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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.

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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
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>		

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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

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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
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>		

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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]: 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:								
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		-		-		-				
<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(†)	2,528.22	8,591	21.720	2,044.00	2,600	5.314	2,095.00	3,077	6.446	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	21.720	-	-	5.314	-	-	6.446	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	21.720	-	-	5.314	-	-	6.446	-	-	-	-	-	-	-	-	-
Support - Acceptance Testing Cost																		
First Article Test	-	-	0.238	-	-	0.634	-	-	0.498	-	-	-	-	-	-	-	-	-
Acceptance Test	-	-	-	-	-	-	-	-	0.251	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Acceptance Testing Cost</i>	-	-	0.238	-	-	0.634	-	-	0.749	-	-	-	-	-	-	-	-	-
Support - Product Improvement Cost																		
Production Qualification Test	-	-	1.018	-	-	0.650	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Product Improvement Cost</i>	-	-	1.018	-	-	0.650	-	-	-	-	-	-	-	-	-	-	-	-
Support - Production Engineering Cost																		
Production Engineering	-	-	3.022	-	-	1.902	-	-	1.523	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support - Production Engineering Cost</i>	-	-	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

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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]: 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 <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	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

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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]: 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 #	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																									1.850	2.798	
	2	2018	ARMY	13.285	.000	13.285																										13.285	
	1	2019	ARMY	9.186	.000	9.186																										9.186	
	2	2019	ARMY	7.515	.000	7.515																										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													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: 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	.626										.000												
✓	1	2020	ARMY	11.598	.000	11.598																		A	-	-	-	-	-	-	-	-	-	.972	.966	.966	.966	.966	.966	.966	.966	.966	.966	3.864	
✓	2	2020	ARMY	9.489	.000	9.489																		A	-	-	-	-	-	-	-	-	-	.799	.790	.790	.790	.790	.790	.790	.790	.790	.790	.790	3.160
							O C T	N O V	D E C	J A N	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 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

(†) 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 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 <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	-	16.398	-	15.002	15.002
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	-	16.398	-	15.002	15.002
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	-	-	-	-	-
Total Obligation Authority <i>(\$ in Millions)</i>	-	-	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 <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 ^(†)	-	-	-	-	-	-	14,206.56	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 <i>(Units in Each)</i>						Fiscal Year 2021													Fiscal Year 2022													BALANCE	
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	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			

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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				
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 (<i>Units in Each</i>)	-	-	-	-	-	-
Gross/Weapon System Cost (<i>\$ in Millions</i>)	164.570	69.000	44.623	-	54.737	54.737
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	164.570	69.000	44.623	-	54.737	54.737
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	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 (<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 ^(†)	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

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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:

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

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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]: 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 (Each)	Unit Cost (\$)	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.

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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]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]									

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: 11585																													
1	2018	ARMY	4,167	0	4,167																								0
1	2019	ARMY	2,503	0	2,503																								1,664
✓ 1	2020	ARMY	3,114	0	3,114																								3,114

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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]: E88106 / CTG, 120mm Tank APFSDS-T, M829A4 [CA64]									

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2021														Fiscal Year 2022														BALANCE		
O 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: 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																							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					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]: 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).