Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army											Date: March 2024	
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 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	-	65.596	9.265	4.816	-	4.816	12.599	8.738	8.836	8.924	Continuing	Continuing
ES4: *Chinook Product Improvement Program*	-	65.596	9.265	4.816	-	4.816	12.599	8.738	8.836	8.924	Continuing	Continuing
Program MDAP/MAIS Code: 577												

A. Mission Description and Budget Item Justification

Program Element (PE) 0607137A Chinook Product Improvement Program is critical to achieving heavy lift for the Army of 2030 Operational capability. With an increased payload and operational reach, the CH-47F Block II is the only platform that can lift the Joint Light Tactical Vehicle (JLTV), M777 and medium girder bridge to enable Army of 2030 Forces to Compete, Penetrate, Disintegrate and Exploit at operationally relevant distances.

CH-47F Block II Modernization Product Management Office includes the Block II acquisition program that upgrades existing CH-47F aircraft and procures common hardware between the CH-47F and MH-47G aircraft. The CH-47F Block II program reduces O&S costs. It provides additional capability to the field with greater reach, increased payload capability and increased maximum gross weight to 54,000 pounds. CH-47F Block II upgrades include a strengthened airframe and improvements to the rotor, fuel and electrical systems which improves the aircraft's safety and reliability. The program updates the Common Avionics Architecture System (CAAS) and Digital Advanced Flight Control System (DAFCS) software packages of the aircraft and incorporates other avionics changes introduced into the final CH-47F production lots. Along with providing significantly increased capability to the field, the program includes provisions for anticipated future upgrades as well as weight and cost savings initiatives to ensure the Army has a platform with the flexibility and performance needed to meet the needs of the Army of 2030 operations.

The Cargo Project Management Office awarded the CH-47F Block II Engineering and Manufacturing Development (EMD) contract in July 2017. The EMD phase produced three production representative test articles to support an acquisition decision. This phase includes contractor and government led ground and flight system level qualification testing, which requires Electromagnetic Environmental Effects (E3), operation assessments and aircraft subsystem Live-Fire Test and Evaluation (LFTE). On 27 September 2021, the Army provided direction to remove the Advanced Chinook Rotor Blade (ACRB) from the CH-47F Block II system configuration and replace them with the currently fielded Fiberglass Rotor Blades (FRB) for the duration of the EMD phase.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	67.513	9.265	4.929	-	4.929
Current President's Budget	65.596	9.265	4.816	-	4.816
Total Adjustments	-1.917	0.000	-0.113	-	-0.113
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.917	-			
• Adjustments to Budget Years	-	-	-0.113	-	-0.113

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: ES4: *Chinook Product Improvement Program*		
Congressional Add: *Program increase - CH-47 Engine Enhancement*	15.000	-
Congressional Add Subtotals for Project: ES4	15.000	-
Congressional Add Totals for all Projects	15.000	-

Change Summary Explanation

FY25 funding reduction impacts engineering activities driven by EMD testing and decreases support from Other Government Agencies (OGA) on the EMD aircraft.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
ES4: *Chinook Product Improvement Program*	-	65.596	9.265	4.816	-	4.816	12.599	8.738	8.836	8.924	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Program Element (PE) 0607137A Chinook Product Improvement Program is critical to achieving heavy lift for the Army of 2030 Operational capability. With an increased payload and operational reach, the CH-47F Block II is the only platform that can lift the Joint Light Tactical Vehicle (JLTV), M777 and medium girder bridge to enable Army of 2030 Forces to Compete, Penetrate, Disintegrate and Exploit at operationally relevant distances.

