-	-	-	66.39	9,538	0.633	-	-	-	56.35	81,323	4.583	56.35	81,323	4.583
Box Metal M548 ^(t)	-	-	0.042	-	-	-	46.24	402	0.019	-	-	-	47.16	3,423	0.161	47.16	3,423	0.161
<i>Subtotal: Recurring Cost</i>	-	-	<i>51.045</i>	-	-	-	-	-	<i>0.652</i>	-	-	<i>0.000</i>	-	-	<i>4.744</i>	-	-	<i>4.744</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>51.045</i>	-	-	-	-	-	<i>0.652</i>	-	-	<i>0.000</i>	-	-	<i>4.744</i>	-	-	<i>4.744</i>
Support - Production Engineering Cost																		
Production Engineering	-	-	1.003	-	-	-	-	-	0.069	-	-	-	-	-	0.402	-	-	0.402
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>1.003</i>	-	-	-	-	-	<i>0.069</i>	-	-	<i>0.000</i>	-	-	<i>0.402</i>	-	-	<i>0.402</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.015	-	-	-	-	-	0.004	-	-	-	-	-	0.004	-	-	0.004
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.015</i>	-	-	-	-	-	<i>0.004</i>	-	-	<i>0.000</i>	-	-	<i>0.004</i>	-	-	<i>0.004</i>
Gross/Weapon System Cost	-	-	52.063	-	-	-	-	-	0.724	-	-	-	-	-	5.150	-	-	5.150

Remarks:
Production Engineering increased due to significant change in planned procurement of signals and reflects the pro-rated share for the family of Hand Held Signal support.

^(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 6038E46900 / Signals, All Types				Item Number / Title [DODIC]: E47000 / Signal, Hand Held Green Star Cluster M125A1 [L314]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Load, Assemble, Pack (Lap)		2019	SECURITY SIGNALS INC / CORDOVA, TN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Jun 2020	9,538	66.39	Y		
Load, Assemble, Pack (Lap)	✓	2020	SECURITY SIGNALS INC / CORDOVA, TN	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Jun 2021	81,323	56.35	Y		
Box Metal M548		2019	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Dec 2018	Aug 2019	402	46.24	Y		
Box Metal M548	✓	2020	CONCO INC. / LOUISVILLE, KY	C / FFP	ROCK ISLAND ARSENAL, IL	Dec 2019	Aug 2020	3,423	47.16	Y		

Remarks:
FY 2019 - FY 2020 are delivery orders to an existing contract.

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47						P-1 Line Item Number / Title: 6038E46900 / Signals, All Types						Item Number / Title [DODIC]: E49100 / Flare, AC Countermeasure, M206 Magnesium Teflon IR [L410]						
ID Code (A=Service Ready, B=Not Service Ready) : A									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity (<i>Units in Each</i>)				-		-		-		-		-		-				
Gross/Weapon System Cost (<i>\$ in Millions</i>)				74.756		1.013		0.000		-		-		-				
Less PY Advance Procurement (<i>\$ in Millions</i>)				-		-		-		-		-		-				
Net Procurement (P-1) (<i>\$ in Millions</i>)				74.756		1.013		0.000		-		-		-				
Plus CY Advance Procurement (<i>\$ in Millions</i>)				-		-		-		-		-		-				
Total Obligation Authority (<i>\$ in Millions</i>)				74.756		1.013		0.000		-		-		-				
<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>)				-		-		-		-		-		-		-		
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)				-		-		-		-		-		-		-		
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	73.877	35.14	28,834	1.013	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	73.877	-	-	1.013	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	73.877	-	-	1.013	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.869	-	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.869	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	74.756	-	-	1.013	-	-	0.000	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E62900 / SMOKE POT, Practice, M8 [K511]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	52.790	-	1.872	-	5.166	5.166
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	52.790	-	1.872	-	5.166	5.166
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	52.790	-	1.872	-	5.166	5.166

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP) ^(†)	-	-	44.802	-	-	-	504.41	665	0.335	-	-	-	669.86	3,721	2.493	669.86	3,721	2.493
FUZE, SMOKE POT, FLOATING M208 ^(†)	-	-	0.293	-	-	-	157.62	692	0.109	-	-	-	104.48	3,869	0.404	104.48	3,869	0.404
INNER COVER ASSEMBLY ^(†)	-	-	0.174	-	-	-	64.40	765	0.049	-	-	-	65.48	4,279	0.280	65.48	4,279	0.280
OUTER COVER ASSEMBLY ^(†)	-	-	0.219	-	-	-	80.92	765	0.062	-	-	-	82.27	4,279	0.352	82.27	4,279	0.352
CONTAINER, USED ON SMOKE POT M8 ^(†)	-	-	0.204	-	-	-	74.86	765	0.057	-	-	-	76.37	4,279	0.327	76.37	4,279	0.327
<i>Subtotal: Recurring Cost</i>	-	-	45.692	-	-	-	-	-	0.613	-	-	0.000	-	-	3.856	-	-	3.856
<i>Subtotal: Hardware Cost</i>	-	-	45.692	-	-	-	-	-	0.613	-	-	0.000	-	-	3.856	-	-	3.856
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Non-Recurring Support Cost																		
Value Engineering	-	-	0.027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E62900 / SMOKE POT, Practice, M8 [K511]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Non-Recurring Support Cost</i>	-	-	0.027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	7.039	-	-	-	-	-	1.247	-	-	-	-	-	1.298	-	-	1.298
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	7.039	-	-	-	-	-	1.247	-	-	0.000	-	-	1.298	-	-	1.298
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.030	-	-	-	-	-	0.012	-	-	-	-	-	0.012	-	-	0.012
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.030	-	-	-	-	-	0.012	-	-	0.000	-	-	0.012	-	-	0.012
Gross/Weapon System Cost	-	-	52.790	-	-	-	-	-	1.872	-	-	-	-	-	5.166	-	-	5.166

Remarks:

E62900 Smoke Pot Practice M8 LAP cost increased by an additional \$160. This increase is a result of costs associated with tasks that were previously not included into the BARDS rate but have been updated to include direct labor. The updated rates resulted in an increase of 32%.

(†) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 6038E46900 / Signals, All Types	Item Number / Title [DODIC]: E62900 / SMOKE POT, Practice, M8 [K511]
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
LOAD, ASSEMBLE, PACK (LAP)		2019	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	ROCK ISLAND ARSENAL, IL	Mar 2019	Aug 2020	665	504.41	Y		
LOAD, ASSEMBLE, PACK (LAP)	✓	2020	PINE BLUFF ARSENAL / PINE BLUFF, AR	PO	ROCK ISLAND ARSENAL, IL	Mar 2020	Aug 2021	3,721	669.86	Y		
FUZE, SMOKE POT, FLOATING M208		2019	CHEMRING ORDNANCE, INC. / PERRY, FL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Jan 2020	692	157.62	Y		
FUZE, SMOKE POT, FLOATING M208	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	3,869	104.48	Y		
INNER COVER ASSEMBLY		2019	TOOL MASTERS INC. / TUSCUMBIA, AL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Dec 2019	765	64.40	Y		
INNER COVER ASSEMBLY	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	4,279	65.48	Y		
OUTER COVER ASSEMBLY		2019	TOOL MASTERS INC. / TUSCUMBIA, AL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Dec 2019	765	80.92	Y		
OUTER COVER ASSEMBLY	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	4,279	82.27	Y		
CONTAINER, USED ON SMOKE POT M8		2019	TOOL MASTERS INC. / TUSCUMBIA, AL	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Dec 2019	765	74.86	Y		
CONTAINER, USED ON SMOKE POT M8	✓	2020	TO BE SELECTED / TBS01	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	4,279	76.37	Y		

Remarks:
LAP increases by 32% from FY19 to FY20 due to efforts that were previously excluded from the direct labor computation and are now included in this calculation. Results in a increase of the direct labor hour rate charged to its customers.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition	P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	254.582	13.084	11.464	-	16.054	16.054	16.173	12.776	9.281	9.454	-	342.868
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	254.582	13.084	11.464	-	16.054	16.054	16.173	12.776	9.281	9.454	-	342.868
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	254.582	13.084	11.464	-	16.054	16.054	16.173	12.776	9.281	9.454	-	342.868

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$16.054M for Overseas Contingency Operations (OCO); of which \$16.054M supporting production of 4 variants of simulators is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Simulators, All Types.

(E49700) M115A2 Artillery Ground Burst Simulator is a hand thrown device that is used in training to simulate battlefield noise and effects (shell in flight and ground explosion) during troop maneuvers. The simulator has a 6-10 second delay followed by a 2-4 second whistle ending with a flash and loud report; the surface danger zone is 35 meters. This item is Code A, approved for service use.

(E50200) M116A1 Hand Grenade Simulator is a hand-thrown device and is used in training to simulate battlefield noise and effects during troop maneuvers. It has a 5 to 10 second delay and a 15 meter surface danger zone. This item is Code A, approved for service use.

(E70600) M22 Anti-Tank Weapon Effect Signature Simulator (ATWESS) Guided Missile (GM) Rocket Simulator is used to simulate the TOW, DRAGON or VIPER, including report, flash and smoke through use of an adapter. It is compatible with the Multiple Integrated Laser Engagement System (MILES). This item is Code A, approved for service use.

(E88404) Simulators, Non-standard, Special Effects for CTCs Black smoke cartridge to simulate target kill. This item is launched with Omega 60 Force on target. This item is in development which is part of the Special Use Ammo Family. This item is Code B, not approved for service use.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition

P-1 Line Item Number / Title:
8278E51200 / Simulators, All Types

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]	P-5a, P-21	A		- / 116.895	- / 5.200	- / 3.532	- / -	- / 8.045	- / 8.045
P-5	E50200 / SIMULATOR, Hand Grenade, M116A1 [L601]		A		- / 91.644	- / 4.314	- / 3.251	- / -	- / 3.275	- / 3.275
P-5	E70600 / SIMULATOR, Rocket, Antitank GM Lnchd, M22 (ATWESS) [LA77]		A		- / 46.043	- / 3.570	- / 3.029	- / -	- / 3.035	- / 3.035
P-5	E88404 / SIMULATORS, Non-Standard, Special Effects, f/CTCs [LZ04]		B		- / -	- / -	- / 1.652	- / -	- / 1.699	- / 1.699
P-40	Total Gross/Weapon System Cost				- / 254.582	- / 13.084	- / 11.464	- / -	- / 16.054	- / 16.054

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station and the combined training centers. Test requirements support the development, fielding, safety and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

FY 2020 funding totals include \$0.0 million for Base and \$16.054 million for Overseas Contingency Operations, supporting production of 4 variants of simulators for \$16.054 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

E88404 - SIMULATORS, NON STANDARD, SPECIAL EFFECTS FOR CTCs
This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.699 million supports production of 108,347 Non Standard Simulators.
TYPE CLASSIFICATION DATE: TBD

E49700 - SIMULATOR PROJ GND BURST M115A2
This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$8.045 million supports production of 390,510 Ground Burst Simulators.
TYPE CLASSIFICATION DATE: 1962

E50200 - SIMULATOR HAND GRENADE M116A1
This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.275 million supports production of 125,690 hand grenade simulators.
TYPE CLASSIFICATION DATE: 1960

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 47: Other Ammunition		P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
E70600 - SIMULATOR ANTITANK GM RKT M22 (ATWESS) This is a training unique item not used in combat. The FY 2020 request supports annual training and builds a depot level in accordance with Army's procurement goals. FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.035 million supports production of 130,407 Anti-Tank simulators. TYPE CLASSIFICATION DATE: 1984		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types
		Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	116.895	5.200	3.532	-	8.045	8.045
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	116.895	5.200	3.532	-	8.045	8.045
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	116.895	5.200	3.532	-	8.045	8.045

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND ^(†)	-	-	115.766	23.78	196,366	4.670	30.55	97,387	2.975	-	-	-	18.66	390,510	7.287	18.66	390,510	7.287
<i>Subtotal: Recurring Cost</i>	-	-	<i>115.766</i>	-	-	<i>4.670</i>	-	-	<i>2.975</i>	-	-	<i>0.000</i>	-	-	<i>7.287</i>	-	-	<i>7.287</i>
<i>Subtotal: Hardware Cost</i>	-	-	<i>115.766</i>	-	-	<i>4.670</i>	-	-	<i>2.975</i>	-	-	<i>0.000</i>	-	-	<i>7.287</i>	-	-	<i>7.287</i>
Support - Engineering Change Proposals Cost																		
Engineering Change Proposals	-	-	-	-	-	0.100	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Engineering Change Proposals Cost</i>	-	-	-	-	-	<i>0.100</i>	-	-	-	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Environmental Initiatives	-	-	0.204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	<i>0.204</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.815	-	-	0.427	-	-	0.554	-	-	-	-	-	0.755	-	-	0.755
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>0.815</i>	-	-	<i>0.427</i>	-	-	<i>0.554</i>	-	-	<i>0.000</i>	-	-	<i>0.755</i>	-	-	<i>0.755</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.006	-	-	0.003	-	-	0.003	-	-	-	-	-	0.003	-	-	0.003

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types	Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]
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.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.006	-	-	0.003	-	-	0.003	-	-	0.000	-	-	0.003	-	-	0.003
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	0.104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	116.895	-	-	5.200	-	-	3.532	-	-	-	-	-	8.045	-	-	8.045

Remarks:
Production Engineering increased due to change in planned procurement of simulators and reflects the pro-rated share for the family of Simulator support.

(t) indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2020 Army							Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47			P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types				Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]					

Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
COMPLETE ROUND ^(†)		2018	PYROTECHNIQUE BY GRUCCI INC / RADFORD, VA	C / FFP	ROCK ISLAND ARSENAL, IL	Feb 2018	Feb 2019	196,366	23.78	Y		
COMPLETE ROUND ^(†)		2019	PYROTECHNIQUE BY GRUCCI INC / RADFORD, VA	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2019	Mar 2020	97,387	30.55	Y		
COMPLETE ROUND ^(†)	✓	2020	PYROTECHNIQUE BY GRUCCI INC / RADFORD, VA	C / FFP	ROCK ISLAND ARSENAL, IL	Mar 2020	Mar 2021	390,510	18.66	Y		

^(†) indicates the presence of a P-21

Remarks:
FY 2018 - FY 2020 are delivery orders to an existing contract.

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Exhibit P-21, Production Schedule: PB 2020 Army																				Date: March 2019																
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47										P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types										Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]																
Cost Elements <i>(Units in Thousands)</i>							Fiscal Year 2018													Fiscal Year 2019													BALANCE			
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 7	BAL D U E A S O F 1 O C T	Calendar Year 2018													Calendar Year 2019																
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						
COMPLETE ROUND																																				
	1	2018	ARMY	196.366	.000	196.366																														.000
	1	2019	ARMY	97.387	.000	97.387																														97.387
✓	1	2020	AF (†)	6.287	.000	6.287																													6.287	
✓	1	2020	ARMY	390.510	.000	390.510																													390.510	
✓	1	2020	Total OCO	396.797	.000	396.797																													396.797	
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P						

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types
		Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2020													Fiscal Year 2021													B A L A N C E				
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 9	BAL D U E A S O F 1 O C T	Calendar Year 2020													Calendar Year 2021															
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					
COMPLETE ROUND																																			
	1	2018	ARMY	196.366	196.366	.000																							.000						
	1	2019	ARMY	97.387	.000	97.387	-	-	-	-	-	48.694	48.693																.000						
✓	1	2020	AF (†)	6.287	.000	6.287						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.534	.523	.523	.523	.523	.523	.523	2.615
✓	1	2020	ARMY	390.510	.000	390.510						A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32.548	32.542	32.542	32.542	32.542	32.542	32.542	32.542	162.710
✓	1	2020	Total OCO	396.797	.000	396.797						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.082	33.065	33.065	33.065	33.065	33.065	33.065	33.065	165.325
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P					

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types
		Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]

Cost Elements <i>(Units in Thousands)</i>					Fiscal Year 2022										Fiscal Year 2023										B A L A N C E					
O C C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	Calendar Year 2022										Calendar Year 2023													
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R		A P R	M A Y	J U N	J U L	A U G
COMPLETE ROUND																														
	1	2018	ARMY	196.366	196.366	.000																							.000	
	1	2019	ARMY	97.387	97.387	.000																							.000	
✓	1	2020	AF (†)	6.287	3.672	2.615	.523	.523	.523	.523	.523																		.000	
✓	1	2020	ARMY	390.510	227.800	162.710	32.542	32.542	32.542	32.542	32.542																		.000	
✓	1	2020	Total OCO	396.797	231.472	165.325	33.065	33.065	33.065	33.065	33.065	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.000		
							O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P

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Exhibit P-21, Production Schedule: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47		P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types
		Item Number / Title [DODIC]: E49700 / SIMULATOR, Projectile Ground Burst, M115A2 [L594]

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2020	1-8-5 For 2020	MAX For 2020	Initial				Reorder			
					ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	PYROTECHNIQUE BY GRUCCI INC - RADFORD, VA	10,000	65,000	100,000	8	8	18	26	6	6	12	18

(±) Delivery rows marked with this symbol indicate that they are funded through a separate Line Item. See the respective components' exhibits for details, including the full delivery schedule.

"A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types	Item Number / Title [DODIC]: E50200 / SIMULATOR, Hand Grenade, M116A1 [L601]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	91.644	4.314	3.251	-	3.275	3.275
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	91.644	4.314	3.251	-	3.275	3.275
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	91.644	4.314	3.251	-	3.275	3.275

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	88.357	23.13	170,016	3.932	23.97	116,666	2.796	-	-	-	23.88	125,690	3.001	23.88	125,690	3.001
<i>Subtotal: Recurring Cost</i>	-	-	<i>88.357</i>	-	-	<i>3.932</i>	-	-	<i>2.796</i>	-	-	<i>0.000</i>	-	-	<i>3.001</i>	-	-	<i>3.001</i>
Subtotal: Hardware Cost	-	-	88.357	-	-	3.932	-	-	2.796	-	-	0.000	-	-	3.001	-	-	3.001
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	<i>0.250</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	2.925	-	-	0.378	-	-	0.452	-	-	-	-	-	0.271	-	-	0.271
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	<i>2.925</i>	-	-	<i>0.378</i>	-	-	<i>0.452</i>	-	-	<i>0.000</i>	-	-	<i>0.271</i>	-	-	<i>0.271</i>
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.008	-	-	0.003	-	-	0.003	-	-	-	-	-	0.002	-	-	0.002
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	<i>0.008</i>	-	-	<i>0.003</i>	-	-	<i>0.003</i>	-	-	<i>0.000</i>	-	-	<i>0.002</i>	-	-	<i>0.002</i>
Support - Study & Analysis Cost																		
Study & Analysis	-	-	0.104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Study & Analysis Cost</i>	-	-	<i>0.104</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	91.644	-	-	4.314	-	-	3.251	-	-	-	-	-	3.275	-	-	3.275

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types	Item Number / Title [DODIC]: E50200 / SIMULATOR, Hand Grenade, M116A1 [L601]
ID Code (A=Service Ready, B=Not Service Ready) : A		MDAP/MAIS Code:
Remarks: Production Engineering increased due to change in planned procurement of simulators and reflects the pro-rated share for the family of Simulator support.		

