Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											Date: March 2019	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0607137A *I Chinook 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	-	155.433	144.722	174.371	-	174.371	46.136	2.052	2.000	1.021	Continuing	Continuing
ES4: *Chinook Product Improvement Program*	-	155.433	144.722	174.371	-	174.371	46.136	2.052	2.000	1.021	Continuing	Continuing
Program MDAP/MAIS Code: 577												

Note

Funds in this Program Element (PE) were realigned from PE 0203744A Aircraft Modifications/Product Improvement Programs, Project Number 430 Improved Cargo Helicopter.

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continued modernization of the Army's only heavy lift helicopter the CH-47F Chinook providing tomorrow's heavy lift readiness. The CH-47F project funds modernization, integration and improvements to the CH-47F and MH-47G helicopters through the CH-47F Block II program of record.

The CH-47F is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 lbs, representing an essential element of Muti-Domain Battle Operations. The CH-47F and MH-47G helicopters perform over 95% of the Army's heavy lift missions including troop transport, air assault and resupply in combat, combat support and combat service support roles.

The CH-47F Block II program provides additional benefits to increase commonality and interoperability between the two platforms, improve design life, lower maintenance cost, enhance reliability, safety, airworthiness, and cybersecurity. Additionally, funding supports full component qualification for numerous aircraft subsystems such as the Improved Drive Train (IDT) and Advanced Chinook Rotor Blade (ACRB), which increase performance in all environmental conditions (especially at high altitude and increased temperature). The CH-47F Block II program restores payload lost through mission equipment package (MEP) growth and enhances flight control systems, while providing the most cost effective procurement alternative to maintain heavy lift capability and reduce Operation & Support (O&S) costs.

The Cargo Project Management Office awarded the CH-47F Engineering and Manufacturing Development (EMD) contract in July 2017. The EMD phase will produce three production representative test articles to support a Milestone C decision in the 4th quarter of FY21. This phase will include contractor and Government led system level qualification testing. The contractor led system level qualification testing includes both ground and flight test. The Government led system level qualification testing includes Electromagnetic Environmental Effects (E3), Limited User Test (LUT) and aircraft subsystem Live-Fire Test and Evaluation (LFTE).

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army					Date: March 2019
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0607137A *I Chinook Product Improvement Program*			
B. Program Change Summary ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Previous President's Budget	194.567	157.822	174.371	-	174.371
Current President's Budget	155.433	144.722	174.371	-	174.371
Total Adjustments	-39.134	-13.100	0.000	-	0.000
• Congressional General Reductions	-0.130	-0.179			
• Congressional Directed Reductions	-32.750	-12.921			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.254	-			

Change Summary Explanation

FY 2019 Base RDTE $139.003 million. Adjustments FY2019 Previous President's Budget: *Congressional Directed Reductions -$12.921 million, *SBIR/STTR Transfer Total -$5.719 million (SBIR -$5.066 million and STTR -$0.653 million), and FFRDC -$0.179 million

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army											Date: March 2019	
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0607137A / *Chinook Product Improvement Program*				Project (Number/Name) ES4 / *Chinook 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**
ES4: *Chinook Product Improvement Program*	-	155.433	144.722	174.371	-	174.371	46.136	2.052	2.000	1.021	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Quantity of RDT&E Articles:
FY18 - Awarded: 1 - Ground Test Vehicle (GTV), 2 - CH-47F Block II Prototypes
FY19 - Awarded: 1 - CH-47F Block II Prototype

FY19 - Scheduled Delivery: 1 - GTV, 2 - CH-47F Block II Prototypes
FY20 - Scheduled Delivery: 1 - CH-47F Block II Prototype

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continued modernization of the Army's only heavy lift helicopter the CH-47F Chinook providing tomorrow's heavy lift readiness. The CH-47F project funds modernization, integration and improvements to the CH-47F and MH-47G helicopters through the CH-47F Block II program of record.

The CH-47F is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 lbs, representing an essential element of Muti-Domain Battle Operations. The CH-47F and MH-47G helicopters perform over 95% of the Army's heavy lift missions including troop transport, air assault and resupply in combat, combat support and combat service support roles.

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The Cargo Project Management Office awarded the CH-47F Engineering and Manufacturing Development (EMD) contract in July 2017. The EMD phase will produce three production representative test articles to support a Milestone C decision in the 4th quarter of FY21. This phase will include contractor and Government led system level qualification testing. The contractor led system level qualification testing includes both ground and flight test. The Government led system level qualification testing includes Electromagnetic Environmental Effects (E3), Limited User Test (LUT) and aircraft subsystem Live-Fire Test and Evaluation (LFTE).