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The Cargo Project Management Office awarded the CH-47F Block II Engineering and Manufacturing Development (EMD) contract in July 2017. The EMD phase produced three production representative test articles to support an acquisition decision. This phase includes contractor and government-led, ground and flight, system-level qualification testing, which requires Electromagnetic Environmental Effects (E3), operation assessments and aircraft subsystem Live-Fire Test and Evaluation (LFTE). On 27 September 2021, the Army provided direction to remove the Advanced Chinook Rotor Blade (ACRB) from the CH-47F Block II system configuration and replaced them with the currently fielded Fiberglass Rotor Blades (FRB) for the duration of the EMD phase.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: CH-47F Block II Engineering and Manufacturing Development (EMD)	1.374	-	-
Description: Conducted and supported aircraft development, completed assembly, and delivered three EMD test articles, including airframe components, Improved Drive Train (IDT), Improved Rotor System (IRS), lightweight fuel system, electrical components, and the currently fielded FRB. Completed fabrication, assembly, and initial functional checks of the Ground Test Vehicle (GTV) and remote control system (RCS); conducted GTV test operations, functional testing of the CH-47F Block II systems, and Test Readiness Review (TRR) for EMD ground and flight testing. Released EMD flight test software. Performed contractor-led system-level ground and flight testing. Delivered documentation that demonstrates requirements verification and			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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 2023	FY 2024	FY 2025
production configuration baseline. Continued Integrated Logistics Support (ILS) and Integrated Contractor Supply (ICS) support for initial flight test activities. Shut down all ACRB efforts and terminated the associated contracts.			
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 2024 Plans:*** Continue funding for various government agencies, contractor support, and other matrix organizations in support of CH-47F Block II EMD activities, design, system engineering, fabrication, and Integrated Logistics Support (ILS) in support of production- aircraft configuration, corrective hardware and software actions. ***FY 2025 Plans:*** Continues funding support costs for various government agencies, contractor support and other matrix organizations in support of CH-47F Block II EMD closeout, Milestone C documentation development, design, systems engineering, data analysis and airworthiness coordination. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The decrease is the reduction of support from Other Government Agencies (OGAs) activities on the EMD aircraft.	6.600	1.016	0.384
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, and rotor subsystem. Block II improvements are validated through component endurance, testing of IDT, IRS, Live Fire Test and Evaluation (LFTE), Electromagnetic Environmental Effects (E3), and future test activities. ***FY 2024 Plans:*** Continue engineering support and mitigations for technical challenges discovered during EMD phase test events. Incorporate mitigations and improvements onto the production aircraft. Continue system level validation and verification of production aircraft configuration in preparation of future operational testing. Complete testing of DAFCS software to provide improved system handling qualities in support of operational test and fielding. Testing includes hardware and software modifications to the software integration laboratories (SIL) for software testing of production aircraft configuration. ***FY 2025 Plans:*** Enter into Safety of Flight (SOF) testing for Aviation Survivability Equipment (ASE) and Aviation Mission Systems and Architecture (AMSA) equipment. Conduct Electromagnetic Environmental Effects (E3) testing on the production representative aircraft	25.104	7.249	3.364

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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 2023	FY 2024	FY 2025
followed by handling qualities testing. Provide continued engineering support for any issues or challenges encountered during system level testing to prepare for IOT&E testing. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The decrease is the reduction of engineering activities driven by EMD testing to include completion of any reports, engineering drawing updates and analyses.			
Title: System Support ***Description:*** Conduct design, system engineering, fabrication, and ILS to support production aircraft configuration, corrective hardware and software actions that are required to address technical challenges identified in the EMD phase. Conduct requirements update and verification efforts resulting from CH-47F Block II system configuration change from ACRB to FRB. Support test efforts to improve production aircraft operational availability and reduce maintenance costs. Conduct modifications of production aircraft and other test assets to support component and system level testing events. Implement corrective hardware and software actions that are required to address technical challenges identified during testing of the production aircraft. Perform system level verification and validation of production aircraft configuration in preparation for future operational testing. Deliver documentation in support of a material release that enables system fielding. ***FY 2024 Plans:*** Continue the qualification of Government Furnished Equipment in support of production aircraft. This includes updates to the Aviation Mission Planning Systems to support SIL testing, developmental flight test activities, and pre-Initial Operational Test and Evaluation (IOT&E) activities. Additionally, a tool to support the previously mentioned activities is the Cargo Engineering Analysis Cockpit (CH-EAC), where the CH-EAC provides a virtual capability to perform Crew Station Working Groups (CSWGs). The CSWGs are conducted by actual pilot Subject Matter Experts (SMEs) in the field and the SMEs are brought into the CH-EAC facility to help evaluate software and avionics changes and how that impacts pilot workload. ***FY 2025 Plans:*** Continued development of the Aviation Mission Planning System (AMPS) to support SIL testing. Qualification of the GFE items for performance improvements to the CH-47 Block II for Lot 3. Provide development and engineering support of Cargo Engineering Analysis Cockpit (CH-EAC) for evaluation of software and avionics impacts affecting pilot workload. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The increase supports continued qualification of GFE for the Block II and increased SIL testing of the CH-EAC with the inclusion of AMPS and new Common Avionics Architecture System (CAAS) software updates.	17.518	1.000	1.068
Accomplishments/Planned Programs Subtotals	50.596	9.265	4.816