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types	Item Number / Title [DODIC]: E70600 / SIMULATOR, Rocket, Antitank GM Lnchd, M22 (ATWESS) [LA77]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	46.043	3.570	3.029	-	3.035	3.035
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	46.043	3.570	3.029	-	3.035	3.035
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	46.043	3.570	3.029	-	3.035	3.035

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
Complete Round	-	-	43.755	12.87	275,401	3.544	12.87	121,323	1.561	-	-	-	13.64	130,407	1.779	13.64	130,407	1.779
<i>Subtotal: Recurring Cost</i>	-	-	43.755	-	-	3.544	-	-	1.561	-	-	0.000	-	-	1.779	-	-	1.779
Subtotal: Hardware Cost	-	-	43.755	-	-	3.544	-	-	1.561	-	-	0.000	-	-	1.779	-	-	1.779
Support - Acceptance Testing Cost																		
First Article Test	-	-	-	-	-	-	-	-	0.183	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	-	-	-	-	-	-	0.183	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	2.283	-	-	0.019	-	-	1.281	-	-	-	-	-	1.253	-	-	1.253
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	2.283	-	-	0.019	-	-	1.281	-	-	0.000	-	-	1.253	-	-	1.253
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.005	-	-	0.007	-	-	0.003	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.005	-	-	0.007	-	-	0.003	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	46.043	-	-	3.570	-	-	3.029	-	-	-	-	-	3.035	-	-	3.035

UNCLASSIFIED

Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 47	P-1 Line Item Number / Title: 8278E51200 / Simulators, All Types	Item Number / Title [DODIC]: E88404 / SIMULATORS, Non-Standard, Special Effects, f/CTCs [LZ04]

ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	-	-	1.652	-	1.699	1.699
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	-	-	1.652	-	1.699	1.699
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	-	-	1.652	-	1.699	1.699

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	-	-	-	-	14.84	105,162	1.561	-	-	-	15.13	108,347	1.639	15.13	108,347	1.639
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	1.561	-	-	0.000	-	-	1.639	-	-	1.639
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	1.561	-	-	0.000	-	-	1.639	-	-	1.639
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.091	-	-	-	-	-	0.059	-	-	0.059
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.091	-	-	0.000	-	-	0.059	-	-	0.059
Gross/Weapon System Cost	-	-	-	-	-	-	-	-	1.652	-	-	-	-	-	1.699	-	-	1.699

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 0684EB0016 / Ammo Components, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	721.343	10.275	5.224	-	5.261	5.261	5.366	5.468	5.579	7.057	-	765.573
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	721.343	10.275	5.224	-	5.261	5.261	5.366	5.468	5.579	7.057	-	765.573
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	721.343	10.275	5.224	-	5.261	5.261	5.366	5.468	5.579	7.057	-	765.573

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$5.261M for Overseas Contingency Operations (OCO); of which \$5.261M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This program supports the renovation of unserviceable training and combat ammunition to bring them back to a serviceable condition at a cost that is less than new procurement. It also supports Army Test and Evaluation Command (ATEC) Special Tests, First Article Tests, Renovation of Field Stocks and Proof of Acceptance Tests used in both training and combat ammunition.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 0684EB0016 / Ammo Components, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-40a	EA0500 / Components and Renovation of Field Stock				- / 660.466	- / 8.816	- / 3.800	- / -	- / 3.810	- / 3.810
P-40a	EA1200 / WEAPON COMP IN SPT OF PROOF/ACPT TESTING				- / 60.877	- / 1.459	- / 1.424	- / -	- / 1.451	- / 1.451
P-40	Total Gross/Weapon System Cost				- / 721.343	- / 10.275	- / 5.224	- / -	- / 5.261	- / 5.261

*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.

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

Justification:
 FY 2020 funding totals include \$0.0M for Base and \$5.261 million for Overseas Contingency Operations, \$5.261 million has been realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.810 million support the renovation of unserviceable training and combat ammunition to bring them back to a serviceable condition at a cost that is less than new procurement.

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.451 million supports several initiatives at Aberdeen Test Center (ATC) and Yuma Test Center (YTC).

At ATC, efforts support target scoring instrumentation systems currently in use at various ATC firing ranges. Replaces aging and incompatible hardware. Upgrades incompatible software components (drivers) and applications to Windows 10 standard, which will help conform the target scoring instrumentation systems to the Department of Defense (DoD) and Department of the Army (DA) Risk Management Framework (RMF) requirements.

At YTC, purchases upgraded sensors, sensor positioning equipment, control hardware, signal conditioners, and other data acquisition equipment in Integrated Ballistics Data acquisition Systems (IBDS), including maintenance, upgrades, and updates to the software. This will modernize IBDS and improve accuracy and efficiency of captured ballistics data. Also, replaces outdated Lot Acceptance Test (LAT)/Munition instrumentation, calibration equipment, and test sets with modern components.

At YTC, continues to fund the ongoing effort to overhaul all 14 projectile followers to the newest Trajectory Tracker II (T2) status. YTC still needs to overhaul 6 projectile followers to T2 status.

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.

UNCLASSIFIED

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50 **P-1 Line Item Number / Title:** 0684EB0016 / Ammo Components, All Types **Aggregated Items Title:** Various

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
			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)
Various Items																				
EA0500 / Components and Renovation of Field Stock			-	-	660.466	-	-	8.816	-	-	3.800	-	-	-	-	-	3.810	-	-	3.810
EA1200 / WEAPON COMP IN SPT OF PROOF/ACPT TESTING			-	-	60.877	-	-	1.459	-	-	1.424	-	-	-	-	-	1.451	-	-	1.451
Subtotal: Various Items			-	-	721.343	-	-	10.275	-	-	5.224	-	-	-	-	-	5.261	-	-	5.261
Total			-	-	721.343	-	-	10.275	-	-	5.224	-	-	-	-	-	5.261	-	-	5.261

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

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 1430E91901 / Non-Lethal Ammunition, All Types
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	6.133	1.500	2.810	-	0.715	0.715	1.031	1.610	7.030	5.665	-	26.494
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	6.133	1.500	2.810	-	0.715	0.715	1.031	1.610	7.030	5.665	-	26.494
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	6.133	1.500	2.810	-	0.715	0.715	1.031	1.610	7.030	5.665	-	26.494

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$0.715M for Overseas Contingency Operations (OCO); of which \$0.715M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line item procures Non-Lethal Ammunition, All Types.

(E91505) CTG NL FIRING DEVICE: TASER, XP25

The Cartridge, NL Firing Device is a 25-foot single shot fired from the Launched Electrode Stun Device (LESD), which is a hand held device used for Electro-Muscular Incapacitation (EMI). This cartridge is a conducted energy weapon that delivers an incapacitating electrical shock capable of arcing through 2 inches of clothing. Maximum effective range is 15 feet. This item is Code A, approved for service use.

(E86401) CTG 12 GA NL, EXT RG, MARK M1116

The M1116 is a 12 gauge non-lethal cartridge that provides target marking capability at an extended range of 30-50m. It utilizes a drag stabilized tear-shaped bag with fluorescent green marking powder to deliver its marking capability. It can be fired from Army standard shotguns, and provides blunt force trauma to stop, confuse, disorient, or deter a potential threat. This item is Code A, approved for service use.

Justification:

The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

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.

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous		P-1 Line Item Number / Title: 1430E91901 / Non-Lethal Ammunition, All Types
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>FY 2020 funding totals include \$0.0 million for Base and \$0.715 million for Overseas Contingency Operations, \$0.715 million has been realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.</p> <p>FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.715 million supports production of (E91505) Ctg, NL Firing Device: Taser XP25 f/X26E Taser.</p> <p>(E91505) Ctg, NL Firing Device: Taser XP25 f/X26E Taser This is a training standard item used in both training and combat. FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goal. FY 2020 Base procurement dollars in the amount of \$0.715 million will procure 15,866 cartridges. TYPE CLASSIFICATION DATE: August 2011</p> <p>(E86401) Ctg, 12G, Non-Lethal, Ext RG, Marking M1116 Series This is a training standard item used in both training and combat. The request supports annual training and builds a war reserve inventory in accordance with Army's procurement goals. TYPE CLASSIFICATION DATE: October 2015</p>		

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	187.739	10.730	11.259	-	9.224	9.224	9.373	9.547	16.371	10.217	-	264.460
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	187.739	10.730	11.259	-	9.224	9.224	9.373	9.547	16.371	10.217	-	264.460
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	187.739	10.730	11.259	-	9.224	9.224	9.373	9.547	16.371	10.217	-	264.460

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$9.224M for Overseas Contingency Operations (OCO); of which \$9.213M and quantity of .736 million is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line includes Miscellaneous Ammunition Items Under \$5 million.

(E00300) CTG 12 GAUGE SHOTGUN 7 1/2 CHILLED SHOT is a 12 gauge 2 3/4 inch round with #7 1/2 pellets (approximately 2.39mm (0.094") diameter and weighs about 1.25 grains each) and can be fired out of the M26, M1014, Mossberg Model 500/590, and Remington 870/MCS shotguns. This item is Code A, approved for service use.

(E01700) CTG CAL .22 LR MATCH F/PISTOL is used in .22 caliber Remington Model 40X-H1 rifles for military marksmanship training. This item is Code A, approved for service use.

(E03001) CTG, CAL .30 BLANK is used for salute ceremonies by Veteran Organizations in the M1 Garand rifles without being equipped with a firing adapter. It can be identified by the absence of a bullet and a rosette crimped casemouth. This item is Code A, approved for service use.

(E03701) CTG, .300 Winchester Magnum (WinMag) MK248 procurement supports the M2010 Enhanced Sniper Rifle (ESR). It consists of an Open Tip Match (OTM) bullet, brass case cartridge, large rifle lead-styphnate primer, and smokeless small arms propellant. This item is Code A, approved for service use.

(E92100) CTG 12 GAUGE BREACHING ROUND, M1030 provides the capability to Soldiers to effectively and safely breach doors with the Mossberg 500/590 and Remington 870/MCS shotguns. The 12-gauge door-breaching cartridge is intended to destroy locks and fixtures on doors and automobiles with little or no collateral damage to the interior. This item is Code A, approved for service use.

(E99101) Special Training Ammo includes procurement of non-standard munitions and energetic materials to support the training of US Army troops in accordance with HQDA G3 approved authorizations.

(E99105) Soldier Enhancement Program Ammo. The Soldier Enhancement Program (SEP) was established by the Fiscal Year 1990 National Defense Authorization Act. The purpose of the SEP is to provide an impetus for increasing the combat effectiveness of our Army Infantryman/Soldiers through the procurement of Commercial Off the Shelf (COTS), Government Off the Shelf (GOTS) or Non-Developmental Item

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous		P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>(NDI) of lighter, more lethal weapons and improved equipment, including lighter, more comfortable loadbearing equipment, field gear, survivability items, communications equipment, navigational aids and training capabilities for Soldier evaluation. SEP AMMO provides a means of procuring COTS, GOTS and NDI ammunition to be evaluated by Soldiers for potential Army use or used in the evaluation of SEP weapons.</p> <p>(E99222) Foreign Weapons Training Ammunition. Foreign weapons ammunition procures munitions that have not been Type Classified, Materiel Released or Fielded for standard use by US Army or other DoD services. It is not stocked/procured in standard DoD supply system. Funds will be used to purchase foreign (Non NATO) standard munitions, training devices and materials, conduct safety and quality assessments, and ship the munitions to their required destination.</p> <p>(EA0600) Ammunition Program funding provides critical support to efficiently and effectively manage ammunition.</p> <p>(EA0960) USAMTU FT BENNING (United States Army Marksmanship Training Unit). This budget line funds procurement of non-standard munitions and energetic materials to support marksmanship training throughout the US Army, in accordance with HQDA G3 approved authorizations.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous

P-1 Line Item Number / Title:
2624EA0055 / Items Less Than \$5 Million (AMMO)

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	E00300 / CARTRIDGE 12 GAUGE SHOTGUN 7 1/2 CHILLED SHOT [A014]		A		- / 0.152	- / -	- / 0.066	- / -	- / 0.011	- / 0.011
P-5	E01700 / CTG, .22cal Ball Long Rifle Match, f/Rifle [A091]		A		- / 7.317	- / 0.074	- / 0.154	- / -	- / -	- / -
P-5	E03001 / CTG, .30cal Blank, M1909, Single [A222]		A		- / 28.495	- / 1.000	- / 0.673	- / -	- / -	- / -
P-5	E03701 / CTG, .300cal Win Mag, MK248 w/Mods (7.62x67mm) [A191]		A		- / 13.361	- / -	- / 1.922	- / -	- / 1.000	- / 1.000
P-5	E92100 / CTG, 12 Gauge Breaching Round, M1030 [AA54]		A		- / 7.931	- / -	- / 0.894	- / -	- / -	- / -
P-40a	E99101 / Special Training Ammo:				- / 32.642	- / 0.847	- / 1.071	- / -	- / 1.091	- / 1.091
P-40a	E99105 / Soldier Enhancement Program Ammo				- / 0.341	- / 0.248	- / 0.253	- / -	- / -	- / -
P-40a	E99222 / Foreign Weapons Training Ammunition				- / 0.500	- / 0.635	- / 0.496	- / -	- / 0.497	- / 0.497
P-40a	EA0600 / AMMUNITION PROGRAM SUPPORT				- / 59.419	- / 6.513	- / 4.002	- / -	- / 4.869	- / 4.869
P-40a	EA0960 / USAMTU FT BENNING				- / 37.581	- / 1.413	- / 1.728	- / -	- / 1.756	- / 1.756
P-40	Total Gross/Weapon System Cost				- / 187.739	- / 10.730	- / 11.259	- / -	- / 9.224	- / 9.224

*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.

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

Justification:
The FY 2020 Budget supports critical Army Title 10 war reserve/operational, training, and test requirements in accordance with Department of Defense Instruction 3000.04 (Munitions Requirements Process) and Army Regulation 5-13 (Total Army Munitions Requirements Process and Prioritization System). War reserve requirements support Office of the Secretary of Defense (OSD) approved Combatant Commander Operational Plans, Homeland Defense, and other OSD-directed missions. Training requirements support individual and collective training of Active and Reserve Component forces at Army schools, home station, and the combined training centers. Test requirements support the development, fielding, safety, and quality assurance of Army munitions and equipment throughout their life-cycle.

In accordance with Section 1815 of the FY 2008 National Defense Authorization Act (P.L. 110-181), these items are 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.

FY 2020 funding totals include \$0.0 million for Base and \$9.224 million for Overseas Contingency Operations, with a quantity of .736 million for \$9.213 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 Overseas Contingency Operations for Enduring Requirements funding in the amount of \$0.011 million to support the procurement of .028 million critical muni

(E00300) CTG 12 GAUGE SHOTGUN 7.5 CHILLED SHOT is a war reserve item used in combat. FY 2020 OCO for Base Requirements request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. FY 2020 OCO for Enduring Requirements procurement dollars in the amount of \$0.011 million supports the COCOM requirement for procurement of 0.028 million, 12 Gauge Shotgun cartridges to deter potential adversaries and support the European Deterrence Initiative
Type Classification date: November 1975.

(E01700) CTG CAL .22 LR MATCH F/PISTOL is a training standard item used in training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous		P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
Type classification date: April 1988		
(E03001) CTG, CAL .30 BLANK is a training unique item not used in combat. The request supports annual training and builds a depot level in accordance with the Army's procurement goals. Type classification date: 1917		
(E03701) CTG .300 Winchester Magnum (WinMag) MK248 is a training standard item used in both training and combat. The FY 2020 request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.000 million supports the procurement of 0.736 million MK248 cartridges. Type classification date: October 2012		
(E92100) CTG 12 GAUGE BREACHING ROUND M1030 is a training standard item used in training and combat. The request supports annual training and builds a war reserve inventory in accordance with the Army's procurement goals. Type classification date: October 2007		
(E99101) Special Training Ammunition. The FY 2020 funds will procure non-standard munitions and energetic materials to support the training of US Army troops in accordance with HQDA G3 approved authorizations. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.091 million supports Special Training Ammunition initiatives.		
(E99105) Soldier Enhancement Program (SEP) Ammunition. Soldier Enhancement Program (SEP) Ammunition. The funding supports COTS, GOTS and NDI ammunition that will be evaluated by Soldiers for potential use by the Army or used in the evaluation of SEP weapons.		
(E99222) Foreign Weapons Training Ammunition. FY 2020 funds will be used to procure Non DOD Standard Ammunition (NSA), related Non DOD Standard Weapons Systems (NSWS), as well as related training aids for Army units supporting the Regionally Aligned Forces (RAF) mission. Army units will conduct preparation training with Nonstandard weapons and munitions before deployment in order to be trained to support requirements, including operational missions, bilateral and multilateral military exercises and security cooperation activities. The FY 2020 OCO for Base Requirements procurement dollars in the amount of \$0.497 million supports Non Standard Ammunition initiatives.		
(EA0600) Ammunition Program Support. The FY 2020 OCO for Base Requirements request in the amount of \$4.869 million provides critical support to efficiently and effectively manage ammunition.		
(EA0960) USAMTU Ft. BENNING. The FY 2020 OCO for Base Requirements request in the amount of \$1.756 million request supports the procurement of non-standard munitions and energetic materials to support marksmanship training throughout the US. Army, in accordance with HQDA G3 approved authorizations.		