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Modernization Integration ***Description:*** This effort performs the following objectives: finalizes a test article design that converts a CH-47D aircraft to a Ground Test Vehicle (GTV); completes Block II Common Avionics Architecture System (CAAS) coordination and vehicle interface planning; updates weight and balance data with the final design inputs and changes; finalizes Reliability and Maintainability (R&M) and safety analyses; finalizes structural, stress, and fatigue substantiation; finalizes vehicle level drawings and assemblies (including alignment definitions); completes all manufacturing tooling designs for specific cockpit and cabin positions; releases final engineering to support test article development; finalizes manufacturing planning for the Block II Air Vehicle; completes system integration non-recurring engineering (NRE) prior to Engineering and Manufacturing Development (EMD).	6.049	-	-	-	-
Title: Improved Drive Train (IDT) ***Description:*** This effort modernizes the CH-47 drive train by implementing design changes to operate at a higher power level to maximize engine power available, increase performance and restore payload lost through mission equipment package (MEP) growth. Additionally, this effort addresses Operations and Support (O&S) cost reductions while fully qualifying the improved drive train at the component level. ***FY 2019 Plans:*** Continue test preparation and execution for the forward transmission, static/dynamics strain survey and sync shaft fatigue tests. Initiate qualification endurance, overstress, gear tooth bending fatigue test for aft/forward transmission. Initiate planning for reduced lubrication and oil out test on the aft/combiner/forward transmissions. ***FY 2020 Base Plans:*** Perform contractor led component qualification to support forward and aft rotor shaft fatigue testing. Document test results to support full airworthiness component qualification. Additionally, this testing will identify component useful life necessary to support flight test. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding decrease due to test completion and documentation in FY20 to support full component qualification on the Improved Drive Train (IDT).	17.500	9.471	7.587	-	7.587
Title: Transportable Flight Proficiency Simulator (TFPS) ***Description:*** The Transportable Flight Proficiency Simulator (TFPS) is a certified transportable flight trainer featuring a high fidelity visual display, detailed cockpit representation and motion cueing seats. It is capable of	9.915	12.300	1.000	-	1.000

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
training mission tasks and emergency procedures and provides a cost savings when compared to using aircraft for these purposes. The TFPS will increase safety and mitigate risk to Block II Limited User Test (LUT) aircrews by allowing pilots to train aircraft differences in modifications, handling qualities, performance and human factors considerations before actual flight is performed. Training in the TFPS reduces LUT timelines and improves aircrew proficiency as confirmed in the CH-47F (Block I) Phase 2 User Test Report. The initial Block II TFPS will also serve as building block for upgrading the fielded TFPSs to the Block II configuration. ***FY 2019 Plans:*** Continue procurement, development, integration and fabrication of simulator hardware and software components. ***FY 2020 Base Plans:*** Build, certify, test, and relocate the Transportable Flight Proficiency Simulator to prepare for training. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding decrease due to completion of the design and build efforts for the initial Transportable Flight Proficiency Simulator to support Block II.					
Title: CH-47F Block II Engineering and Manufacturing Development (EMD) ***Description:*** Conduct and support aircraft development and complete assembly of three (3) EMD test articles to include Advanced Chinook Rotor Blade (ACRB), airframe components, Improved Drive Train (IDT) and rotor components, light weight fuel system and electrical components. Complete fabrication, assembly, and initial functional checks of the GTV and remote control system (RCS). Conduct functional testing of the CH-47F Block II systems. Conduct Test Readiness Review (TRR) for EMD ground and flight testing. Release of EMD flight test software. Begin contractor led system level ground and flight testing. Deliver documentation that demonstrates requirements verification and production configuration baseline. Continue Integrated Logistics Support (ILS) and Integrated Contractor Supply (ICS) support for initial flight test activities. ***FY 2019 Plans:*** Conduct and support aircraft development and complete assembly of three (3) EMD test articles to include ACRB, airframe components, Improved Drive Train (IDT) and rotor components, light weight fuel system and electrical components. Complete fabrication, assembly, and initial functional checks of the GTV and remote control system (RCS). Conduct functional testing of the CH-47F Block II systems. Conduct Test Readiness Review (TRR) for EMD ground and flight testing. Release of EMD flight test software. Begin contractor led	92.215	89.759	131.836	-	131.836

