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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army **Date:** March 2019

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	55.565	24.019	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	79.584
ES2: Apache Product Improvement Program	-	55.565	24.019	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	79.584

A. Mission Description and Budget Item Justification

The funding associated with the Apache Product Improvement Program funding line, previously known as Apache Block III, funded the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture and new build Apache aircraft in the AH-64E configuration (deliveries began in Oct 2011). The AH-64E program consists of two Major Defense Acquisition Programs (MDAP), AH-64E Remanufacture and AH-64E New Build. This project addresses reliability challenges and provides increased combat capability to the aircraft. Upgrades include: Unmanned Aircraft System (UAS) Level III-IV Control, Improved Situational Awareness, Upgraded Communications Suite, Improved Drive and Propulsion Systems, Improved Targeting Capability, Increased Computer Processing Capability and Speed, Improved Navigation Systems, Improved Diagnostics and Maintainability, and Joint Air to Ground Missile (JAGM) integration. Upgrades are integrated as incremental block modifications. The program addresses operational shortfalls identified during real-world combat missions and meets Longbow Apache Capability Production Document (CPD) requirements for modernization.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	59.977	31.049	0.169	-	0.169
Current President's Budget	55.565	24.019	0.000	-	0.000
Total Adjustments	-4.412	-7.030	-0.169	-	-0.169
• Congressional General Reductions	-0.047	-0.030			
• Congressional Directed Reductions	-2.100	-7.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.265	-			
• Adjustments to Budget Years	-	-	-0.169	-	-0.169

Change Summary Explanation

Adjustment to FY 2020 budget year based on anticipated completion of Apache System Development and Demonstration (SDD) V6 program.

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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
ES2: Apache Product Improvement Program	-	55.565	24.019	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	79.584
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The funding associated with the Apache Product Improvement Program funding line, previously known as Apache Block III, funded the non-recurring engineering (NRE), development, and testing work associated with the planned remanufacture and new build Apache aircraft in the AH-64E configuration (deliveries began in Oct 2011). The AH-64E program consists of two Major Defense Acquisition Programs (MDAP), AH-64E Remanufacture and AH-64E New Build. This project addresses reliability challenges and provides increased combat capability to the aircraft. Upgrades include: Unmanned Aircraft System (UAS) Level III-IV Control, Improved Situational Awareness, Upgraded Communications Suite, Improved Drive and Propulsion Systems, Improved Targeting Capability, Increased Computer Processing Capability and Speed, Improved Navigation Systems, Improved Diagnostics and Maintainability, and Joint Air to Ground Missile (JAGM) integration. Upgrades are integrated as incremental block modifications. The program addresses operational shortfalls identified during real-world combat missions and meets Longbow Apache Capability Production Document (CPD) requirements for modernization.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Product Development									50.904	14.190	-	
Description: Funding is provided for the following efforts by Boeing.												
FY 2019 Plans:												
Will continue the Development, Integration & Testing work associated with the planned remanufacture and new build of Apache aircraft in the AH-64E Capability Version 6 configuration (cognitive decision aiding, modernized dayside assembly, modernized radio frequency interferometer, maritime targeting, and radar upgrades) and to enhance operational capabilities, and JAGM integration.												
FY 2019 to FY 2020 Increase/Decrease Statement:												
Completion of Apache System Development and Demonstration (SDD) V6 program.												
Title: Test and Evaluation									2.100	7.289	-	
Description: Funding is provided for Development Testing and Evaluation and Operational Test and Evaluation.												
FY 2019 Plans:												
Funds are required for completion of FOT&E II												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Completion of Apache System Development and Demonstration (SDD) V6 program.			
Title: Management Services Description: Funding is provided for the following effort: Payroll, Travel, Support Contractors, Matrix Support. FY 2019 Plans: Will continue to provide funding for the following effort: Payroll, Travel, Support Contractors, Matrix Support. FY 2019 to FY 2020 Increase/Decrease Statement: Completion of Apache System Development and Demonstration (SDD) V6 program.	2.561	1.435	-
Title: FY2019 SBIR / STTR Transfer FY 2019 Plans: SIBR / STTR Transfer break-out FY 2019 to FY 2020 Increase/Decrease Statement: FY2019 SBIR / STTR Transfer	-	1.105	-
Accomplishments/Planned Programs Subtotals	55.565	24.019	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• AA6605: AH-64 MODS	238.141	104.996	58.172	-	58.172	85.475	84.505	82.166	64.682	580.576	1,298.713
• A05111: AH-64 Apache Block IIIA Reman	905.326	927.798	997.719	-	997.719	962.446	706.243	799.500	806.301	Continuing	Continuing
• A05133: AH-64 Apache Block IIIB New Build	1,023.300	511.287	0.000	-	0.000	-	-	-	-	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The NRE will encompass subsystem integration and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and operational flight-testing.											
In FY14, a contract for Apache AH-64E Lot 3, initiating Full Rate Production, was awarded with options for Lot 4.											