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50	P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)	Item Number / Title [DODIC]: E00300 / CARTRIDGE 12 GAUGE SHOTGUN 7 1/2 CHILLED SHOT [A014]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.152	-	0.066	-	0.011	0.011
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.152	-	0.066	-	0.011	0.011
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.152	-	0.066	-	0.011	0.011

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.34	339,000	0.115	-	-	-	0.28	235,714	0.066	-	-	-	0.29	28,093	0.008	0.29	28,093	0.008
<i>Subtotal: Recurring Cost</i>	-	-	0.115	-	-	-	-	-	0.066	-	-	0.000	-	-	0.008	-	-	0.008
<i>Subtotal: Hardware Cost</i>	-	-	0.115	-	-	-	-	-	0.066	-	-	0.000	-	-	0.008	-	-	0.008
Support - Production Engineering Cost																		
Production Engineering	-	-	0.037	-	-	-	-	-	0.000	-	-	-	-	-	0.003	-	-	0.003
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.037	-	-	-	-	-	0.000	-	-	0.000	-	-	0.003	-	-	0.003
Gross/Weapon System Cost	-	-	0.152	-	-	-	-	-	0.066	-	-	-	-	-	0.011	-	-	0.011

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50	P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)	Item Number / Title [DODIC]: E01700 / CTG, .22cal Ball Long Rifle Match, f/Rifle [A091]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	7.317	0.074	0.154	-	-	-
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	7.317	0.074	0.154	-	-	-
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	7.317	0.074	0.154	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	0.30	20,693,978	6.208	0.13	353,218	0.046	0.14	679,497	0.095	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	6.208	-	-	0.046	-	-	0.095	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	6.208	-	-	0.046	-	-	0.095	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	1.101	-	-	0.026	-	-	0.052	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	1.101	-	-	0.026	-	-	0.052	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.008	-	-	0.002	-	-	0.004	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.008	-	-	0.002	-	-	0.004	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	7.317	-	-	0.074	-	-	0.154	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army													Date: March 2019					
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50						P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)						Item Number / Title [DODIC]: E03001 / CTG, .30cal Blank, M1909, Single [A222]						
ID Code (A=Service Ready, B=Not Service Ready) : A									MDAP/MAIS Code:									
Resource Summary				Prior Years		FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Procurement Quantity (Units in Each)				-		-		-		-		-		-				
Gross/Weapon System Cost (\$ in Millions)				28.495		1.000		0.673		-		-		-				
Less PY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Net Procurement (P-1) (\$ in Millions)				28.495		1.000		0.673		-		-		-				
Plus CY Advance Procurement (\$ in Millions)				-		-		-		-		-		-				
Total Obligation Authority (\$ in Millions)				28.495		1.000		0.673		-		-		-				
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>																		
Initial Spares (\$ in Millions)				-		-		-		-		-		-				
Gross/Weapon System Unit Cost (\$ in Dollars)				-		-		-		-		-		-				
Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
LOAD, ASSEMBLE, PACK (LAP)	0.54	51,201,897	27.649	0.28	2,721,705	0.762	0.31	1,220,868	0.378	-	-	-	-	-	-	-	-	-
BOX METAL M2A2	20.76	4,800	0.100	12.28	4,409	0.054	14.07	1,969	0.028	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	27.749	-	-	0.816	-	-	0.406	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	27.749	-	-	0.816	-	-	0.406	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	0.746	-	-	0.177	-	-	0.264	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	0.746	-	-	0.177	-	-	0.264	-	-	-	-	-	-	-	-	-
Support - Quality Assurance Cost																		
Quality Assurance	-	-	-	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	-	-	-	-	-	-	0.004	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	28.495	-	-	1.000	-	-	0.673	-	-	-	-	-	-	-	-	-

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50	P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)	Item Number / Title [DODIC]: E03701 / CTG, .300cal Win Mag, MK248 w/Mods (7.62x67mm) [A191]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	13.361	-	1.922	-	1.000	1.000
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	13.361	-	1.922	-	1.000	1.000
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	13.361	-	1.922	-	1.000	1.000

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	1.19	8,619,333	10.257	-	-	-	1.28	1,438,440	1.841	-	-	-	1.30	735,724	0.956	1.30	735,724	0.956
<i>Subtotal: Recurring Cost</i>	-	-	10.257	-	-	-	-	-	1.841	-	-	0.000	-	-	0.956	-	-	0.956
Subtotal: Hardware Cost	-	-	10.257	-	-	-	-	-	1.841	-	-	0.000	-	-	0.956	-	-	0.956
Support - Product Improvement Cost																		
Production Verification Test	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	3.098	-	-	-	-	-	0.077	-	-	-	-	-	0.035	-	-	0.035
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	3.098	-	-	-	-	-	0.077	-	-	0.000	-	-	0.035	-	-	0.035
Support - Quality Assurance Cost																		
Quality Assurance	-	-	0.003	-	-	-	-	-	0.004	-	-	-	-	-	0.004	-	-	0.004
<i>Subtotal: Support - Quality Assurance Cost</i>	-	-	0.003	-	-	-	-	-	0.004	-	-	0.000	-	-	0.004	-	-	0.004
Gross/Weapon System Cost	-	-	13.361	-	-	-	-	-	1.922	-	-	-	-	-	1.000	-	-	1.000

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50	P-1 Line Item Number / Title: 2624EA0055 / Items Less Than \$5 Million (AMMO)	Item Number / Title [DODIC]: E92100 / CTG, 12 Gauge Breaching Round, M1030 [AA54]

ID Code (A=Service Ready, B=Not Service Ready) : A	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	7.931	-	0.894	-	-	-
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	7.931	-	0.894	-	-	-
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	7.931	-	0.894	-	-	-

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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 Cost																		
Recurring Cost																		
COMPLETE ROUND	-	-	7.931	-	-	-	2.53	325,969	0.825	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	7.931	-	-	-	-	-	0.825	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	7.931	-	-	-	-	-	0.825	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	-	-	-	-	-	-	0.071	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	-	-	-	-	-	-	0.071	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	-	-	7.931	-	-	-	-	-	0.894	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 01 / 50 **P-1 Line Item Number / Title:** 2624EA0055 / Items Less Than \$5 Million (AMMO) **Aggregated Items Title:** Various

Item Number / Title [DODIC]	ID CD	MDAP/MAIS Code	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
			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)
Various Items																				
E99101 / Special Training Ammo:			-	-	32.642	-	-	0.847	-	-	1.071	-	-	-	-	-	1.091	-	-	1.091
E99105 / Soldier Enhancement Program Ammo			-	-	0.341	-	-	0.248	-	-	0.253	-	-	-	-	-	-	-	-	-
E99222 / Foreign Weapons Training Ammunition			-	-	0.500	-	-	0.635	-	-	0.496	-	-	-	-	-	0.497	-	-	0.497
EA0600 / AMMUNITION PROGRAM SUPPORT			-	-	59.419	-	-	6.513	-	-	4.002	-	-	-	-	-	4.869	-	-	4.869
EA0960 / USAMTU FT BENNING			-	-	37.581	-	-	1.413	-	-	1.728	-	-	-	-	-	1.756	-	-	1.756
Subtotal: Various Items			-	-	130.483	-	-	9.656	-	-	7.550	-	-	-	-	-	8.213	-	-	8.213
Total			-	-	130.483	-	-	9.656	-	-	7.550	-	-	-	-	-	8.213	-	-	8.213

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

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 4370EA0575 / Ammunition Peculiar Equipment
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	342.327	13.140	10.500	-	10.044	10.044	13.351	13.751	13.951	14.049	-	431.113
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	342.327	13.140	10.500	-	10.044	10.044	13.351	13.751	13.951	14.049	-	431.113
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	342.327	13.140	10.500	-	10.044	10.044	13.351	13.751	13.951	14.049	-	431.113

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$10.044M for Overseas Contingency Operations (OCO); of which \$10.044M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Ammunition Peculiar Equipment (APE) program provides support for ammunition operations including surveillance, demilitarization (demil), maintenance, renovation, modification, packaging, and preservation per Army Regulation 700-20, Ammunition Peculiar Equipment. APE is developed, acquired, and supervised through the Single Manager for Conventional Ammunition per Department of Defense Instruction 5160.68. APE provides equipment items specifically designed, fabricated, procured, tested, and adopted for use in worldwide United States (US) military ammunition depot operations on conventional ammunition. APE maintains a central source of standard, modern, safe, efficient, reliable, and environmentally acceptable equipment for ammunition operations. This equipment is different from production line plant equipment as it disassembles ammunition items into components, sorts and removes hazardous materials to reduce human interaction and improves personnel safety. Maintenance APE is also designed to perform cleaning and renovation functions on ammunition subjected to deterioration effects (rust, corrosion, weathering, etc) during its storage life. APE supporting surveillance is key to stockpile sampling and functional testing of the items to assure readiness for combat or training. Demilitarization APE is similar to maintenance APE, but must go further in disassembly to destroy hazardous components, sort and reclaim salvageable parts or metals.

Justification:

FY 2020 funding totals include \$0.0 million for Base and \$10.044 for Overseas Contingency Operations, \$10.044 million has been realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$10.044 million will be used to procure Ammunition Peculiar Equipment to assist in the maintenance, surveillance and demilitarization missions at depots around the world. APE is required to support the Ammunition Stockpile Reliability Program, Surveillance Program, equipment for worldwide maintenance and demilitarization, prepositioned ships, and Government-Owned, Contractor-Operated plants as Government Furnished Equipment. The APE assets maintain and verify the quality of the ammunition stockpile; thereby saving the cost of purchasing new replacement ammunition. APE proficiently executes the ammunition demilitarization mission to safely perform disassembly, destruction, or removal processes with an emphasis on recycling, re-utilization and preserving demilitarization assets in a manner that supports ammunition sustainment, safety and environmental compliance.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous		P-1 Line Item Number / Title: 4370EA0575 / Ammunition Peculiar Equipment
ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		
<p>The program provides global support to the US Military Services for ammunition sustainment and demilitarization operations, including deployment, operations and support of the Ammunition Supply Point (ASP) suites. The ASP suites include APE, which will increase the efficiency of the receipt, inspection and issuance of ammunition to the warfighter. Deployment of APE to support ASP suites will increase efficiencies for ammunition sustainment operations by reducing logistics burdens and related risks. This allows for better primary mission readiness, enhanced hazardous operations safety and more efficient operating conditions requiring less ammunition retrograde/demilitarization by providing capability to preserve ammunition assets.</p> <p>The APE program supports multiple demilitarization processes across the Army's organic base; one of the most widely utilized capabilities is the APE 1236 incinerator and support equipment. The program performed a downtime and efficiency study of this equipment and began implementing initial equipment upgrades and modifications in accordance with a priority roadmap. These modifications will continue throughout and beyond FY 2019. FY 2020 dollars will be used to procure, install, integrate and test upgrades at tier 1 and 2 organic facilities. The program will also provide updated specific facility documentations including: technical drawing packages, standard operating procedures, hazard analyses and equipment maintenance responsibilities and procedures.</p>		

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 4758EA0550 / First Destination Transportation (AMMO)
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	961.693	15.221	18.456	-	18.492	18.492	20.819	24.080	22.329	20.665	-	1,101.755
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	961.693	15.221	18.456	-	18.492	18.492	20.819	24.080	22.329	20.665	-	1,101.755
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	961.693	15.221	18.456	-	18.492	18.492	20.819	24.080	22.329	20.665	-	1,101.755

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$18.492M for Overseas Contingency Operations (OCO); of which \$18.492M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Transportation funds are required to support the distribution of Army ammunition end items and components (Interim Transportation). Distribution originates from and to CONUS and OCONUS manufacturing plants/contractors, and/or assembly points, e.g., Army Ammunition Plants (AAPs), Arsenals; Defense Contract Management Centers to include Off Shore Procurement Contractors shipping under F.O.B Origin terms. Requirements are either destined for CONUS depots for acceptance into the Army Supply System, to CONUS Customers, to CONUS Arsenals, and to ports of embarkation in support of the Call Forward Program, i.e., Training, War Reserves or the Overseas Contingency Operations (OCO).

Justification:

FY 2020 funding totals include \$0.0 million for Base and \$18.492 million for Overseas Contingency Operations, \$18.492 million has been realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 request supports centrally funded distribution of Army ammunition end items and components from the point of manufacture to initial receipt in the Army supply system.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 01: Ammunition / BSA 50: Miscellaneous	P-1 Line Item Number / Title: 9615EA8500 / Closeout Liabilities
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.517	-	0.100	-	0.099	0.099	0.099	0.099	0.099	0.099	-	1.112
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.517	-	0.100	-	0.099	0.099	0.099	0.099	0.099	0.099	-	1.112
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.517	-	0.100	-	0.099	0.099	0.099	0.099	0.099	0.099	-	1.112

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$0.099M for Overseas Contingency Operations (OCO); of which \$0.099M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Funding will pay contract termination cost and operational losses/claims at ammunition plants.

Justification:

FY 2020 funding totals include \$0.0 million for Base and \$0.099 million for Overseas Contingency Operations, \$0.099 million has been realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 procurement dollars are required to pay contingent liabilities such as contract termination cost, e.g., unfunded pension liabilities, severance pay, and other claims approved by the Army Contract Review Board (ACRB).

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support	P-1 Line Item Number / Title: 0572EP1000 / Industrial Facilities
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	7,992.958	432.641	450.947	-	474.511	474.511	583.344	456.086	338.659	342.200	-	11,071.346
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	7,992.958	432.641	450.947	-	474.511	474.511	583.344	456.086	338.659	342.200	-	11,071.346
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	7,992.958	432.641	450.947	-	474.511	474.511	583.344	456.086	338.659	342.200	-	11,071.346

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$474.511M for Overseas Contingency Operations (OCO); of which \$474.511M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

This budget line provides funding for modernization efforts at Government-Owned, Contractor-Operated Army Ammunition Plants (AAPs) and commercial facilities. The AAPs were constructed during World War II; the facilities have served and supported numerous theater operations, providing the warfighter with expansive ammunition requirements. Due to their age, the facilities and infrastructure experience frequent failures, and the production lines operate with outdated technology processes and equipment. The Industrial Facilities (IF) budget line consists of three separate programs, Provision of Industrial Facilities (PIF), Layaway of Industrial Facilities (LIF) and Maintenance of Inactive Facilities (MIF). Its mission includes replacement of obsolete or worn production equipment, correction of deficiencies and upgrades to infrastructures. This line represents an enduring, exhaustive mission to modernize and equip the Army's Ammunition Plants and provide decisive advantage of the warfighter's small caliber, explosives and propellant ammunition requirements, without delay and at optimal cost. Project Director (PD) Joint Services, under Joint Program Executive Office Armaments and Ammunition, manages the Industrial Facilities budget line.

The Provision of Industrial Facilities program (PIF), SSN EP1200, establishes, augments and improves ammunition production capabilities through strategic modernization efforts, expands production capacity, maintains environmental compliance, and improves quality of work environment and safety at ammunition plants. It also addresses emergency modernization and associated construction to mitigate production disruptions at various sites.

This budget line provides funding for preservation, storage and movement of real property facilities and equipment required for anticipated future requirements at active and inactive Army ammunition installations, also known as Layaway of Industrial Facilities (LIF) activities, SSN EP2000. Funding will also support consolidation of layaway production equipment and redistribution of production equipment that cannot be stored on-site. Layaway efforts also include retaining critical operational and technical knowledge of production equipment, such as engineering designs, process data and control manufacturing practices. Layaway program also includes safety-related decontamination, disposal and demolition of production equipment and facilities, and environmental site assessments.

Procurement funds also support the Maintenance of Inactive Facilities (MIF), SSN EP1500, to include utilities, buildings, plant equipment, special tooling, and special test equipment being retained to support future production requirements. Additional efforts include support of associated MIF costs such as grounds maintenance, fire protection, equipment security, and administrative support.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

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

Line Item MDAP/MAIS Code: N/A

Project Schedule		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Project	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)
(Uncategorized)		-	432.641	449.947	-	474.511	474.511
	Maintenance of Inactive Facilities	-	1.583	6.387	0.000	6.461	6.461
P-25	Maintenance of Inactive Facilities	-	1.583	6.387	0.000	6.461	6.461
	Holston Army Ammunition Plant	-	164.542	201.774	-	268.820	268.820
P-25	Treatment Technology Alternatives to Open Burning, Design	-	-	12.000	-	-	-
P-25	Industrial Wastewater Settling & Equalization Basins	-	0.212	-	-	-	-
P-25	Castables Packaging Facility, Design	-	-	1.500	-	-	-
P-25	Landfill Expansion, Facilities & Maintenance	-	-	-	0.000	6.820	6.820
P-25	Sewer Line Replacement, Facilities and Maintenance	-	20.286	-	0.000	18.000	18.000
P-25	Aeration Basins Mod Upgrades	-	0.243	-	-	-	-
P-25	Analytical Lab	-	3.073	-	0.000	67.000	67.000
P-25	Elevator and Lift Upgrades, Facilities and Maintenance	-	3.028	-	-	-	-
P-25	A2B Modernization Improvements, Facilities and Maintenance	-	5.074	-	-	-	-
P-25	Boxway Upgrade for Spill Prevention & Containment, Design	-	-	3.000	-	-	-
P-25	Modernized Melt-Cast Facility, Construct	-	-	-	0.000	15.000	15.000
P-25	Ansol Treatment	-	-	10.000	-	-	-
P-25	Combined Wash/Filter Facility, Construct	-	-	65.000	-	-	-
P-25	RDX Wastewater Point Source Treatment, Facilities and Maintenance	-	5.130	-	0.000	20.000	20.000
P-25	Natural Gas Fired Stream Plant, Design/Construct	-	110.836	-	-	-	-
P-25	WAARP Facility Train II, Design/Construct	-	1.499	-	0.000	55.000	55.000
P-25	Acid Tank Farms, B-3, Construct	-	-	1.018	0.000	40.000	40.000
P-25	New Fluid Energy Mill (FEM) Facility	-	13.483	-	-	-	-
P-25	Activate Building G-3 for RDX/NQ Recrystallization Construction	-	-	74.756	-	-	-
P-25	Ansol Filtration, Facilities & Modernization	-	1.678	-	0.000	20.000	20.000
P-25	IMX Production Building, Design	-	-	2.500	-	-	-
P-25	Area B Third Acid Train, Design	-	-	8.000	-	-	-
P-25	New Kettle Drying Facility, Design	-	-	3.000	-	-	-
P-25	Nitration Facility, Design	-	-	6.000	-	-	-
P-25	Recrystallization Facility, Design	-	-	5.000	-	-	-
P-25	NQ Point Source Wastewater Treatment, Construct	-	-	-	0.000	20.000	20.000
P-25	Critical Spares	-	-	-	0.000	7.000	7.000
P-25	Cyber Critical Infrastructure Risk Management (CIRM) Resiliency	-	-	10.000	-	-	-
	Iowa Army Ammunition Plant	-	15.095	26.104	-	21.600	21.600
P-25	Replace Main Sewage	-	-	-	0.000	8.790	8.790

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

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

Line Item MDAP/MAIS Code: N/A

Project Schedule		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Project	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)
P-25	Critical Bridge Repair	-	0.769	-	-	-	-
P-25	Central Fire Alarm Reporting System, Facilities and Maintenance Phase 2	-	-	2.280	-	-	-
P-25	Roadway Mod Improvements (Roads A & C) Facilities and Maintenance	-	-	-	0.000	6.300	6.300
P-25	Security Automation, Facilities and Maintenance	-	-	2.300	-	-	-
P-25	Rail System Upgrades, Facilities and Maintenance	-	6.126	4.730	-	-	-
P-25	IAAAP Footprint Reduction - Melt Pour Operations Phase	-	-	6.874	-	-	-
P-25	Roof Replacement, Production Areas, Facilities and Maintenance	-	2.689	-	-	-	-
P-25	Storage Yard Magazines Mod Upgrades, Facilities and Maintenance	-	-	1.510	-	-	-
P-25	40mm X-Ray & DICONDE Implementation	-	-	2.800	-	-	-
P-25	Line 1 Compressor	-	0.608	-	-	-	-
P-25	Centralized Solid Waste Processing	-	-	5.200	-	-	-
P-25	Automate M112 Bagging Operations, Facilities and Maintenance	-	-	-	0.000	1.710	1.710
P-25	Power Factor Capacitors	-	-	0.410	-	-	-
P-25	Isostatic Press, Line 1	-	4.903	-	-	-	-
P-25	Improve 40mm Grenade & Spitback Pressing, Facilities and Maintenance	-	-	-	0.000	4.800	4.800
	Lake City Army Ammunition Plant	-	148.435	30.969	0.000	40.000	40.000
P-25	Water Supply & Water Tower Upgrades	-	2.473	-	-	-	-
P-25	Small Caliber Modernization, Production Line Upgrades	-	26.804	18.600	0.000	40.000	40.000
P-25	Bldg 45 Fire Sprinkler Lines	-	-	0.816	-	-	-
P-25	Primer Assembly Wing, Building 35, HVAC (Design)	-	2.387	-	-	-	-
P-25	B3 Roofing Upgrades, Phase 1	-	9.000	-	-	-	-
P-25	Building 1 & 2 Load Center Transformer Replacement, Design	-	0.216	-	-	-	-
P-25	Covered Walkways in Explosives Area	-	-	1.869	-	-	-
P-25	Conceptual Design, Building 15 Boiler Plant	-	-	1.775	-	-	-
P-25	Structural Upgrades, Building 8, Phase 2	-	1.123	-	-	-	-
P-25	Exterior Steam Main Supports, Ph 2	-	16.339	-	-	-	-
P-25	Bldg 19 Series Controls and Monitoring Upgrades	-	1.265	-	-	-	-
P-25	Bldg 8 Indoor Firing Range, HVAC I&C (Design)	-	-	1.083	-	-	-
P-25	Install Flame Mgmt on Gas Furnaces	-	3.127	-	-	-	-
P-25	Electrical Poles Mod Upgrades	-	-	3.760	-	-	-
P-25	Bldgs 12B, 93 Roof Replacement	-	-	1.478	-	-	-
P-25	New Water Plant, Construct	-	48.729	-	-	-	-
P-25	Hill - Neutralization Tanks (Design-Replacement)	-	12.072	-	-	-	-
P-25	Dry Chemical Conditioning System Upgrades	-	5.074	-	-	-	-