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
system level ground and flight testing. Deliver documentation that demonstrates requirements verification and production configuration baseline. Continue Integrated Logistics Support (ILS) and Integrated Contractor Supply (ICS) support for initial flight test activities. ***FY 2020 Base Plans:*** Continue Engineering and Manufacturing Development (EMD) system level ground and flight testing to support full airworthiness qualification. Develop technical publications, provisioning and training for operators and maintainers. Develop material solutions and fielding plan for ground support equipment. Perform maintenance demonstration, requirements traceability and system verification. Utilize the Ground Test Vehicle (GTV) to support dynamic live fire testing. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding increase due to majority of system level test occurring in FY20.					
Title: Matrix and Contractor Support ***Description:*** This funding provides support costs for various government agencies, contractor support and matrix organizations supporting the Block II Engineering and Manufacturing Development (EMD) program with systems engineering, test support, airworthiness certification, project management, general engineering, logistics and business support. ***FY 2019 Plans:*** Continue funding support costs for various external government agencies, contractor support and other matrix organizations supporting the Block II development Program. ***FY 2020 Base Plans:*** Continue funding support costs for various government agencies, contractor support, and other matrix organizations supporting the Block II EMD Program. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding decrease to align with support requirements for FY 20 approved development activities.	7.346	7.163	6.738	-	6.738
Title: Advanced Chinook Rotor Blade (ACRB) ***Description:*** This effort designs, develops and performs contractor led component qualification for an improved rotor blade capability. This capability significantly increases lift capability, reduces Operation and Support (O&S) costs and is a form, fit replacement for the current blade, which will enable payload restoration to the ground force commander. Conduct additional flight testing to reduce risk for Engineering and Manufacturing	17.694	9.858	8.619	-	8.619

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Development (EMD) and validate Computational Fluid Dynamics (CFD) and Computational Structural Dynamics (CSD) models. ***FY 2019 Plans:*** Complete build of ACRB blades for component level qualification testing to support entry into Block II Flight Testing. Submit test plans and test reports in support of EMD flight test Air Worthiness Release (AWR). ***FY 2020 Base Plans:*** Conduct engineering analysis of Advanced Chinook Rotor Blade (ACRB) design changes resulting from Block II flight testing. Continue structural testing and development of material allowables in support of ACRB full component qualification. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding decrease due to level of effort required to perform full component airworthiness qualification.					
Title: Testing and Evaluation ***Description:*** This effort supports component and system level testing to qualify design improvements in the airframe, fuel system, avionics, drive train, rotor subsystem, and Advanced Chinook Rotor Blade (ACRB). Block II improvements will be validated through endurance, Live-Fire Test and Evaluation (LFTE), Electromagnetic Environmental Effects (E3), Limited User Test (LUT), and test evaluation activities. ***FY 2019 Plans:*** Construct GTV fixture and perform endurance testing of the Improved Drive Train and Improved Rotor Subsystem. Conduct first flight and begin Block II EMD ground and flight test. Test preparation for and commencement of Live Fire testing on the Lightweight Fuel System and selected components of the Improved Drive Train. Continued coordination, planning and subsystem test and execution of the cybersecurity test program. Commencement of the RAM data collection program. Initiate planning requests and coordination for the Limited User Test (LUT). ***FY 2020 Base Plans:*** Transition from contractor led flight testing to government led flight testing of three production representative test aircraft for system level performance and airworthiness qualification. Continue Advanced Chinook Rotor Blade (ACRB) live fire testing and conduct system level live fire testing at Army Research Laboratory (ARL).	4.714	10.452	18.591	-	18.591

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Conclude system level Electromagnetic Environmental Effects (E3) and ground developmental testing. Complete coordination and initiate execution support for Limited User Test (LUT). ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding increase due to majority of system level test occurring in FY 20. This includes performing Electromagnetic Environmental Effects (E3), Live-Fire Test and Evaluation (LFTE) and Limited User Test (LUT).					
Title: FY 2019 SBIR / STTR Transfer ***Description:*** FY2019 SBIR/STTR Transfer value was not adjusted for PB2020 Army (February 2019) See R-2 section B "Change Summary Explanation" page 2. Current President?s Budget amount 144.722M only reflects Congressional marks and FFRDC adjustments and appears 5.719M more than funding amount received 139.003M. The SBIR / STTR adjustment must be captured to adequately portray total program for FY2019. This is a work around to alleviate the perceived overage until the P&R database syncs with the Resource Formulation System (RFS). ***FY 2019 Plans:*** The program did not receive these dollars as this is a standard transfer of dollars not received by the program office. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The FY2020 SBIR/STTR amount is expected to increase as this value is derived as a fixed percentage of the PB submission. CH-47F Block II total program funding for PB20 is greater than PB19, thus an increase is expected.	-	5.719	-	-	-
Accomplishments/Planned Programs Subtotals	155.433	144.722	174.371	-	174.371