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<p>Training device concurrency will be maintained with each technical insertion. The Engineering/Manufacturing Design (EMD) effort is managed as Cost Reimbursable. Production efforts will be awarded as Fixed Price Incentive (FPI) and include the Advance Procurement requirements.</p> <p>In FY13, FY14, and FY15 MRL NRE encompassed US Government (USG) design of the Hydra Launcher Electronics Assembly (LEA), modification of the M261 launcher, launcher fabrication, and launcher testing.</p> <p>In FY15-FY19, Apache AH-64E Version 6 System Development and Demonstration (SDD) Contract.</p> <p>Multi-year production awarded March 15, 2017.</p> <p>E. Performance Metrics N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program						Project (Number/Name) ES2 / Apache Product Improvement Program			
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services (In-House, Travel, etc.)	MIPR	PMO AAH Matrix Support AMCOM Express : Redstone Arsenal, AL	8.291	2.561		1.435		-		-		-	0.000	12.287	-
Subtotal			8.291	2.561		1.435		-		-		-	0.000	12.287	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
The Boeing Company	SS/CPIF	Boeing Contracts : Mesa, AZ	165.512	50.904		14.190		-		-		-	0.000	230.606	-
Longbow Limited Liability (LBL) Contracts	SS/CPIF	Longbow Limited Liability (LBL) Contracts : Orlando, FL	9.000	-		-		-		-		-	0.000	9.000	-
Ground Fire Acquisition Development (GFAD)	SS/CPIF	PM AVIATION SYSTEMS Various Activities : Various	12.000	-		-		-		-		-	0.000	12.000	-
FY2019 SBIR/STTR Transfer	TBD	N/A : N/A	-	-		1.105		-		-		-	0.000	1.105	-
Subtotal			186.512	50.904		15.295		-		-		-	0.000	252.711	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support Activities	MIPR	Various : Various	3.855	-		-		-		-		-	0.000	3.855	-
Subtotal			3.855	-		-		-		-		-	0.000	3.855	N/A

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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Assessments, Test Integration Working Group (TWIG), TEMP, etc.	MIPR	Various : Various	11.400	2.100		7.289		-		-		-	0.000	20.789	-
Subtotal			11.400	2.100		7.289		-		-		-	0.000	20.789	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	210.058	55.565	24.019	-	-	-	0.000	289.642	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army																Date: March 2019												
Appropriation/Budget Activity 2040 / 7								R-1 Program Element (Number/Name) PE 0607135A / Apache Product Improvement Program								Project (Number/Name) ES2 / Apache Product Improvement Program												
Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NRE Contracts - Boeing	<div></div> <div>NRE Contracts - Boeing</div>				<div></div> <div>1 FOT&E II</div>																							
Follow-On Test & Eval II																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army			Date: March 2019
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607135A / <i>Apache Product Improvement Program</i>	Project (Number/Name) ES2 / <i>Apache Product Improvement Program</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NRE Contracts - Boeing	1	2011	3	2018
NRE Contracts - Longbow Limited Liability	1	2011	4	2016
MRL Design	3	2013	4	2014
Force Develop Test & Evaluation (FDTE III)	4	2017	4	2017
Follow-On Test & Eval II	3	2019	3	2019
MRL Integration and Test	2	2015	4	2015