UNCLASSIFIED

Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

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

Line Item MDAP/MAIS Code: N/A

Project Schedule		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Project	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)
P-25	121 Warehouse Study	-	1.630	-	-	-	-
P-25	B50 Fire Pump Replacement	-	-	1.588	-	-	-
P-25	Mod Upgrades for 7.62mm Facility	-	18.196	-	-	-	-
	Radford Army Ammunition Plant	-	69.816	166.526	-	26.800	26.800
P-25	Construct New Nitrocellulose (NC) Facility	-	2.462	-	-	-	-
P-25	NAC/SAC Process Improvements, Facilities and Maintenance	-	-	-	0.000	9.900	9.900
P-25	Replace Chemical Grind, Design	-	4.364	-	-	-	-
P-25	Plant Operations	-	9.307	-	-	-	-
P-25	Plant-Wide Road Upgrades	-	4.022	-	-	-	-
P-25	Acid Sewer Upgrades, Ph 3	-	2.557	-	-	-	-
P-25	Electrical Distribution System Upgrades, Ph 3	-	16.186	-	-	-	-
P-25	Upgrade Water System, Fire Protection	-	-	9.474	-	-	-
P-25	Barricade Replacement, Ph 1	-	-	-	0.000	9.400	9.400
P-25	Sanitary Sewage Treatment Upgrade	-	0.556	-	-	-	-
P-25	Lightning Protection, Production Areas	-	3.656	-	-	-	-
P-25	Combined EWI-CWP Facility, Construction	-	-	114.240	-	-	-
P-25	Permanent Energy Center (Design)	-	13.488	-	-	-	-
P-25	Acid Area Improvements, Ph 3	-	7.353	-	-	-	-
P-25	Water Intake Pump Upgrade (Building 407)	-	-	20.082	-	-	-
P-25	Structural Repairs	-	-	1.080	-	-	-
P-25	Solvent Pack-Out Building (Design)	-	5.865	-	-	-	-
P-25	NC Solvent Dewatering, Design/Construct	-	-	13.150	-	-	-
P-25	Solventless/Rocket Area, Prod Operations, Facilities and Maintenance	-	-	8.500	-	-	-
P-25	Solvent Propellant Facility Sustainment, Ph 1	-	-	-	0.000	7.500	7.500
	Scranton Army Ammunition Plant	-	-	-	0.000	3.590	3.590
P-25	Infrastructure & Safety Efforts, Facilities and Maintenance	-	-	-	0.000	3.590	3.590
	Quad City Cartridge Case Facility	-	-	-	0.000	2.000	2.000
P-25	Infrastructure & Safety Efforts, Facilities and Maintenance	-	-	-	0.000	2.000	2.000
	Various Army Ammunition Plants	-	14.725	5.348	0.000	93.716	93.716
P-25	Planning & Design in Support of Provision of Industrial Facilities	-	14.725	5.348	0.000	93.716	93.716
	Yuma Proving Ground / Aberdeen Test Center	-	1.529	1.448	-	-	-
P-25	Replace Test Instrumentation in Production Acceptance Testing (Ammunition)	-	1.529	1.448	-	-	-
	Layaway Of Industrial Facilities	-	16.916	11.391	0.000	11.524	11.524
P-25	Layaway Of Industrial Facilities	-	16.916	11.391	0.000	11.524	11.524

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support	P-1 Line Item Number / Title: 0572EP1000 / Industrial Facilities
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Project Schedule		Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Project	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)	Total Cost (\$ M)
Total Gross/Weapon System Cost		-	432.641	449.947	-	474.511	474.511

*For the P-17 and P-25, the Project column displays a three-level indentation: Project Category (e.g., Environmental), followed by the Facility, followed by the Project Name. Exhibits with no Project Category are included under the "Uncategorized" category. For the P-26, the Project column displays a two-level indentation: Project Type (e.g., Inactive Plants, Inactive Lines at Contractor Plants and Inactive Lines at Active Plants), followed by the Facility. Note also that although all P-17, P-25 and P-26 projects are shown in the project schedule, not all projects will have a corresponding exhibit. A P-17 or P-25 exhibit is only included if data beyond the Project Number, Project Title and Cost are included (for example: for the P-17, Description, Manufacturer, etc.; for the P-25, Narrative Explanation, Cost Elements, Principle Milestones, etc.). A P-26 exhibit is only included if data beyond Project Type and Total Cost are included (for example, Description, Contractor, Maintenance/Recurring/Environmental/Other costs, etc.).

Justification:
FY 2020 funding totals include \$0.0M for Base and \$474.551 million for Overseas Contingency Operations which was realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 procurement dollars will support modernization projects to include modernization design and upgrades to the small caliber production lines at Lake City Army Ammunition Plant (AAP) in support of the Next Generation Squad Weapon ammunition round, modernization design of a new nitrate ester manufacturing facility at Radford AAP, and design efforts for construction of a new tank line at Iowa AAP. Funds support modernization projects to expand the annual production capacity of Research Development Explosive (RDX) at Holston AAP from approximately eight million pounds to sixteen million. Efforts include construction of a modern analytical lab, construction of a RDX wastewater point source treatment facility, and modernization and construction of the Ammonium Nitrate Solution (ANSOL) filtration facility. Funds also support infrastructure upgrades at Holston, Iowa, Lake City, Radford, and Scranton AAPs, as well as the Quad City Cartridge Case Facility and work environment projects, improvements for personnel safety and health, and efforts to maintain environmental compliance at the ammunition plants. Funds will provide engineering support of industrial facilities, pre-design efforts for future-year modernization projects.

FY 2020 funding also supports the protection and preservation of industrial facilities at active and inactive Army ammunition installations and equipment that is no longer required for current production but must be retained for future production needs. Funds support the decontamination and demolition of excess production equipment and facilities buildings at Lake City and the layaway of various load, assemble and pack production lines at Iowa and Milan AAP.

FY 2020 funding supports the care and maintenance of layaway equipment and facilities at active and inactive ammunition installations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Maintenance of Inactive Facilities **Project Number:** 5XX4073 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5): /**

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Maintenance of Inactive Facilities Facility Location: Various AAPs Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Dec 2019 / Apr 2020 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	1.583	6.387	0.000	6.461	6.461							
Total Project Cost	1.583	6.387	0.000	6.461	6.461	Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount \$6.461 million supports the care and maintenance of laid-away equipment and facilities at active and inactive ammunition installations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Treatment Technology Alternatives to Open Burning, Design **Project Number:** 5193214 **Project Category:**

End Item Supported Model: Research Develop Expl(RDX),High Melt Expl(HMX),Insensitive Mun Expl(IMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Apr 2021 Initial/Final Project Award: Aug 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	-	-	-	-		Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	12.000	-	-	-								
Total Project Cost	-	12.000	-	-	-								

Narrative Explanation:
 Procurement dollars in the amount of \$12.000 million supports the design of a thermal and non-thermal treatment facility at Holston Army Ammunition Plant (AAP). Contaminated materials including contaminated plastics, rubber and other materials are generated during the explosives manufacturing process. These materials are currently open burned at the installation. Holston AAP is required to reduce or eliminate open burning of Material Potentially Presenting an Explosive Hazard (MPPEH) in compliance with DoD Explosives Safety Board (DDESB) and Tennessee Department of Environment and Conservation (TDEC) requirements. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Industrial Wastewater Settling & Equalization Basins **Project Number:** 5183296 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	0.212	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Oct 2018 Construction Complete: Dec 2018 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	0.212	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement funds in the amount of \$0.212 million supports infrastructure improvements to the industrial wastewater settling and equalization basins at Holston Army Ammunition Plant (AAP). Effort is required to repair and modernize approximately 2,000 square yards of asphalt roadways and concrete curb supporting the industrial wastewater facilities. The roads have deteriorated with visible signs of degradation to the sub base. Effort supports operations continuity of the wastewater treatment facilities at Holston AAP.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Castables Packaging Facility, Design **Project Number:** 5193376 **Project Category:**

End Item Supported Model: Insensitive Munitions Explosives (IMX), Research Development Explosives (RDX), High Melt Explosives **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Mar 2020 Initial/Final Project Award: May 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:														
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	-	1.500	-	-	-															
Total Project Cost	-	1.500	-	-	-															
						Related Projects														
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value (\$ M)</th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date														

Narrative Explanation:
 Procurement dollars in the amount of \$1.500 million supports the design of castable packaging facility modernization upgrades at Holston Army Ammunition Plant. The existing castable packaging operations in Building N-5 are inadequate to meet production capacities. The design effort will support building assessments, management and systems engineering, civil, structural, mechanical, utilities, and infrastructure modernization improvements for expanded operations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:**
0572EP1000 / Industrial Facilities

Project Title: Landfill Expansion, Facilities & Maintenance **Project Number:** 5203579 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Mar 2020 Construction Complete: Nov 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	6.820	6.820							
Total Project Cost	-	-	0.000	6.820	6.820							
							Related Projects					
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$6.820 million supports this facilities and maintenance effort to expand existing Holston Army Ammunition Plant (AAP) landfill. The existing Class II landfill will reach capacity in 2022. This effort will create more waste disposal capacity at Holston AAP and support future production operations. The project will include an associated leachate management system which will reduce wastewater treatment operation costs. The design phase was initiated in 2017 and funded in FY 2017 and will complete October 2020.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Sewer Line Replacement, Facilities and Maintenance **Project Number:** 5183668 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX), IMX **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	20.286	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 / Apr 2020 Construction Complete: Jun 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	0.000	18.000	18.000								
Total Project Cost	20.286	-	0.000	18.000	18.000								
							Related Projects						
							Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$18.000 million supports this facilities maintenance effort to repair and replace industrial and sanitary sewer lines at Holston Army Ammunition Plant. The existing sewer system is aging and suffers significant leaks. Rain water infiltration has increased flow to the waste water treatment facility and impacted its ability to treat Research Development Explosives (RDX). This effort will ensure Holston AAP remains in compliance with Environmental Protection Agency (EPA) and other environmental regulations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Aeration Basins Mod Upgrades **Project Number:** 5183754 **Project Category:**

End Item Supported Model: Research Develop Expl(RDX),High Melt Expl(HMX),Insensitive Mun Expl(IMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	0.243	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Dec 2018 Construction Complete: Apr 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	0.243	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$0.243 million supports modernization repairs to Aeration Basins 1W and 3W at Holston Army Ammunition Plant. The supporting infrastructure of Basins 1W and 2W have experienced failures and cracks. Modernization improvements are required to ensure the Basins maintain compliance with the National Pollutant Discharge Elimination System permit. This effort supports the Industrial Waste Treatment Facility which treats process waste water from the production of RDX, HMX, and IMX. These basins primary support removal of excess ammonia and organic pollutants prior to discharge.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Analytical Lab **Project Number:** 5XX3783 **Project Category:**

End Item Supported Model: Research Develop Expl(RDX),High Melt Expl(HMX),Insensitive Mun Expl(IMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	0.000	67.000	67.000	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Jul 2019 Initial/Final Project Award: Mar 2018 / Mar 2020 Construction Complete: Feb 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	3.073	-	-	-	-							
Total Project Cost	3.073	-	0.000	67.000	67.000	Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$67.000 million supports the construction of an analytical lab at Holston Army Ammunition Plant (AAP). The facility would replace the current lab facility at Holston AAP as well as provide expanded laboratory capabilities. The analytical lab will be used for acceptance testing of all explosives produced at the facility. The laboratory will be constructed to allow larger load limits within the lab facilities which will improve the throughput. This effort supports the modernization initiative to expand annual production capacity of Research Development Explosives (RDX) at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Elevator and Lift Upgrades, Facilities and Maintenance **Project Number:** 5183785 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 Construction Complete: Mar 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	3.028	-	-	-	-								
Total Project Cost	3.028	-	-	-	-	Related Projects							
							Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$3.028 million supports this facilities and maintenance effort to repair and the installation of lift and elevator equipment at Holston Army Ammunition Plant. The lifts and elevators carry explosives and other chemicals from ground floors to loading docks or second and third floors for production operations, including Comp-C4, CSM-AF-7 and High Bulk Density nitroguanidine (NQ). The existing elevator system has not been upgraded in several decades. The system experiences numerous failures and leaks. Routine maintenance is no longer feasible. This project will bring the building elevator systems in plant wide production buildings to modern safety standards, and significantly reduce risk of downtime of explosive operations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: A2B Modernization Improvements, Facilities and Maintenance **Project Number:** 5183964 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Dec 2018 Construction Complete: Aug 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	5.074	-	-	-	-							
Total Project Cost	5.074	-	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$5.074 million supports this facilities and maintenance effort modernizes and improves the Acid Area Consolidation effort (A2B) at Holston Army Ammunition Plant (AAP). The A2B initiative relocated acid production operations in Area A and consolidated them in Area B at Holston AAP. Effort includes improvements to the AZEO columns, main condensers, base heaters, flash column condensers, column trays, and interchangers.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Boxway Upgrade for Spill Prevention & Containment, Design **Project Number:** 5193970 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX), IMX **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO	
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Sep 2020 Initial/Final Project Award: May 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	
B. Equipment Cost	-	-	-	-	-		
C. Equipment Installation Cost	-	-	-	-	-		
D. Contractor Support Cost	-	-	-	-	-		
E. Corps of Engineers Support Cost	-	-	-	-	-		
F. Other In-House Support Cost	-	-	-	-	-		
G. Total Facility Project Cost	-	-	-	-	-		
H. Other Costs	-	3.000	-	-	-		
Total Project Cost	-	3.000	-	-	-		
Related Projects							
	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$3.000 million support design of modernization upgrades and repairs to the boxway network at Holston Army Ammunition Plant. The transfer of materials between the buildings are conducted through a series of pipelines. The pipelines are typically found within a boxway that has steam present to prevent freezing in the winter months. The pipes are antiquated and have experienced numerous failures or leaks. The existing chemical pipeline boxway at Holston AAP will not be designed to provide containment. This effort will design an upgraded boxway network to provide for spill containment and storm water exclusion.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10		P-1 Line Item Number / Title: 0572EP1000 / Industrial Facilities
Project Title: Modernized Melt-Cast Facility, Construct		Project Number: 5205055 Project Category:
End Item Supported Model: Insensitive Munitions (IM) Explosives, TNT, Research Development Explosives (RDX)		Annual Capacity Before / After (1-8-5): /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	0.000	15.000	15.000	Principal Milestones						Month & Year	
B. Equipment Cost	-	-	-	-	-	Concept Design Complete:							
C. Equipment Installation Cost	-	-	-	-	-	Final Design Complete:							
D. Contractor Support Cost	-	-	-	-	-	Initial/Final Project Award:						Apr 2020	
E. Corps of Engineers Support Cost	-	-	-	-	-	Construction Complete:						Oct 2022	
F. Other In-House Support Cost	-	-	-	-	-	Equipment Installation Complete:							
G. Total Facility Project Cost	-	-	-	-	-	Prove Out Begins:							
H. Other Costs	-	-	-	-	-	Prove Out Complete:							
Total Project Cost	-	-	0.000	15.000	15.000	Related Projects							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date	

Narrative Explanation:

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$15.000 million supports construction of a melt-cast facility at Holston Army Ammunition Plant (AAP). Holston AAP is currently implementing an Insensitive Munitions Explosives (IMX) modernization strategy to achieve an annual IMX capacity of eight million pounds. The expanded production capacity will require additional, modernized casting capacity. The existing facility, Building M-4, cannot meet the future production requirements; additionally it lacks precise temperature control and uniform agitation necessary to attain insensitive properties and consistent quality that IMX class of products require. Holston AAP is the only qualified source of IMX melt-cast explosives in the National Technology and Industrial Base. This is a new start.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Ansol Treatment **Project Number:** 5185096 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Sep 2020 Initial/Final Project Award: Jun 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	10.000	-	-	-							
Total Project Cost	-	10.000	-	-	-							

Narrative Explanation:
 Procurement dollars in the amount of \$10.000 million supports design of an Ammonium Nitrate Solution (ANSOL) treatment facility at Holston Army Ammunition Plant (AAP). In the past, ANSOL has been transferred as a low-cost feed stock into the ammonium nitrate/fuel oil (ANFO) explosives industry (mining, quarry, civil usages). Existing users of ANFO are not utilizing this material at this time due to composition fluctuations and odor issues. Failure to treat ANSOL will result shutdown of explosives production operations at Holston AAP. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Combined Wash/Filter Facility, Construct **Project Number:** 5195097 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	65.000	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jun 2019 Construction Complete: Nov 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	65.000	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$65.000 million supports construction of a combined Wash and Filtration facility at Holston Army Ammunition Plant. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds. The existing Wash/Filtration capabilities at building E-6 cannot support future RDX production requirements. The new facility will be designed to support a minimum annual production of nine million pounds of washed crude RDX or 2.3 million pounds of High Melt Explosives (HMX).

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: RDX Wastewater Point Source Treatment, Facilities and Maintenance **Project Number:** 5XX5098 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Mar 2020 Initial/Final Project Award: Nov 2017 / Apr 2020 Construction Complete: Mar 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	5.130	-	0.000	20.000	20.000	Related Projects						
Total Project Cost	5.130	-	0.000	20.000	20.000							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$20.000 million supports this facilities and maintenance project which expands and modernizes the Research Development Explosives (RDX) Wastewater Point Source Treatment facility at Holston Army Ammunition Plant. The Industrial Waste Water Treatment Facility (IWWTF) treats process wastewater from the production of nitramine-based explosive compounds, acetic acid and acetic anhydride, nitric acid production, and insensitive munitions production. Additional treatment capacities are required to support the modernization initiative to expand annual RDX production capacity from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Natural Gas Fired Stream Plant, Design/Construct **Project Number:** 5185099 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	101.259	-	-	-	-	Principal Milestones Concept Design Complete: Final Design Complete: Initial/Final Project Award: Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Month & Year Mar 2020 Nov 2017 / Feb 2019 Sep 2021					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	9.577	-	-	-	-							
Total Project Cost	110.836	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$110.836 million supports expansion of the Natural Gas fired Stream Plant at Holston Army Ammunition Plant (AAP). Additional capacities are required to support the modernization initiative to expand annual RDX production capacity from eight million pounds to sixteen million pounds. This project will allow Holston AAP to maintain compliance with federal and state regulatory requirements, including the Prevention of Significant Deterioration (PSD) mandate and utilize Best Available Control Technologies (BACT).