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
• AA0252: *CH-47 Cargo Helicopter Mods (MYP)*	22.366	27.807	11.785	-	11.785	3.552	2.936	0.606	0.734	Continuing	Continuing
• A05105: *CH-47 SLEP*	88.560	140.056	158.476	-	158.476	179.300	166.100	183.687	194.350	Continuing	Continuing
• A05008: *CH-47 NEW BUILD*	368.236	-	0.000	25.000	25.000	25.000	-	-	-	0.000	418.236

Remarks

100% of the A05105 is MH-47G Block II procurement.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

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
100% of the A05008 OCO is MH-47G Block II procurement.											

D. Acquisition Strategy

The Cargo Program Management Office (PMO) is executing a block strategy to facilitate incremental upgrades to ensure performance necessary to meet the needs of the future force until a Heavy Future Vertical Lift (FVL) variant is fielded. The Block II program will restore performance lost due to the added weight of safety and survivability equipment incorporated since initial fielding in 2007. Additional objectives of the Block II program include: efficiently incorporating multiple engineering changes, accomplishing required mid-life airframe recapitalization, converging the special operations and conventional Army designs, establishing a foundation for future block upgrades, and maintaining the industrial base until a Heavy Future Vertical Lift (FVL) is realized.

E. Performance Metrics

N/A

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 0607137A / *Chinook Product Improvement Program*	Project (Number/Name) ES4 / *Chinook Product Improvement Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modernization Integration	Option/ Various	Boeing Ridley : Park PA	30.881	6.049	Nov 2017	-		-		-		-	Continuing	Continuing	Continuing
Engineering and Manufacturing Development (EMD)	SS/CPIF	Boeing Ridley : Park, PA	34.964	92.215	Dec 2017	89.759	Dec 2018	131.836	Dec 2019	-		131.836	Continuing	Continuing	Continuing
Advanced Chinook Rotor Blade (ACRB)	SS/CPFF	Boeing Ridley : Park PA	31.523	17.694	Nov 2017	9.858	Dec 2018	8.619	Nov 2019	-		8.619	Continuing	Continuing	Continuing
Improved Drive Train (IDT)	SS/CPFF	Boeing Ridley : Park, PA	18.504	17.500	Nov 2017	9.471	Dec 2018	7.587	Nov 2019	-		7.587	Continuing	Continuing	Continuing
Electronic Control Unit (ECU) Software Upgrade	SS/CPFF	Honeywell : Phoenix, AZ	8.607	-		-		-		-		-	0.000	8.607	-
Ratio Detector Power Supply (RDPS)	SS/CPFF	Boeing Ridley : Park, PA	5.570	-		-		-		-		-	0.000	5.570	-
Transportable Flight Proficienct Simulator (TFPS)	MIPR	NAVAIR : Patuxent River NAS, MD	-	9.915	May 2018	12.300	May 2019	1.000	May 2020	-		1.000	Continuing	Continuing	-
FY 2019 SBIR / STTR Transfer	TBD	To Be Determined : To Be Determined	-	-		5.719	Jan 2019	-		-		-	0.000	5.719	-
		Subtotal	130.049	143.373		127.107		149.042		-		149.042	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Matrix and Contractor Support from External Sources	Various	Various Government and contractor : RSA & Huntsville, AL, Aberdeen Proving Ground MD,	7.938	7.346	Oct 2017	7.163	Oct 2018	6.738	Oct 2019	-		6.738	Continuing	Continuing	Continuing
		Subtotal	7.938	7.346		7.163		6.738		-		6.738	Continuing	Continuing	N/A

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 0607137A / *Chinook Product Improvement Program*	Project (Number/Name) ES4 / *Chinook Product Improvement Program*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System and Component Level Test	Various	Boeing Ridley : Park PA and Various Government	16.873	4.714	Dec 2017	10.452	Dec 2018	18.591	Dec 2019	-		18.591	Continuing	Continuing	Continuing
		Subtotal	16.873	4.714		10.452		18.591		-		18.591	Continuing	Continuing	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	154.860	155.433		144.722		174.371		-		174.371	Continuing	Continuing	N/A