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
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*

	FY 2023	FY 2024
Congressional Add: Program increase - CH-47 Engine Enhancement	15.000	-
FY 2023 Accomplishments: Congressional increase for CH-47 Engine Enhancement		
Congressional Adds Subtotals	15.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• A05105: *CH-47 SLEP*	387.898	221.423	699.698	-	699.698	690.613	559.420	544.381	535.033	Continuing	Continuing

Remarks

FY 2020 A05008 OCO is for Army Common MH-47G New Build War Replacement Aircraft Block II procurement.
FY 2021 A05008 OCO is for CH-47F New Build War Replacement Aircraft Block I procurement.
FY 2020 A05105 All Funding is for Army Common MH-47G RENEW Aircraft Block II procurement.
FY 2021 A05105 Funding is for 6 Army Common MH-47G RENEW Aircraft Block II procurement.
FY 2021 A05105 Funding is for 4 CH-47F RENEW Aircraft Block II procurement.
FY 2022 A05105 Funding is for 6 Army Common MH-47G RENEW Aircraft Block II procurement.
FY 2022 A05105 Funding is for 2 CH-47F RENEW Aircraft Block II procurement.
FY 2023 A05105 Funding is for 6 Army Common MH-47G RENEW Aircraft Block II procurement.
FY 2023 A05105 Funding is for 3 CH-47F RENEW Aircraft Block II procurement.

D. Acquisition Strategy

Inducted CH-47F Block I aircraft receive consolidated separate engineering change proposals for a single CH-47F Block II upgrade, which provides an increased maximum gross weight of 54,000 pounds. 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. The CH-47F Block II program restores payload lost through mission equipment package (MEP) growth. It enhances flight control systems, while providing the most effective procurement alternative to maintain heavy lift capability and reduce Operation and Support (O&S) costs.

Quantity of RDT&E Articles:
FY 2017 - Awarded: 1 - Ground Test Vehicle (GTV), 3 - CH-47F Block II Prototypes

FY 2019 - Delivered: 1 - GTV, 2 - CH-47F Block II Prototypes
FY 2020 - Delivered: 1 - CH-47F Block II Prototype

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
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 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Manufacturing Development (EMD)	SS/CPIF	Boeing Ridley : Park, PA	369.268	1.374	Nov 2022	-		-		-		-	0.000	370.642	-
System Support	SS/ Various	Boeing : Ridley Park PA and Various Government	17.186	17.518	Jun 2023	1.000	May 2024	1.068	Jul 2025	-		1.068	0.000	36.772	-
Congressional Add Program Increase CH-47 Engine Enhancement	Various	Various : Various	7.500	15.000	Dec 2023	-		-		-		-	0.000	22.500	-
		Subtotal	393.954	33.892		1.000		1.068		-		1.068	0.000	429.914	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support	Various	Various Government and contractor : RSA & Huntsville, AL, Aberdeen Proving Ground MD,	40.493	6.600	Oct 2022	1.016	Oct 2023	0.384	Oct 2024	-		0.384	Continuing	Continuing	Continuing
		Subtotal	40.493	6.600		1.016		0.384		-		0.384	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing and Evaluation	Various	Boeing Ridley : Park PA and Various Government	67.923	25.104	Nov 2022	7.249	Nov 2023	3.364	Nov 2024	-		3.364	Continuing	Continuing	Continuing
		Subtotal	67.923	25.104		7.249		3.364		-		3.364	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army			Date: March 2024
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*	

	Prior Years	FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	502.370	65.596		9.265		4.816		-		4.816	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
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*