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: WAARP Facility Train II, Design/Construct **Project Number:** 5XX5100 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	1.499	-	0.000	55.000	55.000	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: May 2019 Initial/Final Project Award: Jul 2018 / Mar 2020 Construction Complete: May 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	1.499	-	0.000	55.000	55.000							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$55.000 million supports the construction of a second modernized facility to recover weak acetic acid for RDX/HMX production at Holston Army Ammunition Plant. The existing weak acetic acid recovery (WAARP) facility, Building B-4, cannot meet RDX production requirements. Additional capacities are required to support the modernization initiative to expand annual RDX production capacity from eight million pounds to sixteen million pounds. The new right-sized facility addresses the increase in volume of dilute acetic acid, a byproduct of manufacturing explosives, as well as the requirement for denitrification and solids separation concentration, the byproduct of acetic anhydride manufacturing.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Acid Tank Farms, B-3, Construct **Project Number:** 5XX5101 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5): /**

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO					
A. Construction Cost	-	-	0.000	40.000	40.000	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 / Mar 2020 Construction Complete: Mar 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:					
B. Equipment Cost	-	-	-	-	-						
C. Equipment Installation Cost	-	-	-	-	-						
D. Contractor Support Cost	-	-	-	-	-						
E. Corps of Engineers Support Cost	-	-	-	-	-						
F. Other In-House Support Cost	-	-	-	-	-						
G. Total Facility Project Cost	-	-	-	-	-						
H. Other Costs	-	1.018	-	-	-						
Total Project Cost	-	1.018	0.000	40.000	40.000						
Related Projects											
	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date				

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$40.000 million supports construction of the modernized B-Acids tank farm at Holston Army Ammunition Plant. The current tank farm was installed in the 1970s. Tank contents include nitric acid and Ammonium Nitrate Solution (ANSol) and waste acid from explosives manufacturing. The storage capability is critical to maintaining explosives operations. This project will expand and replace the aging chemical storage tanks, transfer equipment and containment dike at the B-3 tank farm. This is a continuation of Project 5195102 funded in FY 2019 and is not a new start.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: New Fluid Energy Mill (FEM) Facility **Project Number:** 5185103 **Project Category:**

End Item Supported Model: Research Develop Expl(RDX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	13.483	-	-	-	-	Principal Milestones Concept Design Complete: May 2021 Final Design Complete: Initial/Final Project Award: Aug 2018 Construction Complete: Feb 2021 Equipment Installation Complete: Feb 2021 Prove Out Begins: Mar 2021 Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	13.483	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$13.483 million supports the construction of a second FEM Facility dedicated to RDX at Holston Army Ammunition Plant. Currently, only one facility (Building N-3) can produce RDX FEM material, and its capacity is inadequate to support future demand. Future production requirements for CXM-AF-7 necessitate a significant increase in FEM production. FEM throughput is one of the main chokepoints in producing this product. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Activate Building G-3 for RDX/NQ Recrystallization Construction **Project Number:** 5185104 **Project Category:**

End Item Supported Model: Research Develop Expl(RDX), Insensitive Mun Expl(IMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	74.756	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Dec 2018 Construction Complete: Oct 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	74.756	-	-	-							
												Project
						Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$74.756 million supports this construction project to reactivate and modernize Building G-3 at Holston Army Ammunition Plant (AAP) to perform RDX/NQ Recrystallization and RDX formulation. This project will increase Holston AAP's capacity to produce RDX as well as continue to produce High Bulk Density Nitroguanidine (NQ) from the current industrial stock of NQ. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Ansol Filtration, Facilities & Modernization **Project Number:** 5XX5106 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Sep 2019 Initial/Final Project Award: Oct 2018 / Mar 2020 Construction Complete: Sep 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	1.678	-	0.000	20.000	20.000	Related Projects						
Total Project Cost	1.678	-	0.000	20.000	20.000							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$20.000 million supports this facilities and maintenance effort to improve filtration processes of Ammonium Nitrate Solution (ANSol) at Holston Army Ammunition Plant (AAP). Effort will remove as much solids and explosive material as possible from the ANSol by-product at the Holston AAP. The ANSol Filtration System will mitigate and eliminate the current use of deep well injection for disposal of the ANSol by-product. This effort supports the modernization initiative to expand annual production capacity of Research Development Explosives (RDX) at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: IMX Production Building, Design **Project Number:** 5195107 **Project Category:**

End Item Supported Model: Insensitive Mun Expl(IMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO					
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Jul 2020 Initial/Final Project Award: Apr 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:					
B. Equipment Cost	-	-	-	-	-						
C. Equipment Installation Cost	-	-	-	-	-						
D. Contractor Support Cost	-	-	-	-	-						
E. Corps of Engineers Support Cost	-	-	-	-	-						
F. Other In-House Support Cost	-	-	-	-	-						
G. Total Facility Project Cost	-	-	-	-	-						
H. Other Costs	-	2.500	-	-	-						
Total Project Cost	-	2.500	-	-	-						
Related Projects											
	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date				

Narrative Explanation:
 Procurement dollars in the amount of \$2.500 million supports modernization design of a second Insensitive Munitions Explosives (IMX) Production Building at Holston Army Ammunition Plant. This production building will produce the additional required Dinitroanisole and Nitrotriazalone IMX base explosives to meet the projected requirements for IMX explosives. This project supports the modernization initiative to increase annual IMX production capacity to eight million pounds. The effort will design a second IMX production facility that will leverage the design and lessons learned of the first IMX production building G-8. The second facility will be located within Area B.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Area B Third Acid Train, Design **Project Number:** 5195110 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Nov 2020 Initial/Final Project Award: May 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	8.000	-	-	-							
Total Project Cost	-	8.000	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$8.000 million supports design of a third acid train facility at Holston Army Ammunition Plant (AAP). This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds. Holston AAP requires expansion of the Acetic Acid and Acetic Anhydride production capacity which is utilized in the nitration of hexamine to crude for RDX and HMX. This modernization project will design a third acetic acid and replicated acetic anhydride train facility at Holston. This modernization effort will eliminate reliance on the Area A process operations and improve safety as well as process reliability.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: New Kettle Drying Facility, Design **Project Number:** 5195116 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Jun 2020 Initial/Final Project Award: Mar 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	-	-	-	-		Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	3.000	-	-	-								
Total Project Cost	-	3.000	-	-	-								

Narrative Explanation:
 Procurement dollars in the amount of \$3.000 supports design of a new kettle drying facility at Holston Army Ammunition Plant. The existing drying facilities utilize 1940s processes and operate with degraded equipment, which have exceeded their useful life and created contamination risks in explosives products. This project will design a fourth kettle drying facility at Building L-7 which will allow for higher drying capacity and permit shutdown and modernization of existing, antiquated drying facilities. The new kettle drying facility is critical in the production of CXM-7 which is a premix for PBXN-107, bomb fill, as well as other explosive products.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Nitration Facility, Design **Project Number:** 5195151 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX), High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Dec 2020 Initial/Final Project Award: Jun 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	6.000	-	-	-							
Total Project Cost	-	6.000	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$6.000 million supports design of a nitration facility at Holston Army Ammunition Plant. The existing batch nitration facility, Building D-5, cannot support future production requirements of RDX and HMX. The effort will produce a design, to include all relevant system engineering documentation, support infrastructure, and utility tie-ins of a new modernized nitration facility. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Recrystallization Facility, Design **Project Number:** 5195152 **Project Category:**

End Item Supported Model: Research Development Explosives (RDX) and High Melt Explosives (HMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO																			
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Dec 2020 Initial/Final Project Award: Jun 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 40%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value (\$ M)</th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>					Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date							Compl Date													
B. Equipment Cost	-	-	-	-	-																				
C. Equipment Installation Cost	-	-	-	-	-																				
D. Contractor Support Cost	-	-	-	-	-																				
E. Corps of Engineers Support Cost	-	-	-	-	-																				
F. Other In-House Support Cost	-	-	-	-	-																				
G. Total Facility Project Cost	-	-	-	-	-																				
H. Other Costs	-	5.000	-	-	-																				
Total Project Cost	-	5.000	-	-	-																				

Narrative Explanation:
 Procurement dollars in the amount of \$5.000 million supports design of a recrystallization facility at Holston Army Ammunition Plant. The process for recrystallization of RDX involves receipt of crude RDX in weigh tanks at the G-Building area where it is subsequently pumped into a dissolver. The solvent is introduced with the slurry and the resulting solution is heated. When the explosives are dissolved, the solution is dropped into a still, where distillation of the solvent results in a controlled recrystallization and particle size distribution. The addition of a G-building would support future RDX production requirements. This modernization effort will design a new facility that will support increased capacity for RDX and HMX recrystallization, increased capacity for dewatering, and ability to recrystallize Ammonium Nitrate Solution (ANSol) final Sludge solids (RES) to support RDX and HMX operations. This effort supports the modernization initiative to expand annual production capacity of RDX at Holston AAP from eight million pounds to sixteen million pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: NQ Point Source Wastewater Treatment, Construct **Project Number:** 5205153 **Project Category:**

End Item Supported Model: IMX-101 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO				
A. Construction Cost	-	-	0.000	20.000	20.000	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: May 2020 Construction Complete: May 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:				
B. Equipment Cost	-	-	-	-	-					
C. Equipment Installation Cost	-	-	-	-	-					
D. Contractor Support Cost	-	-	-	-	-					
E. Corps of Engineers Support Cost	-	-	-	-	-					
F. Other In-House Support Cost	-	-	-	-	-					
G. Total Facility Project Cost	-	-	-	-	-					
H. Other Costs	-	-	-	-	-					
Total Project Cost	-	-	0.000	20.000	20.000					
Related Projects										
	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date			

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$20.000 million supports the construction of a nitroguanidine (NQ) Point Source Wastewater Treatment facility at Holston Army Ammunition Plant (AAP). The existing Industrial Waste Water Treatment Facility (IWWTF) has insufficient capacity to support future production requirements of insensitive munition explosives (IMX.) NQ is a production intermediate of IMX. This effort will construct a point source treatment facility to complement the existing industrial waste water treatment facility processes. This effort will provide an effective and efficient treatment solution for the NQ waste stream. Effort will maintain environmental compliance and support the Holston AAP modernization initiative to increase annual IMX production capacity from three million pounds to eight million pounds. This is a new start.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Critical Spares **Project Number:** 5205154 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant						
						Facility Location: Kingsport, Tennessee						
A. Construction Cost	-	-	-	-	-	Facility Type (GOGO, GOCO, COCO): GOCO						
B. Equipment Cost	-	-	0.000	7.000	7.000	Principal Milestones			Month & Year			
C. Equipment Installation Cost	-	-	-	-	-	Concept Design Complete:						
D. Contractor Support Cost	-	-	-	-	-	Final Design Complete:						
E. Corps of Engineers Support Cost	-	-	-	-	-	Initial/Final Project Award:			Dec 2019			
F. Other In-House Support Cost	-	-	-	-	-	Construction Complete:						
G. Total Facility Project Cost	-	-	-	-	-	Equipment Installation Complete:			Jun 2021			
H. Other Costs	-	-	-	-	-	Prove Out Begins:						
Total Project Cost	-	-	0.000	7.000	7.000	Prove Out Complete:						
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$7.000 million supports facilities and maintenance and procures critical spares for explosive production operations at Holston Army Ammunition Plant. This project will include procurement of long lead equipment spares to prevent long-term production interruptions and will decrease production downtime and provide reliable backup supply for the aging components and parts across the plant to ensure production continuity.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Cyber Critical Infrastructure Risk Management (CIRM) Resiliency **Project Number:** 5195169 **Project Category:**

End Item Supported Model: Research Develop Expl(RDX),High Melt Exp(HMX),Insensitive Mun Exp(IMX) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Holston Army Ammunition Plant Facility Location: Kingsport, Tennessee Facility Type (GOGO, GOCO, COCO): GOCO				
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jun 2019 Construction Complete: Jun 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:				
B. Equipment Cost	-	-	-	-	-					
C. Equipment Installation Cost	-	-	-	-	-					
D. Contractor Support Cost	-	-	-	-	-					
E. Corps of Engineers Support Cost	-	-	-	-	-					
F. Other In-House Support Cost	-	-	-	-	-					
G. Total Facility Project Cost	-	-	-	-	-					
H. Other Costs	-	10.000	-	-	-					
Total Project Cost	-	10.000	-	-	-					
Related Projects										
	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date			

Narrative Explanation:
 Procurement dollars in the amount of \$10.000 million supports modernization upgrades to support Cyber Critical Infrastructure Risk Management (CIRM) Resiliency at Holston Army Ammunition Plant. Modernization effort will replace and upgrade existing industrial operations information technology and operational technology systems to ensure a cyber-secure environment. These systems include industrial control systems, Supervisory Control and Data Acquisition (SCADA) systems, distributed control systems, Programmable Logic Controllers (PLC), as well as standard IT systems.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Replace Main Sewage **Project Number:** 5193410 **Project Category:**

End Item Supported Model: Artillery, Mortars, Demolitions, Tank, 40mm Ammo and Missiles **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	0.000	8.790	8.790	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2020 Construction Complete: Aug 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	-	0.000	8.790	8.790							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$8.790 million supports replacement of the main sewage treatment system at Iowa Army Ammunition Plant. The existing treatment facility was constructed in the 1940s and has exceeded its useful life. This effort will ensure the Plant's treatment facility achieves state and federal environmental compliance. This effort will construct a right-sized treatment facility and integrate state-of-the-art technology to improve energy efficiency and reduce operational costs. This is a new start.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Critical Bridge Repair **Project Number:** 5183536 **Project Category:**

End Item Supported Model: Artillery, Mortars, Demolitions, Tank, 40mm Ammo and Missiles **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO																			
A. Construction Cost	0.769	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 Construction Complete: Mar 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects																		
B. Equipment Cost	-	-	-	-	-																				
C. Equipment Installation Cost	-	-	-	-	-																				
D. Contractor Support Cost	-	-	-	-	-																				
E. Corps of Engineers Support Cost	-	-	-	-	-																				
F. Other In-House Support Cost	-	-	-	-	-																				
G. Total Facility Project Cost	-	-	-	-	-																				
H. Other Costs	-	-	-	-	-																				
Total Project Cost	0.769	-	-	-	-																				
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value <i>(\$ M)</i></th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date																			

Narrative Explanation:
 Procurement dollars in the amount of \$0.769 million supports replacement of bridge H-11 at Iowa Army Ammunition Plant. Bridge H-11 provides access to yard E which is the primary yard in support of production. The bridge was installed in 1945 and experiences significant defects, including rust and corrosion on railings, an unsupported post base, corroded and delaminated bearing plates. The new bridge shall comply with American Association of State Highway and Transportation Officials (ASSHTO) and Iowa Department of Transportation standards.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Central Fire Alarm Reporting System, Facilities and Maintenance Phase 2 **Project Number:** 5193692 **Project Category:**

End Item Supported Model: Artillery, Mortars, C4 Extrusion, 40mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 Construction Complete: Equipment Installation Complete: Nov 2020 Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	1.750	-	-	-		Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	0.530	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	-	2.280	-	-	-								

Narrative Explanation:
 Procurement dollars in the amount of \$2.280 million supports second phase of this facilities and maintenance effort to modernize the central fire alarm reporting system at Iowa Army Ammunition Plant (AAP). Effort will procure and install equipment for alerting personnel of a fire event or faulty conditions in thirty buildings. Project will ensure Iowa AAP maintains compliance with applicable fire alarm and reporting system regulations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Roadway Mod Improvements (Roads A & C) Facilities and Maintenance **Project Number:** 5203745 **Project Category:**

End Item Supported Model: 40mm, Artillery, Mortar, Tank **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Mar 2020 Construction Complete: Dec 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	6.300	6.300							
Total Project Cost	-	-	0.000	6.300	6.300	Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO to Base Requirements procurement dollars in the amount of \$6.300 million supports facilities and maintenance efforts to Roads A & C at Iowa Army Ammunition Plant (AAP). These roads have deteriorated to a condition in which routine maintenance is no longer economically feasible. Effort will rehabilitate approximately 5 miles of roadways. The rehabilitation of these roads will ensure safe travel of explosive laden trucks and maintain continuity of 40mm, artillery and mortar load, assemble and pack (LAP) operations at Iowa AAP.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Security Automation, Facilities and Maintenance **Project Number:** 5193788 **Project Category:**

End Item Supported Model: Artillery, Mortars, Demolitions, Tank, 40mm Ammo and Missiles **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jun 2019 Construction Complete: Jun 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	2.300	-	-	-								
Total Project Cost	-	2.300	-	-	-								
Related Projects							Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.300 million supports installation of a new automated security system at Iowa Army Ammunition Plant. The existing security program relies on stationary guard support for production line gates and roving security patrols. The modernized automated system will include security cameras, proximity badge scanners, remote monitoring, and automatic gates. This facilities and maintenance effort will reduce the number of security personnel, reduce overhead costs, increase security capability, and improve safety management program.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Rail System Upgrades, Facilities and Maintenance **Project Number:** 5XX3794 **Project Category:**

End Item Supported Model: 40mm, Artillery, Mortars **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 / May 2019 Construction Complete: Nov 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:														
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	6.126	4.730	-	-	-															
Total Project Cost	6.126	4.730	-	-	-															
						Related Projects														
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value <i>(\$ M)</i></th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date														

Narrative Explanation:
 Procurement dollars in the amount of \$4.730 million supports additional upgrades to rail tracks in storage yards on the eastern portion of Iowa Army Ammunition Plant. A 2014 rail inspection identified several critical deficiencies and deterioration of trackage and culverts. This facilities and maintenance effort will assure continued viability of the installation rail system for the transport of raw production materials and finished production. Rail systems supports 40mm, as well as 60mm, 81mm, and 120mm mortars production.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: IAAAP Footprint Reduction - Melt Pour Operations Phase **Project Number:** 5195030 **Project Category:**

End Item Supported Model: Mortars, Artillery **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO																			
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Oct 2020 Initial/Final Project Award: Apr 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value <i>(\$ M)</i></th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>					Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date							Compl Date													
B. Equipment Cost	-	-	-	-	-																				
C. Equipment Installation Cost	-	-	-	-	-																				
D. Contractor Support Cost	-	-	-	-	-																				
E. Corps of Engineers Support Cost	-	-	-	-	-																				
F. Other In-House Support Cost	-	-	-	-	-																				
G. Total Facility Project Cost	-	-	-	-	-																				
H. Other Costs	-	6.874	-	-	-																				
Total Project Cost	-	6.874	-	-	-																				

Narrative Explanation:
 Procurement dollars in the amount of \$6.874 million supports Phase I design for footprint reduction at Iowa Army Ammunition Plant. The existing artillery and mortar melt pour process line was built during the 1940s. The design included high rate, labor intensive production with minimal process controls. The facility contains aging equipment and infrastructure and cannot meet production capacity requirements for load operations of insensitive munitions. Phase I will evaluate the transfer of Line 3A to the east side of the plant. Effort will develop ninety percent design plans for the construction of a Melt Pour facility to achieve efficient manufacturing operations, reduce maintenance costs and consolidate production areas to a central location on the Plant.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10	P-1 Line Item Number / Title: 0572EP1000 / Industrial Facilities
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Project Title: Roof Replacement, Production Areas, Facilities and Maintenance	Project Number: 5XX5036	Project Category:
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End Item Supported Model: M112 C4, 40mm, Hellfire warheads	Annual Capacity Before / After (1-8-5): /
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Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 Construction Complete: Sep 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	2.689	-	-	-	-	Related Projects						
Total Project Cost	2.689	-	-	-	-							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.689 million supports roof replacement in various production areas, including Lines 1, 2, 3A, and 4A at Iowa Army Ammunition Plant. Existing roofs have exceeded their life expectancy; if these roofs fail, production equipment and stored materials would be compromised resulting in interruption of operations. This facilities and maintenance effort will improve safety and work environment within the production areas.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Storage Yard Magazines Mod Upgrades, Facilities and Maintenance **Project Number:** 5195034 **Project Category:**