Remarks

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 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

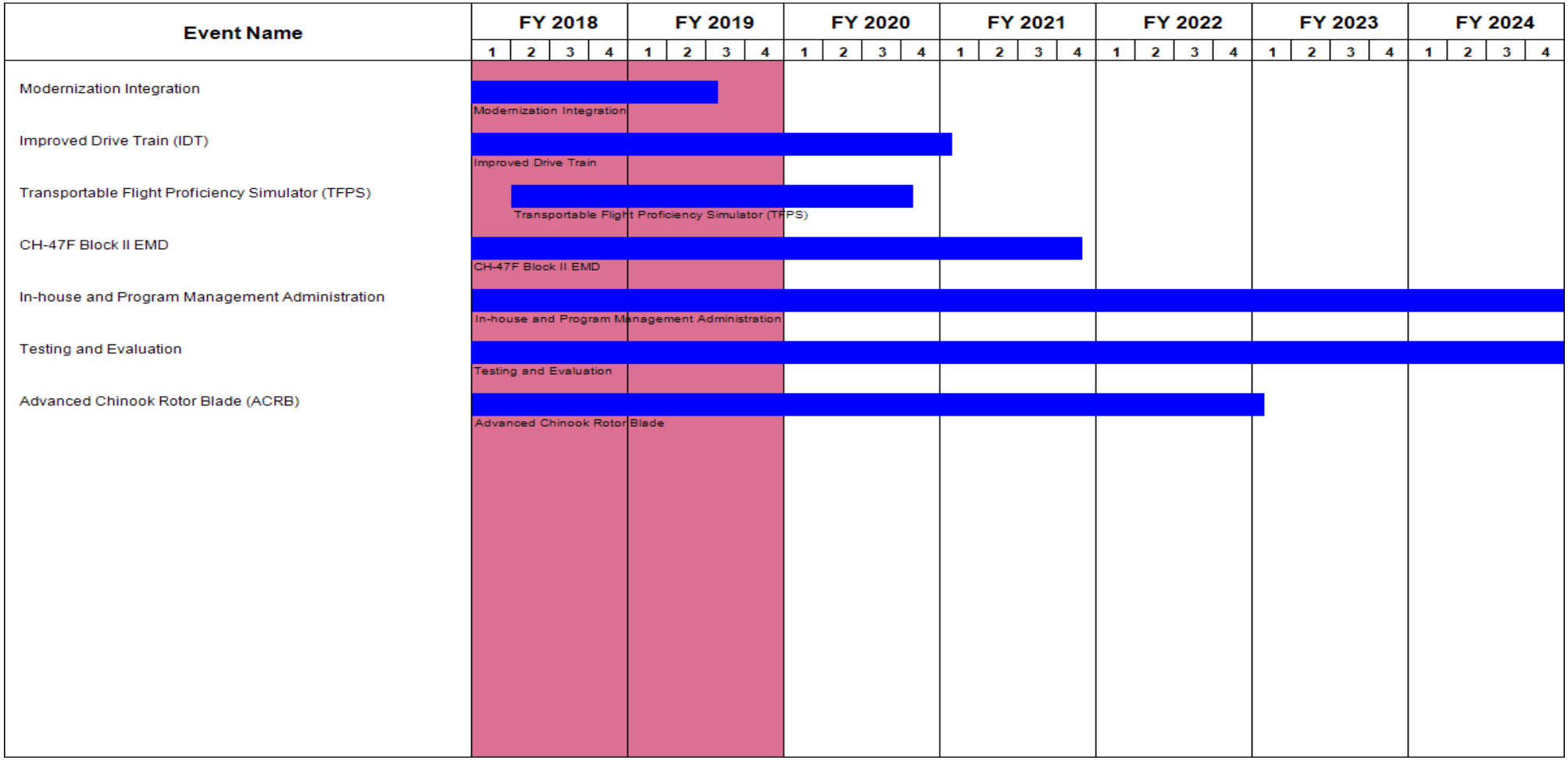

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Modernization Integration	3	2015	3	2019
Improved Drive Train (IDT)	3	2014	1	2021
Transportable Flight Proficiency Simulator (TFPS)	2	2018	4	2020
CH-47F Block II EMD	4	2017	4	2021
In-house and Program Management Administration	1	2017	4	2024
Testing and Evaluation	3	2015	4	2024
Advanced Chinook Rotor Blade (ACRB)	1	2011	1	2023