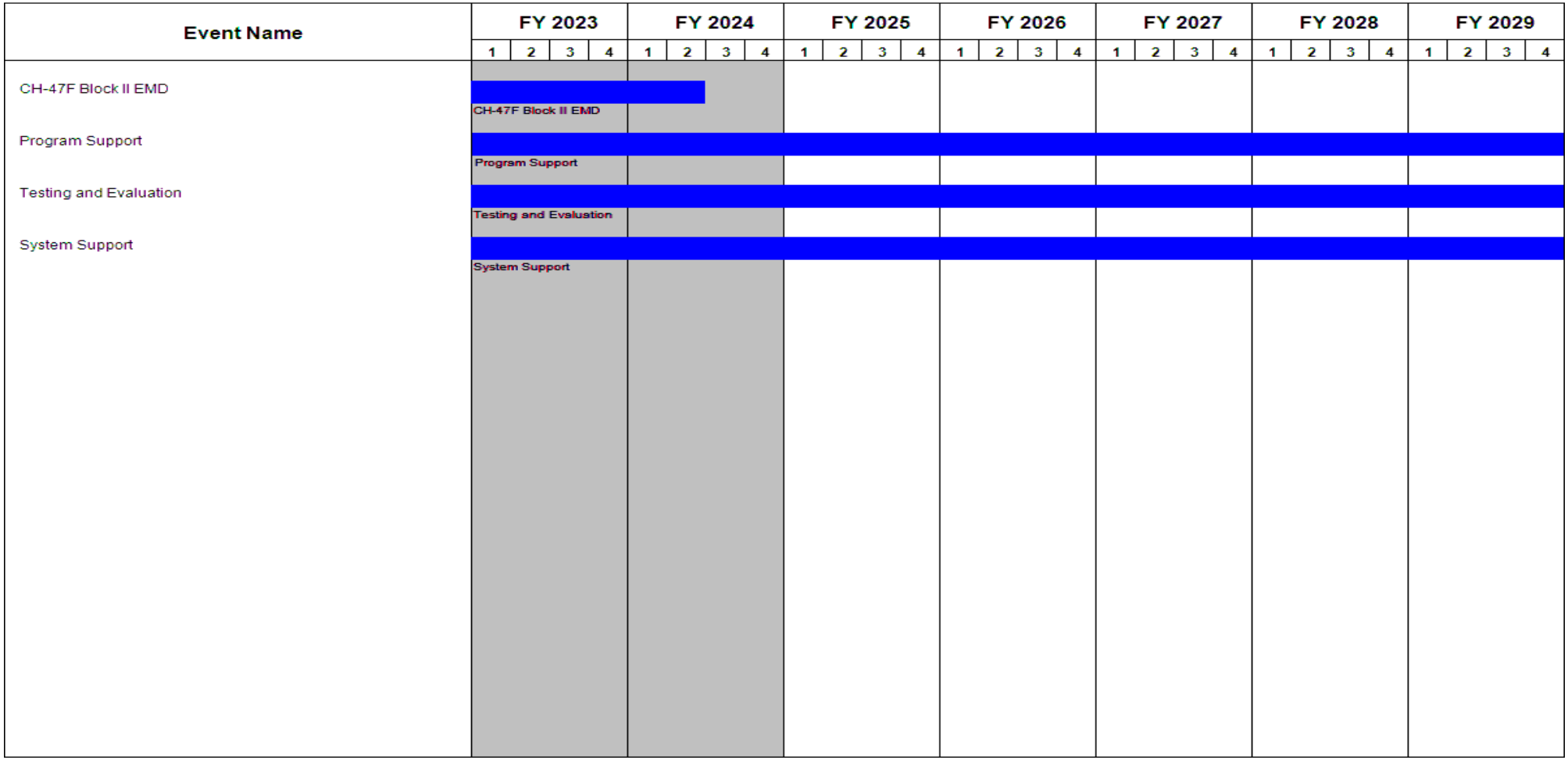

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607137A / *Chinook Product Improvement Program*	**Project (Number/Name)** ES4 / *Chinook Product Improvement Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Improved Drive Train (IDT)	3	2014	4	2021
Transportable Flight Proficiency Simulator (TFPS)	2	2018	4	2020
Milestone B	3	2017	3	2017
CH-47F Block II EMD	4	2017	2	2024
Program Support	1	2017	4	2029
Advanced Chinook Rotor Blade (ACRB)	1	2011	4	2021
Testing and Evaluation	3	2015	4	2029
System Support	3	2022	4	2029