End Item Supported Model: Artillery, Mortars, C4 Extrusion, Tank Ammunition, 40mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jun 2019 Construction Complete: Jun 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	1.510	-	-	-							
Total Project Cost	-	1.510	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$1.510 million supports modernization upgrades to the storage yard magazines at Iowa Army Ammunition Plant. The existing magazines were constructed in the 1940s. The magazines are deteriorating and routine maintenance is no longer economically viable. This facilities and maintenance effort will rehabilitate storage magazines, extend the useful life and improve access to rail and trailers.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: 40mm X-Ray & DICONDE Implementation **Project Number:** 5195093 **Project Category:**

End Item Supported Model: 40mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jun 2019 / Dec 2020 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	2.800	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	2.800	-	-	-							
						Project						
						Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.800 million supports implementation of Digital Imaging and Communications in Nondestructive Evaluation (DICONDE) X-ray system at Iowa Army Ammunition Plant (AAP). This equipment replacement effort will install modern technology to improve x-raying of 40mm cartridge cases and primer mixes throughout the load, assemble, and pack (LAP) operations at Iowa AAP. This effort will reduce production costs and improve quality and round reliability.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Line 1 Compressor **Project Number:** 5185118 **Project Category:**

End Item Supported Model: C4, 40mm, Hellfire **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	0.608	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Aug 2018 Construction Complete: Aug 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	0.608	-	-	-	-								
							Related Projects						
							Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$0.608 million supports installation of an air compressor on Line 1 at Iowa Army Ammunition Plant. There is no reliable backup sources for air on Line 1 due to age and parts obsolescence. The current system includes two air compressors, though neither is capable of handling additional load in the event of a failure. This project will also mitigate risk of moisture or oil in the compressed air system.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Centralized Solid Waste Processing **Project Number:** 5195119 **Project Category:**

End Item Supported Model: Artillery, Mortars, Demolitions, Tank, 40mm Ammo and Missiles **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	5.200	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 / Oct 2020 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	5.200	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$5.200 million supports modernization of the centralized solid waste processing operations at Iowa Army Ammunition Plant (AAP). The Iowa AAP existing recycling and disposal operations are spread across several areas of the Plant. Due to aging and deteriorated conditions, the Plant has received several environmental violations in the last three years. The new, modernized processing center will increase waste diversion rates, reduce operations costs and eliminate risk of environmental violations from existing facilities.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Automate M112 Bagging Operations, Facilities and Maintenance **Project Number:** 5195122 **Project Category:**

End Item Supported Model: M112 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Mar 2020 Construction Complete: Dec 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	1.710	1.710							
Total Project Cost	-	-	0.000	1.710	1.710							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$1.710 million supports development and installation of automated bagging operations of M112 at Iowa Army Ammunition Plant. Effort will install an alternate bag for M112 demolition block production and install automated equipment for packaging the C4 pellet into the new bag. The existing process is labor intensive and lengthy. The new process will eliminate rejects and reduce packaging costs.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Power Factor Capacitors **Project Number:** 5195123 **Project Category:**

End Item Supported Model: Artillery, Mortars, C4 Extrusion, Tank Ammunition, 40mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: May 2019 Construction Complete: May 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects													
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	-	0.410	-	-	-															
Total Project Cost	-	0.410	-	-	-															
													<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value (\$ M)</th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date														

Narrative Explanation:
 Procurement dollars in the amount of \$0.410 million supports installation of power factor capacitors at Iowa Army Ammunition Plant. Effort will install a power factor bank and capacitors at various locations throughout the plant to reduce electrical demand and extend the equipment useful life. Effort will reduce production overhead costs.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Isostatic Press, Line 1 **Project Number:** 5185301 **Project Category:**

End Item Supported Model: Artillery, Tank and 40mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	3.139	-	-	-	-	Principal Milestones Concept Design Complete: Jan 2020 Final Design Complete: Initial/Final Project Award: Sep 2018 / Sep 2018 Construction Complete: Dec 2019 Equipment Installation Complete: Dec 2019 Prove Out Begins: Jan 2020 Prove Out Complete:						
B. Equipment Cost	1.764	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	4.903	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$4.903 million supports modernization effort to install an isostatic press on Line 1 at Iowa Army Ammunition Plant. Pressed high explosive projectiles require a modernized process to ensure explosive density near theoretical maximum density. The isostatic pressed billet in a projectile body achieves these performance requirements and avoids density gradients. This project will design, procure, install, and prove-out a modernized production isostatic press facility.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Improve 40mm Grenade & Spitback Pressing, Facilities and Maintenance **Project Number:** 5205304 **Project Category:**

End Item Supported Model: 40mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Iowa Army Ammunition Plant Facility Location: Middletown, Iowa Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Nov 2019 Construction Complete: Nov 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	4.800	4.800							
Total Project Cost	-	-	0.000	4.800	4.800	Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$4.800 million supports modernization improvements and relocation of pressing operations at Iowa Army Ammunition Plant. During a recent safety site plan review, the existing facilities that house the spitback pressing process lack sufficient production load limit requirements. This facilities and maintenance effort will acquire and install new production presses, increase efficiencies and improve safety.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Water Supply & Water Tower Upgrades **Project Number:** 5183018 **Project Category:**

End Item Supported Model: .50 Cal (all types except SLAP-T), 5.56mm, 7.62mm (all types) **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	2.473	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jan 2018 / Aug 2018 Construction Complete: Jul 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	2.473	-	-	-	-								
Related Projects							Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.473 million supports water supply and water tower modernization upgrades at Lake City Army Ammunition Plant. The water towers are used as a backup water supply for fire protection and support production processes. The existing towers were constructed in 1941; the exterior coating has deteriorated and requires media blasting and replacement. Aged water towers have failed recently resulting in a five day production stoppage. This project will repair and upgrade the water towers, including addressing interior and exterior coatings as well as the piping systems and valves. The new coating system will be compliant with National Fire Protection Association (NFPA) code.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Small Caliber Modernization, Production Line Upgrades **Project Number:** 5XX3356 **Project Category:**

End Item Supported Model: .50 Cal (all types except SLAP-T), 5.56mm, 7.62mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	18.626	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Dec 2021 Initial/Final Project Award: Dec 2017 / May 2020 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	3.600	0.000	6.001	6.001							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	8.178	15.000	0.000	33.999	33.999							
Total Project Cost	26.804	18.600	0.000	40.000	40.000	Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$40.000 million supports modernization improvements in small caliber ammunition manufacturing at Lake City Army Ammunition Plant (AAP). Project includes sixty-five percent design efforts to support the Next Generation Squad Weapon (NGSW) Ammunition production facility at Lake City AAP. Joint Program Executive Office (JPEO) Armaments and Ammunition is the agency lead for the development of a new squad weapon ammunition round to increase soldier lethality. Lake City AAP was identified as the production site for the NGSW round due to its existing ammunition production support infrastructure and its ability to retain highly qualified, expert small caliber ammunition manufacturing personnel. The project also establishes a Prototype Energetic Center (PEC) at Lake City AAP to conduct manufacturing studies and testing to strengthen the new ammunition round effectiveness. The project objective is to meet full rate production of the NSGW round by FY 2025.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Bldg 45 Fire Sprinkler Lines **Project Number:** 5193432 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	0.816	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 Construction Complete: May 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	0.816	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$0.816 million supports modernization upgrades to fire sprinkler lines for Building 45 at Lake City Army Ammunition Plant. Building 45 supports outdoor range testing of small caliber ammunition. The existing fire suppression system lacks an adequate main water supply line. This project will ensure Building 45 maintains National Fire Protection Association fire protection codes for water pressure and volume and prevents production interruptions.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Primer Assembly Wing, Building 35, HVAC (Design) **Project Number:** 5183459 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	2.387	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Sep 2019 Initial/Final Project Award: Sep 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	2.387	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.387 million supports design of modernization upgrades to the heating, ventilation and air conditioning (HVAC) throughout the primer assembly wing in Building 35 at Lake City Army Ammunition Plant. The existing HVAC system was installed in the early 1970s and operates with antiquated pneumatic controls and compressors utilized phased-out refrigerant. The system lacks proper filtration and it has far exceeded its life expectancy. Proper temperature and conditioned air is important in producing consistent, high quality primers for 5.56mm, 7.62mm, and .50 cal, as well and helping to maintain employee health and alertness while handling explosives. This effort will include design of modular air handler with filtration, reheat, humidification, and monitoring and alarming tie-ins to the plantwide Metasys Building Management Systems.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: B3 Roofing Upgrades, Phase 1 **Project Number:** 5183463 **Project Category:**

End Item Supported Model: 7.62mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	8.020	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Jan 2019 Initial/Final Project Award: Sep 2018 / Apr 2019 Construction Complete: Dec 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	0.663	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	0.317	-	-	-	-							
Total Project Cost	9.000	-	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$9.000 million supports the replacement and upgrade of Building 3 roofing at Lake City Army Ammunition Plant (AAP). Building 3 supports production of 7.62mm small caliber ammunition. The existing, ethylene propylene roofing has failed in several areas which risks interruption of production operations and equipment damage. Deteriorated and failing roofs also place production equipment and machines at risk of water damage, increasing production operation maintenance costs. The new roof will be a thermoplastic polyolefin system and a new lightning protection system will be installed.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Building 1 & 2 Load Center Transformer Replacement, Design **Project Number:** 5183611 **Project Category:**

End Item Supported Model: 5.56mm, 20mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Jun 2019 Initial/Final Project Award: Jun 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	0.216	-	-	-	-							
Total Project Cost	0.216	-	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$0.216 million supports evaluation and design of Building 1 and 2 load center transformer at Lake City Army Ammunition Plant. The transformers are the main power conversion feeding the 5.56mm production operations. This effort will perform an engineering study and design of Buildings 1 and 2 transformers center. The existing, twenty-two transformers have exceeded their service life and failure of these transformers has the potential to interrupt 5.56mm production operations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Covered Walkways in Explosives Area **Project Number:** 5193619 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	1.869	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 Construction Complete: Aug 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	1.869	-	-	-							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$1.869 million support installation of covered walkways in explosives area at Lake City Army Ammunition Plant. The project will provide covered walkways between all explosive area manufacturing buildings in order to prevent employee exposure to inclement weather while transporting explosives. The current manufacturing processes and equipment require substantial product movement across areas and buildings. This project will improve the quality of work environment for personnel and reduce risk of weather impact on explosive materials.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Conceptual Design, Building 15 Boiler Plant **Project Number:** 5193718 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: May 2020 Initial/Final Project Award: May 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	1.775	-	-	-							
Total Project Cost	-	1.775	-	-	-							

Narrative Explanation:
 Procurement dollars in the amount of \$1.775 million supports the conceptual design of a new centralized steam plan to replace the aging Building 15 steam plant at Lake City Army Ammunition Plant (AAP). This will reduce the energy footprint at Lake City AAP, increase efficiencies, maintain compliance with National Fire Protection Association safety standards, and support production of small caliber ammunition.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Structural Upgrades, Building 8, Phase 2 **Project Number:** 5183758 **Project Category:**

End Item Supported Model: 5.56mm, 7.62mm, 0.50 Cal and 20mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant						
						Facility Location: Independence, Missouri						
A. Construction Cost	1.123	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Nov 2017 Construction Complete: Feb 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	1.123	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$1.123 million supports replacement of additional roofing to Building 8 at Lake City Army Ammunition Plant. This phase will also support asbestos abatement and electrical repair efforts. Phase one was awarded in March 2015 to correct structural deficiencies found in Buildings 8, 11 and 16. The project improves personnel safety and work environment and reduces risk of production interruption due to building deterioration.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Exterior Steam Main Supports, Ph 2 **Project Number:** 5183778 **Project Category:**

End Item Supported Model: 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	16.339	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: May 2018 Construction Complete: May 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	16.339	-	-	-	-							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$16.339 million supports modernization of exterior steam supports at Lake City Army Ammunition Plant. Steam mains provide steam to manufacturing buildings for process steam in metal forming process and comfort heat. Existing wooden support structures have deteriorated, increasing risk of collapsing and interrupt production operations. This project will replace the structures with steel frame supports. Effort will improve safety, reduce steam loss to manufacturing buildings and reduce risk of production interruptions for small caliber ammunition.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Bldg 19 Series Controls and Monitoring Upgrades **Project Number:** 5183795 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	1.265	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Dec 2017 Construction Complete: Jun 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	-	-	-	-		Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	1.265	-	-	-	-								

Narrative Explanation:
 Procurement dollars in the amount of \$1.265 million supports upgrades to Building 19 series controls and monitoring at Lake City Army Ammunition Plant. Effort will remove and replace HVAC controls in nineteen buildings of the series powder storage bunkers. The buildings currently lack adequate heating controls, impacting the quality of stored ammunition. This project will add modulated steam valves, air dampers, variable fan speed controls, and air temperature monitoring as well as alarm equipment.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Bldg 8 Indoor Firing Range, HVAC I&C (Design) **Project Number:** 5193796 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: May 2020 Initial/Final Project Award: Apr 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	-	-	-	-		Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	1.083	-	-	-								
Total Project Cost	-	1.083	-	-	-								

Narrative Explanation:
 Procurement dollars in the amount of \$1.083 million supports design effort to upgrade the instruments and controls of the heating, ventilation and air conditioning system in Building 8 at Lake City Army Ammunition Plant. Building 8 contains the indoor firing range. The HVAC system was installed in the early 1970s. The system has exceeded its useful life and does not comply with modern firing range design standards. The building also experiences contamination due to failing equipment, increasing risk of personnel health hazards. This project will include design of modular air handler with filtration, preheat, chilled glycol cooling, reheat, humidification, ductwork and ventilation.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Install Flame Mgmt on Gas Furnaces **Project Number:** 5183934 **Project Category:**

End Item Supported Model: 5.56mm, 7.62mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	3.127	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2018 Construction Complete: Apr 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	3.127	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$3.127 million supports installation of flame management on gas furnaces at Lake City Army Ammunition Plant. This effort will install gas safety shutoff valves on legacy gas furnaces in various production buildings. The current combustion equipment lacks automatic protection to prevent explosions from reintroduction of natural gas into the buildings.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Electrical Poles Mod Upgrades **Project Number:** 5193937 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	3.760	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 Construction Complete: Jun 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	3.760	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$3.760 million supports modernization upgrades and replacement of deteriorated electrical poles at Lake City Army Ammunition Plant. A 2015 study conducted by the US Army Corps of Engineers identified a list of approximately 188 wooden utility poles for replacement. These poles have now exceeded their useful life. The poles are required to maintain production capabilities for small caliber ammunition.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Bldgs 12B, 93 Roof Replacement **Project Number:** 5195007 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	1.478	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: May 2019 Construction Complete: May 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	-	-	-	-		Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	-	1.478	-	-	-								

Narrative Explanation:
 Procurement dollars in the \$1.478 million supports the modernization upgrades and replacement of roofs on Buildings 12B (Industrial Waste Treatment Plant) and 93 (production maintenance operations) at Lake City Army Ammunition Plant. The existing roofs are at the end of their service life and experience frequent leaks. Several leaks are in close proximity to electrical infrastructure, posing a safety risk to personnel.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: New Water Plant, Construct **Project Number:** 5185117 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	40.250	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Sep 2018 Initial/Final Project Award: Jan 2019 Construction Complete: Jan 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	7.100	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	1.379	-	-	-	-							
Total Project Cost	48.729	-	-	-	-							
Related Projects												
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of the \$48.729 million support construction of a new water plant at Lake City Army Ammunition Plant. The existing water plant has significant deterioration, antiquated controls and inefficient processes and equipment. This project will construct a new water plant on a greenfield site, and it will provide zero and five grain water as well as fire suppression.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Hill - Neutralization Tanks (Design-Replacement) **Project Number:** 5185131 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO																				
A. Construction Cost	12.072	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Oct 2018 Construction Complete: Apr 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 40%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value <i>(\$ M)</i></th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date								Compl Date													
B. Equipment Cost	-	-	-	-	-																					
C. Equipment Installation Cost	-	-	-	-	-																					
D. Contractor Support Cost	-	-	-	-	-																					
E. Corps of Engineers Support Cost	-	-	-	-	-																					
F. Other In-House Support Cost	-	-	-	-	-																					
G. Total Facility Project Cost	-	-	-	-	-																					
H. Other Costs	-	-	-	-	-																					
Total Project Cost	12.072	-	-	-	-																					

Narrative Explanation:
 Procurement dollars in the amount of \$12.072 million supports design and replacement of the Hill explosives neutralization tanks in Building 81 at Lake City Army Ammunition Plant (AAP). Lake City AAP currently uses a hydrogenation process to reduce aromatic nitro groups to amines to neutralize the energetic waste generated. The existing rectangular shaped neutralization tanks, as well as the lack of agitation, contributes to the non-homogeneity of the batch and increased sediment. This project will improve the mixing dynamics, integrate real-time sensor technology and incorporate remote operation capability.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Dry Chemical Conditioning System Upgrades **Project Number:** 5185134 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	5.074	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Nov 2018 Construction Complete: Mar 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	5.074	-	-	-	-								
Related Projects							Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$5.074 million supports modernization upgrades to the dry chemical conditioning system at Lake City Army Ammunition Plant. In the current Building 38 conditioning process, chemical raw materials are weighed and loaded into trays containing no more than thirty-five pounds each, and are conditioned in steam-heated ovens before being mixed and granulated with other materials. These ovens have exceeded their useful life and experience frequent failures. The current operational limitations and process design prevent a replacement solution. This project will modernize the chemical conditioning processes in Building 38, reduce drying times, and improve process control and product quality.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: 121 Warehouse Study **Project Number:** 5185135 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	1.374	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	0.256	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	1.630	-	-	-	-								
							Related Projects						
							Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$1.630 million supports assessment of Building 121 Warehouse at Lake City Army Ammunition Plant (AAP). Building 121 provides storage of ammunition to support Lake City AAP's annual small caliber production capacity of 1.6 billion rounds. It was constructed in the 1940s and has aged and deteriorated. It is no longer economical to perform periodic repairs and upgrades. This project will conduct an assessment of Building 121 on potential new solutions, including modernization upgrades or new production opportunities.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: B50 Fire Pump Replacement **Project Number:** 5195138 **Project Category:**

End Item Supported Model: 20mm, 5.56mm, 7.62mm, Cal .50 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	1.588	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2019 Construction Complete: Mar 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	1.588	-	-	-							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$1.588 million supports the fire pump replacement in Building 50 at Lake City Army Ammunition Plant. Effort replaces two deficient fire pumps and their respective diesel engines in Building 50 as well as supporting structures such as pump valves and defective piping sections. Diesel engines? batteries, fuel tanks, and fuel piping will be removed, and a new diesel powered back-up generator will be installed.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Mod Upgrades for 7.62mm Facility **Project Number:** 5185225 **Project Category:**

End Item Supported Model: 7.62mm **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Lake City Army Ammunition Plant Facility Location: Independence, Missouri Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	9.746	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Jan 2020 Final Design Complete: Initial/Final Project Award: Jan 2018 Construction Complete: Nov 2019 Equipment Installation Complete: Nov 2019 Prove Out Begins: Nov 2019 Prove Out Complete:						
B. Equipment Cost	8.450	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	18.196	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$18.195 million supports construction and installation of equipment for future manufacturing requirements of the 7.62mm ammunition at Lake City Army Ammunition Plant. The West Charging Wing in Building 2 will be upgraded for bullet assembly and cartridge load, assemble and pack (LAP) upgrades. Installed equipment will include precision die-set press, cartridge loading machine, vacuum propellant handling equipment and high speed deluge equipment.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Construct New Nitrocellulose (NC) Facility **Project Number:** 5182736 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	1.487	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Jan 2019 Initial/Final Project Award: Aug 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	0.975	-	-	-	-							
Total Project Cost	2.462	-	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.462 million supports the effort to continue the modernization and construction of a new, right-sized facility to produce high quality Nitrocellulose (NC) at Radford Army Ammunition Plant. The current NC facility has exceeded its useful life and experienced as many as 70 failures in 12 months. The new facility efficiently address safety, environmental and production requirements. This phase includes design and construction of the deep foundations required for the new NC facility and construction of NC production train # 2.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: NAC/SAC Process Improvements, Facilities and Maintenance **Project Number:** 5203120 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2020 Construction Complete: Dec 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	9.900	9.900							
Total Project Cost	-	-	0.000	9.900	9.900							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$9.900 million supports various process improvements to the nitric acid concentrator and sulfuric acid concentrator (NAC/SAC) at Radford Army Ammunition Plant. This facilities and maintenance effort includes modernization design, procurement and installation of various process equipment. Effort will enhance the process operations of the NAC/SAC facility to support Radford AAP's annual NC production capacity of 24-28M pounds.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Replace Chemical Grind, Design **Project Number:** 5183140 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	4.364	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Mar 2020 Initial/Final Project Award: Sep 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	4.364	-	-	-	-								
							Related Projects						
							Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$4.364 million supports design of a chemical grind facility and a caustic cleaning facility at Radford Army Ammunition Plant (AAP). The existing facilities were constructed in the 1940s, utilize antiquated equipment and are in poor condition. The chemical grind facility is required to prepare, screen, visually inspect, and de-lump dry chemicals, which are received from bulk shipping containers, for propellant production. The caustic cleaning facility decontaminates process equipment from propellants and energetics residues; this legacy, daily process has been in service since the 1940s. The facility design plans will enhance environmental and personnel safety controls, improve material management practices and improve manufacturing operations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Plant Operations **Project Number:** 5183407 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	9.307	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jan 2018 Construction Complete: Dec 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	9.307	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$9.307 million supports maintenance activities at Radford Army Ammunition Plant (AAP). Effort will fund preventive, scheduled and unscheduled maintenance of production equipment and facilities that would prevent serious injury to personnel or effects to the environment. Funding is also provided for cyber security requirements, fire and emergency services and to execute an environmental program to ensure compliance with existing Federal, State, and local environmental laws.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Plant-Wide Road Upgrades **Project Number:** 5183434 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	4.022	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 Construction Complete: Mar 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	4.022	-	-	-	-								
							Related Projects						
							Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$4.022 million supports road upgrades and pavements within production areas at Radford Army Ammunition Plant. The production areas, to include nitrocellulose and acid processes, roadways are heavily used by both vehicle and foot traffic and exhibit significant deterioration. Routine and temporary maintenance or repair efforts are no longer economically feasible. This effort will ensure safe transportation of energetic material throughout the installation and prevent personnel hazards due to uneven and deteriorated pavement.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Acid Sewer Upgrades, Ph 3 **Project Number:** 5183439 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	2.557	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Dec 2018 Construction Complete: Mar 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	2.557	-	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$2.557 million supports modernization upgrades to the main acid sewer lines located in the acid production area at Radford Army Ammunition Plant. The existing system was installed over 50 years ago and experiences frequent leaks and failures. The legacy system is no longer economically viable. Upgrades are required to ensure adequate acidic wastewater processing capabilities to support production operations, maintain production continuity and to comply with environmental regulations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Electrical Distribution System Upgrades, Ph 3 **Project Number:** 5183557 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	16.186	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Sep 2018 Construction Complete: Apr 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	16.186	-	-	-	-	Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$16.186 million supports upgrades to the electrical distribution system at Radford Army Ammunition Plant. This modernization effort will replace electrical poles, cable connections, 480V substations, old switches, cross arms, insulators, and surge arresters. The existing infrastructure is unreliable and susceptible to catastrophic failure during adverse weather events. This phase supports the Fourth Roll Powder and CASBL areas and ensures reliability and continuity of electrical service.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Upgrade Water System, Fire Protection **Project Number:** 5193559 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	9.474	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jul 2019 Construction Complete: Jul 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects					
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	9.474	-	-	-							
						Project						
						Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$9.474 million supports modernization upgrades to the fire protection, water system at Radford Army Ammunition Plant (AAP). This effort will replace the existing deluge valves and Primac fire suppression system with a modern, effective fire protection system. The new system will also eliminate the explosively actuated Primac. Effort will maintain production continuity of propellants at Radford AAP. The new system will be a rapid response deluge system, engineered turnkey package consisting of all required flame detectors, electronic controls and high-speed deluge valves designed specifically for fire suppression and deflagration encountered in the energetic process industry. The new system will meet the National Fire Codes and Army Regulations for fire protection.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Barricade Replacement, Ph 1 **Project Number:** 5203567 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	0.000	9.400	9.400	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Mar 2020 Construction Complete: Sep 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	-	0.000	9.400	9.400							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$9.400 million supports replacement of barricades at Radford Army Ammunition Plant. This project will support the demolition and replacement of wooden barricades identified to support production at Radford Army Ammunition Plant (AAP). Project will properly dispose of the wood, metal, fill dirt, and obsolete electrical components from each barricade demolished. Install foundations as needed and rebuild wooden barricades to current Corp of Engineers specifications. This is a new start.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Sanitary Sewage Treatment Upgrade **Project Number:** 5183570 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jul 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	0.556	-	-	-	-							
Total Project Cost	0.556	-	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$0.556 million supports condition assessment of the sanitary sewer treatment facility at Radford Army Ammunition Plant (AAP). The existing sewer treatment facility was constructed in the 1940s and has not received significant modernization. The facility processes approximately one million gallons of waste per day. If the facility were to fail, Radford AAP production operations would be halted and Radford AAP military housing would be abandoned. This initial phase will assess the facility's condition, determine requirements for future modernization upgrades or replacement of the facility.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Lightning Protection, Production Areas **Project Number:** 5183672 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	3.656	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Mar 2018 Construction Complete: Mar 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:	Related Projects						
B. Equipment Cost	-	-	-	-	-		Project	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	-	-	-								
Total Project Cost	3.656	-	-	-	-								

Narrative Explanation:
 Procurement dollars in the amount of \$3.656 million supports upgrade and replacement of lightning protection system on production buildings at Radford Army Ammunition Plant (AAP). The upgrades will cover production buildings and storage magazines in areas of the plant that lack lightning protection systems or do not meet current standards. Buildings without lightning protection are susceptible to detonation and destruction due to lightning strikes. Project will allow Radford AAP to achieve Army and national compliance standards, including NFPA-780, DA PAM 385-64 and UL96, UL96A compliant and certifiable condition.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Combined EWI-CWP Facility, Construction **Project Number:** 5193723 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	114.240	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Aug 2019 Construction Complete: Aug 2023 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	114.240	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$114.240 million supports construction of a combined energetic waste incinerator (EWI) and contaminated waste processor (CWP) at Radford Army Ammunition Plant (AAP). Effort will allow a centralized, air-pollution controlled facility to handle all energetic waste and contaminated waste generated at Radford AAP. The existing EWI facility has exceeded its useful life. Radford AAP is the principal domestic source of propellants for small, medium and large caliber ammunition. The new facility is critical in maintaining production operations and maintaining compliance with federal and state regulations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Permanent Energy Center (Design) **Project Number:** 5183724 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Mar 2020 Initial/Final Project Award: Sep 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:														
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	13.488	-	-	-	-															
Total Project Cost	13.488	-	-	-	-															
							Related Projects													
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 40%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value (\$ M)</th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date														

Narrative Explanation:
 Procurement dollars in the amount of \$13.488 million supports design of a new permanent energy center at Radford Army Ammunition Plant (AAP). Radford AAP currently utilizes the package boiler facility for steam supply however it relies on legacy steam mains for distribution within the facility and electrical generation. The legacy steam main systems are inefficient and deteriorating due to age. This modernization project will provide design plans to develop a fully modernized system of steam and electricity co-generation and distribution, and tie-in points to the steam and electrical distribution.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Acid Area Improvements, Ph 3 **Project Number:** 5183735 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	7.227	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jun 2018 Construction Complete: Jun 2019 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	0.126	-	-	-	-							
Total Project Cost	7.353	-	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$7.353 million supports phase three of repair of critical bulk storage tanks and containment dikes in the acid area at Radford Army Ammunition Plant. Bulk storage tanks vary in age and several existing tanks were installed in the 1940s. Containment dikes surrounding these bulk storage tanks have deteriorated and repairs are required to contain an acid release in the event of a catastrophic failure. Acid bulk storage capacity is required to handle sulfuric acid, oleum, strong nitric acid, weak nitric acid, and processed (pyro) acid. The safe and reliable storage of acids is critical for nitrocellulose manufacturing operations.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Water Intake Pump Upgrade (Building 407) **Project Number:** 5193741 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	20.082	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Mar 2019 Construction Complete: Sep 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	-	-	-							
Total Project Cost	-	20.082	-	-	-							
						Related Projects						
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$20.082 million supports upgrades to three intake pumps in Building 407 and the water distribution system, other process equipment and infrastructure at Radford Army Ammunition Plant (AAP). These upgrades provide a viable backup and continuous source of water for fire suppression, process water, drinking water and steam which greatly impact operations at Radford AAP. Radford AAP operates within a footprint of 4,000 acres which required modernized pumps and distribution lines for production and fire suppression to ensure production continuity.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Structural Repairs **Project Number:** 5195088 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Apr 2020 Initial/Final Project Award: Mar 2019 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	1.080	-	-	-							
Total Project Cost	-	1.080	-	-	-							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$1.080 million supports structural repair requirements within various production buildings at Radford Army Ammunition Plant (AAP). This modernization initiative seeks to improve the structural integrity of active facilities at Radford AAP. These facilities were constructed during the 1940s and have exceeded their expected life. Structural deficiencies are risks to personnel safety and continuity of Radford AAP's mission of propellant production.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Solvent Pack-Out Building (Design) **Project Number:** 5185112 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO					
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: May 2020 Initial/Final Project Award: Sep 2018 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:					
B. Equipment Cost	-	-	-	-	-						
C. Equipment Installation Cost	-	-	-	-	-						
D. Contractor Support Cost	-	-	-	-	-						
E. Corps of Engineers Support Cost	-	-	-	-	-						
F. Other In-House Support Cost	-	-	-	-	-						
G. Total Facility Project Cost	-	-	-	-	-						
H. Other Costs	5.865	-	-	-	-						
Total Project Cost	5.865	-	-	-	-						
Related Projects											
	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date				

Narrative Explanation:
 Procurement dollars in the amount of \$5.865 million support design of a solvent propellant pack-out building at Radford Army Ammunition Plant (AAP). Radford AAP produces single base solvent propellant. All large caliber propellants are processed in Building 1814 for batching and pack out operations. The existing facility requires frequent production processes change overs which delays throughput and increases facility maintenance. This project will design a new solvent single base propellant pack out building to complement operations in Building 1814 and improve throughput, reduce maintenance costs and increase product quality. The design will incorporate state-of-the-art automation to fill final propellant pack weight, automate drum lidding, and on-site palletization and wrapping operation.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: NC Solvent Dewatering, Design/Construct **Project Number:** 5195140 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
						Principal Milestones			Month & Year			
A. Construction Cost	-	10.990	-	-	-	Concept Design Complete:						
B. Equipment Cost	-	-	-	-	-	Final Design Complete:			Dec 2019			
C. Equipment Installation Cost	-	-	-	-	-	Initial/Final Project Award:			Aug 2019			
D. Contractor Support Cost	-	-	-	-	-	Construction Complete:			Dec 2020			
E. Corps of Engineers Support Cost	-	-	-	-	-	Equipment Installation Complete:						
F. Other In-House Support Cost	-	-	-	-	-	Prove Out Begins:						
G. Total Facility Project Cost	-	-	-	-	-	Prove Out Complete:						
H. Other Costs	-	2.160	-	-	-	Related Projects						
Total Project Cost	-	13.150	-	-	-	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 Procurement dollars in the amount of \$13.150 million supports design and construction of a nitrocellulose (NC) solvent dewatering facility at Radford Army Ammunition Plant. This effort will design and construct an NC material transfer and handling system from the new NC facility to the dehydration building legacy propellant production operations (green lines) and design the material handling and transfer system to the Wringer House building which will be built in Phase 2. The new system will receive and process the water-wet NC from the new NC facility to the Dehydration building and the Wringer House building. The upgraded facility will allow the processing of the NC produced in the new NC facility until a new solvent propellant production facility is designed, constructed and commissioned. The upgraded facilities will improve personnel safety, improve environmental controls and maintain production continuity of NC.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Solventless/Rocket Area, Prod Operations, Facilities and Maintenance **Project Number:** 5195141 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Aug 2019 Construction Complete: Aug 2020 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:														
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	-	8.500	-	-	-															
Total Project Cost	-	8.500	-	-	-															
							Related Projects													
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 30%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value (\$ M)</th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date														

Narrative Explanation:
 Procurement dollars in the amount of \$8.500 million supports modernization efforts to sustain production operations of solventless propellant at Radford Army Ammunition Plant. Effort will stabilize the solventless areas, rocket and roll powder, to maintain production continuity. This facilities and maintenance effort includes replacement of critical equipment and identification assessment of corrective maintenance actions.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Solvent Propellant Facility Sustainment, Ph 1 **Project Number:** 5205145 **Project Category:**

End Item Supported Model: Propellants for Large, Medium, and Small Cal Munitions **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Radford Army Ammunition Plant Facility Location: Radford, Virginia Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Jan 2020 Construction Complete: Jan 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	7.500	7.500							
Total Project Cost	-	-	0.000	7.500	7.500							
							Related Projects					
						Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$7.500 million supports modernization and sustainment of the solvent propellant facility at Radford Army Ammunition Plant. The facility was constructed during the 1940s and has operated beyond its useful life. This facilities and maintenance effort will replace critical production equipment and infrastructure and provide assessment of future corrective actions. Effort is required to ensure production continuity of solvent propellants until a new, modernized facility is designed and constructed.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Infrastructure & Safety Efforts, Facilities and Maintenance **Project Number:** 5205150 **Project Category:**

End Item Supported Model: M795, 120mm Mortar, M1 HE, 5"/54 **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Scranton Army Ammunition Plant Facility Location: Scranton, Pennsylvania Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Apr 2020 Construction Complete: Sep 2021 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	-	-	0.000	3.590	3.590							
Total Project Cost	-	-	0.000	3.590	3.590							
						Related Projects						
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.590 million supports facilities maintenance, infrastructure and safety modernization efforts at Scranton Army Ammunition Plant. Effort will fund preventive, scheduled and unscheduled maintenance of production equipment and facilities that would prevent serious injury to personnel or effects to the environment.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Infrastructure & Safety Efforts, Facilities and Maintenance **Project Number:** 5205139 **Project Category:**

End Item Supported Model: Large Caliber Steel and Brass Cartridge Cases **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Quad City Cartridge Case Facility Facility Location: Rock Island Arsenal, IL Facility Type (GOGO, GOCO, COCO): GOCO							
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Aug 2020 Construction Complete: Aug 2022 Equipment Installation Complete: Prove Out Begins: Prove Out Complete:							
B. Equipment Cost	-	-	-	-	-								
C. Equipment Installation Cost	-	-	-	-	-								
D. Contractor Support Cost	-	-	-	-	-								
E. Corps of Engineers Support Cost	-	-	-	-	-								
F. Other In-House Support Cost	-	-	-	-	-								
G. Total Facility Project Cost	-	-	-	-	-								
H. Other Costs	-	-	0.000	2.000	2.000								
Total Project Cost	-	-	0.000	2.000	2.000								
Related Projects													
							Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$2.000 million supports facilities maintenance, infrastructure and safety modernization infrastructure and safety modernization efforts at the Quad City Cartridge Case Facility. Effort will fund preventive, scheduled and unscheduled maintenance of production equipment and facilities that would prevent serious injury to personnel or effects to the environment.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Planning & Design in Support of Provision of Industrial Facilities **Project Number:** 5XX0000 **Project Category:**

End Item Supported Model: Multiple **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Various Army Ammunition Plants Facility Location: Various Army Ammunition Plants Facility Type (GOGO, GOCO, COCO): GOCO						
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:						
B. Equipment Cost	-	-	-	-	-							
C. Equipment Installation Cost	-	-	-	-	-							
D. Contractor Support Cost	-	-	-	-	-							
E. Corps of Engineers Support Cost	-	-	-	-	-							
F. Other In-House Support Cost	-	-	-	-	-							
G. Total Facility Project Cost	-	-	-	-	-							
H. Other Costs	14.725	5.348	0.000	93.716	93.716	Related Projects						
Total Project Cost	14.725	5.348	0.000	93.716	93.716							
						Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date

Narrative Explanation:
 FY 2020 OCO for Base Requirements procurement dollars in the amount of \$93,716 million supports planning and design services to support ongoing, planned and unforeseen issues and requirements at the Government-Owned, Contractor-Operated (GOCO) Army Ammunition Plants (AAP). Due to their age, the facilities experience frequent failures and production line delays. This project provides quick response capabilities to unforeseen issues and planned requirements requiring planning, design and engineering services necessary for facilities management and restoration efforts, modernization support, quality improvements, as well as but not limited to safety and environmental issues.

FY 2020 Procurement dollars focus on a variety of projects to include preliminary design of thermal and non-thermal alternatives to open burning/open detonation efforts to achieve compliance with Department of Defense Explosives Safety Board Policy and Tank Line Modernization efforts to replace existing tank line that was constructed in the 1940's at the Iowa AAP; Modernization of Water Distribution (supporting process water, drinking water and fire suppression water) and design of a new Alternative Nitrate Ester Manufacturing Facility to support annual nitroglycerin production requirements at the Radford AAP; Small Caliber ammunition modernization efforts will also continue in support the Next Generation Squad Weapon at the Lake City AAP.

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Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Replace Test Instrumentation in Production Acceptance Testing (Ammunition) **Project Number:** 5XX5060 **Project Category:**

End Item Supported Model: Initial Production Acceptance & Product Improvements for Ammunition **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Yuma Proving Ground / Aberdeen Test Center Facility Location: Yuma, Arizona / Aberdeen, Maryland Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:														
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	1.529	1.448	-	-	-															
Total Project Cost	1.529	1.448	-	-	-	Related Projects														
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 40%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value (\$ M)</th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value (\$ M)	Facing	Start Date	Compl Date														

Narrative Explanation:
 Procurement dollars in the amount of \$1.448 million continues to support test mission activities at Aberdeen Test Center (ATC) and Yuma Test Center (YTC).

 Supports the procurement of ammunition/weapons components including gun mounts, gun tubes, breech assemblies, and other main weapon system components. These components are required to support proof and acceptance testing at ATC and Yuma Test Center YTC. Without these components, the Army will be unable to conduct the testing required to accept ammunition end items into its inventory and to mitigate operational risk due to ammunition shortfalls across the Army.

 At ATC, continues replacement and procurement for Weapon and Weapon Components which have experienced wear and tear during repetitive testing of production ammunition items. Typical purchases include: rifle/carbine/machine gun barrels, receivers, and parts; large caliber barrels; small and medium caliber Mann-type test barrels, mortar barrels and bipod/baseplates. Timely replacement of worn or unserviceable weapons/components will permit test execution without delays for acquisition of supporting equipment.

 At YTC, procures Ammo Components to continue support Production Acceptance Test (PAT) of artillery and mortar ammunition components at YTC throughout the year. Also procures replacement parts for large and small caliber direct fire weapon systems for production based support, which will improve weapon reliability and reduce potential testing downtime if sudden repairs are needed.

 This project increases test efficiencies and decreases costs and risks to Army Program Managers.

UNCLASSIFIED

Exhibit P-25, Production Support and Industrial Facilities Cost Analysis: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10 **P-1 Line Item Number / Title:** 0572EP1000 / Industrial Facilities

Project Title: Layaway Of Industrial Facilities **Project Number:** 5XX8000 **Project Category:**

End Item Supported Model: **Annual Capacity Before / After (1-8-5):** /

Cost Elements <i>(\$ in Millions)</i>	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Facility Name: Layaway Of Industrial Facilities Facility Location: Various AAPs Facility Type (GOGO, GOCO, COCO): GOCO														
A. Construction Cost	-	-	-	-	-	Principal Milestones Month & Year Concept Design Complete: Final Design Complete: Initial/Final Project Award: Nov 2019 / May 2020 Construction Complete: Equipment Installation Complete: Prove Out Begins: Prove Out Complete:														
B. Equipment Cost	-	-	-	-	-															
C. Equipment Installation Cost	-	-	-	-	-															
D. Contractor Support Cost	-	-	-	-	-															
E. Corps of Engineers Support Cost	-	-	-	-	-															
F. Other In-House Support Cost	-	-	-	-	-															
G. Total Facility Project Cost	-	-	-	-	-															
H. Other Costs	16.916	11.391	0.000	11.524	11.524															
Total Project Cost	16.916	11.391	0.000	11.524	11.524	Related Projects														
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Project Number</th> <th style="width: 40%;">Title</th> <th style="width: 10%;">FY & Appn</th> <th style="width: 10%;">Value <i>(\$ M)</i></th> <th style="width: 10%;">Facing</th> <th style="width: 10%;">Start Date</th> <th style="width: 10%;">Compl Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date							
Project Number	Title	FY & Appn	Value <i>(\$ M)</i>	Facing	Start Date	Compl Date														

Narrative Explanation:
 FY 2020 Base procurement dollars in the amount of \$11.524 million supports the protection and preservation of industrial facilities at active and inactive Army ammunition installations and equipment that are no longer required for current production but must be retained for future peacetime or emergency production needs. Funds support the decontamination and demolition of excess production equipment and facilities buildings at Lake City AAP and the layaway of various load, assemble and pack production lines at Iowa and Milan AAP.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support	P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	2,950.024	250.825	157.535	-	202.512	202.512	235.354	239.706	252.605	254.694	-	4,543.255
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	2,950.024	250.825	157.535	-	202.512	202.512	235.354	239.706	252.605	254.694	-	4,543.255
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	2,950.024	250.825	157.535	-	202.512	202.512	235.354	239.706	252.605	254.694	-	4,543.255

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$202.512 M for Overseas Contingency Operations (OCO); of which \$202.512M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011."

The Conventional Munitions Demilitarization Program provides for the demilitarization (demil) and disposal of conventional ammunition and missiles that are unserviceable, obsolete, or excess to need for all Military Services per Department of Defense (DoD) Directive 5160.65 and DoD Instruction 5160.68. The program accomplishes demil using open burning/open detonation (OB/OD) processes or closed disposal technologies (CDT) with primary emphasis on resource recovery and recycling (R3). This program also provides for operations, technical support and services; packaging, crating, handling, and transportation (PCHT) of ammunition for demil projects at United States Army depots, plants and activities; commercial contracts that provide CDT demil support and services and associated PCHT; and international operations, which include the European and Pacific Theatres.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support **P-1 Line Item Number / Title:** 4099EP1700 / Conventional Munitions Demilitarization

ID Code (A=Service Ready, B=Not Service Ready): **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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	EP1800 / Conventional Ammunition Demilitarization (SMCA)				- / 2,433.172	- / 186.008	- / 122.985	- / -	- / 147.330	- / 147.330
P-5	EP1801 / Other Non-Army Service Demil Items (non-SMCA)				- / 39.290	- / 19.931	- / 15.598	- / -	- / 13.385	- / 13.385
P-5	EP1802 / Army Missile Demilitarization				- / 447.265	- / 40.504	- / 14.274	- / -	- / 37.235	- / 37.235
P-5	EP1803 / Non-Army Missile Demilitarization				- / 30.297	- / 4.382	- / 4.678	- / -	- / 4.562	- / 4.562
P-40	Total Gross/Weapon System Cost				- / 2,950.024	- / 250.825	- / 157.535	- / -	- / 202.512	- / 202.512

*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.

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

Justification:
 FY 2020 funding totals include \$0.0 million for Base and \$202.512 million for Overseas Contingency Operations, \$202.512 million has been realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$202.512 million will support the demilitarization of conventional ammunition as well as, missile and missile components (msl/comp) for all Military Services.

FY 2020 funds will also support the United States demil operations of conventional ammunition in both Continental United States (CONUS) and Outside the Continental United States (OCONUS). CONUS demil operations are performed by a combination of Government Owned, Government Operated (GOGO) depots, Government Owned, Contractor Operated (GOCO) depots as well as commercial contractors. OCONUS demil operations are performed at Demilitarization Facilities in Japan as well as commercial contractors in the European Union.

As of the end of November 2018, the Single Manager for Conventional Ammunition (SMCA) Resource, Recovery and Disposition Account (B5A) contained 378,169 tons of ammunition in CONUS wholesale storage locations: 348,742 tons of conventional ammunition and 29,427 tons (176,365 each) of missile/components (msl/comp). As of the end of November 2018, 9,646 tons of conventional ammunition were demilitarized with an additional 37,625 tons planned to be demilitarized by the end of FY 2019. As of the end of November 2018, 1,190 tons (20,615 each) of msl/comp were demilitarized with an additional 7,674 tons (71,775 each) planned to be demilitarized by the end of FY 2019.

Stockpile growth and generations: An estimated 39,940 tons of conventional ammunition and an estimated 5,852 tons (20,615 each) of msl/comp will enter the B5A or Resource, Recovery, and Disposal Account in FY 2019. During FY 2020 through FY 2024 117,549 tons of conventional ammunition and 17,556 tons (61,845 each) of msl/comp are forecasted to be added into the B5A.

Stockpile growth factors: The demil stockpile is expected to grow as a result of Military Services generations as well as other factors such as cluster munitions and land mine policies as well as the disestablishment of War Reserve Stocks Allies (WRSA) accounts at OCONUS locations. Currently, there are approximately 93,766 tons of cluster munitions in the demil stockpile. An additional 203,024 tons remaining in CONUS outside the B5A and another 91,362 OCONUS.

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10	P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization	Item Number / Title [DODIC]: EP1800 / Conventional Ammunition Demilitarization (SMCA)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	2,433.172	186.008	122.985	-	147.330	147.330
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	2,433.172	186.008	122.985	-	147.330	147.330
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	2,433.172	186.008	122.985	-	147.330	147.330

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Demilitarization Cost																		
WHITE PHOSPHORUS	-	-	82.773	-	-	4.893	-	-	2.560	-	-	-	-	-	4.131	-	-	4.131
DEMOLITION MATERIAL	-	-	0.843	-	-	0.687	-	-	0.928	-	-	-	-	-	0.278	-	-	0.278
HE DETONATORS/ BOOSTERS	-	-	2.575	-	-	0.175	-	-	0.718	-	-	-	-	-	-	-	-	-
HE BOMBS	-	-	45.944	-	-	1.726	-	-	0.309	-	-	-	-	-	3.097	-	-	3.097
HE CARTRIDGES	-	-	140.494	-	-	21.573	-	-	8.749	-	-	-	-	-	20.834	-	-	20.834
GRENADES	-	-	2.870	-	-	0.659	-	-	0.019	-	-	-	-	-	-	-	-	-
HE DEPTH CHARGES	-	-	17.572	-	-	-	-	-	0.322	-	-	-	-	-	-	-	-	-
CLUSTER BOMBS/ ICM; ANTI-TANK & PERSONNEL	-	-	331.023	-	-	14.214	-	-	20.893	-	-	-	-	-	23.370	-	-	23.370
HE LAND MINES	-	-	86.118	-	-	0.209	-	-	-	-	-	-	-	-	3.781	-	-	3.781
INERT	-	-	34.484	-	-	1.234	-	-	-	-	-	-	-	-	0.411	-	-	0.411
MULTIPLE FAMILY	-	-	493.758	-	-	8.533	-	-	10.603	-	-	-	-	-	5.697	-	-	5.697
BULK HIGH EXPLOSIVES	-	-	35.985	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PROPELLANT CHARGES/INCREMENT CHARGES	-	-	132.728	-	-	7.799	-	-	5.038	-	-	-	-	-	3.612	-	-	3.612
TARGET PRACTICES/ 40MM ANTI-AIRCRAFT	-	-	39.186	-	-	5.228	-	-	7.998	-	-	-	-	-	0.357	-	-	0.357
SMALL ARMS AMMO THRU 20MM	-	-	14.589	-	-	7.756	-	-	2.796	-	-	-	-	-	12.523	-	-	12.523

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10		P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:
Item Number / Title [DODIC]: EP1800 / Conventional Ammunition Demilitarization (SMCA)		

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
INCINERABLE MUNITIONS/ MISCELLANEOUS	-	-	63.574	-	-	5.252	-	-	5.085	-	-	-	-	-	10.462	-	-	10.462
FUZES	-	-	48.957	-	-	2.566	-	-	5.926	-	-	-	-	-	5.806	-	-	5.806
TRANSPORTATION	-	-	146.009	-	-	21.284	-	-	2.500	-	-	-	-	-	6.378	-	-	6.378
MUNITIONS CHARACTERIZATION	-	-	76.719	-	-	4.321	-	-	1.718	-	-	-	-	-	4.321	-	-	4.321
OCONUS DEMIL - EUCOM	-	-	46.067	-	-	0.117	-	-	1.500	-	-	-	-	-	1.000	-	-	1.000
OCONUS DEMIL - PACOM	-	-	9.998	-	-	0.348	-	-	0.850	-	-	-	-	-	0.500	-	-	0.500
CONTRACT - CONUS DEMIL	-	-	533.015	-	-	70.795	-	-	30.945	-	-	-	-	-	22.040	-	-	22.040
DU Cartridges	-	-	-	-	-	5.533	-	-	12.028	-	-	-	-	-	17.626	-	-	17.626
<i>Subtotal: Support - Demilitarization Cost</i>	-	-	2,385.281	-	-	184.902	-	-	121.485	-	-	0.000	-	-	146.224	-	-	146.224
Support - Program Management Cost																		
Government Management	-	-	47.891	-	-	1.106	-	-	1.500	-	-	-	-	-	1.106	-	-	1.106
<i>Subtotal: Support - Program Management Cost</i>	-	-	47.891	-	-	1.106	-	-	1.500	-	-	0.000	-	-	1.106	-	-	1.106
Gross/Weapon System Cost	-	-	2,433.172	-	-	186.008	-	-	122.985	-	-	-	-	-	147.330	-	-	147.330

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10	P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization	Item Number / Title [DODIC]: EP1801 / Other Non-Army Service Demil Items (non-SMCA)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	39.290	19.931	15.598	-	13.385	13.385
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	39.290	19.931	15.598	-	13.385	13.385
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	39.290	19.931	15.598	-	13.385	13.385

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Demilitarization Cost																		
TORPEDOES	-	-	37.560	-	-	3.078	-	-	2.750	-	-	-	-	-	-	-	-	-
SONOBUOYS	-	-	1.730	-	-	-	-	-	2.213	-	-	-	-	-	2.000	-	-	2.000
CONTRACT - CONUS DEMIL	-	-	-	-	-	13.509	-	-	8.385	-	-	-	-	-	6.787	-	-	6.787
TRANSPORTATION	-	-	-	-	-	2.412	-	-	2.250	-	-	-	-	-	4.125	-	-	4.125
INCINERABLE MUNITIONS/ MISCELLANEOUS	-	-	-	-	-	0.932	-	-	-	-	-	-	-	-	0.473	-	-	0.473
<i>Subtotal: Support - Demilitarization Cost</i>	-	-	39.290	-	-	19.931	-	-	15.598	-	-	0.000	-	-	13.385	-	-	13.385
Gross/Weapon System Cost	-	-	39.290	-	-	19.931	-	-	15.598	-	-	-	-	-	13.385	-	-	13.385

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10	P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization	Item Number / Title [DODIC]: EP1802 / Army Missile Demilitarization

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (Units in Each)	-	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	447.265	40.504	14.274	-	37.235	37.235
Less PY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	447.265	40.504	14.274	-	37.235	37.235
Plus CY Advance Procurement (\$ in Millions)	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	447.265	40.504	14.274	-	37.235	37.235

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Dollars)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Demilitarization Cost																		
MULTIPLE LAUNCH ROCKET SYSTEM	-	-	212.783	-	-	15.428	-	-	8.360	-	-	-	-	-	4.960	-	-	4.960
ROCKET MOTORS	-	-	3.815	-	-	-	-	-	-	-	-	-	-	3.500	-	-	3.500	
TOW CD/R3	-	-	41.010	-	-	0.568	-	-	0.265	-	-	-	-	1.580	-	-	1.580	
HELLFIRE	-	-	0.524	-	-	0.008	-	-	0.163	-	-	-	-	0.200	-	-	0.200	
STINGER	-	-	2.386	-	-	0.150	-	-	-	-	-	-	-	0.240	-	-	0.240	
PATRIOT	-	-	1.446	-	-	0.380	-	-	-	-	-	-	-	3.050	-	-	3.050	
HONEST JOHN	-	-	1.176	-	-	0.300	-	-	-	-	-	-	-	2.500	-	-	2.500	
MISSILE COMPONENTS	-	-	62.052	-	-	5.914	-	-	2.409	-	-	-	-	3.705	-	-	3.705	
HAWK MOTORS	-	-	2.698	-	-	0.592	-	-	-	-	-	-	-	2.500	-	-	2.500	
DEMIL PROCESS IMPROVEMENTS	-	-	76.421	-	-	9.669	-	-	-	-	-	-	-	5.758	-	-	5.758	
TRANSPORTATION	-	-	14.035	-	-	4.782	-	-	0.884	-	-	-	-	4.025	-	-	4.025	
MULTIPLE FAMILY	-	-	-	-	-	-	-	-	-	-	-	-	-	2.885	-	-	2.885	
Subtotal: Support - Demilitarization Cost	-	-	418.346	-	-	37.791	-	-	12.081	-	-	0.000	-	-	34.903	-	-	34.903
Support - Program Management Cost																		
Government Management	-	-	28.919	-	-	2.713	-	-	2.193	-	-	-	-	2.332	-	-	2.332	
Subtotal: Support - Program Management Cost	-	-	28.919	-	-	2.713	-	-	2.193	-	-	0.000	-	-	2.332	-	-	2.332
Gross/Weapon System Cost	-	-	447.265	-	-	40.504	-	-	14.274	-	-	-	-	37.235	-	-	37.235	

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10	P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization	Item Number / Title [DODIC]: EP1802 / Army Missile Demilitarization
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

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Exhibit P-5, Cost Analysis: PB 2020 Army		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 2034A / 02 / 10	P-1 Line Item Number / Title: 4099EP1700 / Conventional Munitions Demilitarization	Item Number / Title [DODIC]: EP1803 / Non-Army Missile Demilitarization

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:
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Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	30.297	4.382	4.678	-	4.562	4.562
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	30.297	4.382	4.678	-	4.562	4.562
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	30.297	4.382	4.678	-	4.562	4.562

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-

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

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	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)
Support - Demilitarization Cost																		
HE MISSILES	-	-	30.297	-	-	3.448	-	-	3.508	-	-	-	-	-	2.808	-	-	2.808
ROCKET MOTORS	-	-	-	-	-	0.750	-	-	1.170	-	-	-	-	-	1.170	-	-	1.170
MISSILE COMPONENTS	-	-	-	-	-	0.184	-	-	-	-	-	-	-	-	0.584	-	-	0.584
<i>Subtotal: Support - Demilitarization Cost</i>	-	-	30.297	-	-	4.382	-	-	4.678	-	-	0.000	-	-	4.562	-	-	4.562
Gross/Weapon System Cost	-	-	30.297	-	-	4.382	-	-	4.678	-	-	-	-	-	4.562	-	-	4.562

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Exhibit P-40, Budget Line Item Justification: PB 2020 Army **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 2034A: Procurement of Ammunition, Army / BA 02: Ammunition Production Base Support / BSA 10: Production Base Support	P-1 Line Item Number / Title: 4150EP2500 / ARMS Initiative
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ID Code (A=Service Ready, B=Not Service Ready):	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	360.599	3.719	3.771	-	3.833	3.833	3.907	3.913	3.994	4.034	-	387.770
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	360.599	3.719	3.771	-	3.833	3.833	3.907	3.913	3.994	4.034	-	387.770
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	360.599	3.719	3.771	-	3.833	3.833	3.907	3.913	3.994	4.034	-	387.770

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Initial Spares (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (<i>\$ in Dollars</i>)	-	-	-	-	-	-	-	-	-	-	-	-

Description:

FY 2020 funding totals include \$0.0M for Base and \$3.833M for Overseas Contingency Operations (OCO); of which \$3.833M is realigned as part of the OCO for Base Requirements. FY 2020 OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

The Armament Retooling and Manufacturing Support (ARMS) program reuses idle capacity at active and inactive Government-Owned, Contractor-Operated (GOCO) Army Ammunition Plants and the GOCO Hawthorne Army Depot through commercialization. Congress enacted this program in the FY 1993 Defense Authorization Act (Public Law (PL) 102-484) and codified in FY 2000 (10 U.S.C. 4551-4555). ARMS resources are used for facility strategic reuse plans, marketing plans, building renovation and recapitalization, equipment purchase, relocation, or consolidation, as well as environmental baseline studies and site surveys to encourage commercial use of underutilized Army assets. The ARMS objectives include sustaining critical manufacturing capabilities and critical skills; reducing facility operating and maintenance costs; decreasing product cost; providing opportunities for small business; and accelerating private sector economic development, employment and investment. The ARMS program allows the Army to manage portions of the ammunition infrastructure as a commercial business. This management concept has allowed the Army to apply overhead costs across multiple commercial contracts to reduce operating costs.

Justification:

FY 2020 funding totals include \$0.0M for Base and \$3.833 for Overseas Contingency Operations, \$3.833 million realigned as part of the OCO for Base Requirements funding which reflects the Department's compliance with the Budget Control Act of 2011.

FY 2020 OCO for Base Requirements procurement dollars in the amount of \$3.833 million supports financial and marketing investments to attract revenue-producing tenants to locate on Government-Owned Contractor-Operated (GOCO) Army Ammunition Plants and the GOCO Hawthorne Army Depot. The ARMS program reduces Army cost of ownership and maintains critical munitions industrial base skills. Revenues collected will be utilized to reduce overhead and total annual operating costs, improve and maintain existing buildings for current tenants, and perform improvements to other vacant buildings to entice potential tenants.