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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>
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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	-	18.425	24.900	38.225	-	38.225	14.242	15.099	16.299	16.462	0.000	143.652
ER7: <i>Aircraft Survivability Equipment Development</i>	-	11.642	15.177	4.703	-	4.703	9.528	10.335	11.481	11.596	0.000	74.462
ER8: <i>Common Missile Warning System (CMWS)</i>	-	6.783	9.723	5.097	-	5.097	4.714	4.764	4.818	4.866	0.000	40.765
ITD: <i>Improved Threat Detection System (ITDS)</i>	-	-	-	28.425	-	28.425	-	-	-	-	0.000	28.425

Note

Funding transitioned from XT4 (PE 0605049A): Advanced Threat Detection System (ATDS) in FY24 to ITD (PE 0605051A): Improved Threat Detection System (ITDS) in FY25. PE 0605051A / Improved Threat Detection System (ITDS) is a New Start.

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of the Aircraft Survivability Equipment (ASE) as well as the Future Vertical Lift (FVL) platforms. The Aircraft Survivability Development program includes Projects titled Aircraft Survivability Equipment Development (ER7) and Common Missile Warning System (CMWS) (ER8). This program previously included funding for Joint Urgent Operational Needs Statement (JUONS) SO-0010 Phase 2a, Headquarters Department of the Army (HQDA) Directed Requirement for Advanced Threat Warner (ATW) portion of Phase 3 ATW/Common Infrared Countermeasures Quick Reaction Capability (ATW/CIRCM QRC), and Limited Interim Missile Warning System Quick Reaction Capability (LIMWS QRC). As of FY2025, the ATW and JUONS RDT&E efforts have been completed, and aircraft deployed with JUONS have been de-modified.

ER7: Aircraft Survivability Development.

The objective of the ASE Development project is to improve Radio Frequency (RF) ASE for Army Aviation. APR-39 Radar Warning Receiver (RWR) detects, categorizes, and prioritizes RF emitters and provides a visual / aural alert to aircrew members warning them of targeting by RF-guided weapons. The Milestone Decision Authority (MDA) approved Phases 1 and 2 of a 3-phased path forward.

Phase 1, APR-39C(V)1/4, serves as an obsolescence / sustainment upgrade to the Processor Line Replaceable Unit (LRU) for AN/APR-39A(V) RWR implemented to ensure that the currently fielded system remains viable until affordable improved RF ASE capability can be pursued in Phases 2 and 3.

Phase 2A is RWR Modernization begins by adopting the United States Navy APR-39D(V)2 system. APR-39D(V)2 will significantly improve the RF threat coverage, automatic detection and identification of threat types, bearing, and lethality. Phase 2B, the APR-39E(V)2, Modernized Radar Warning Receiver (MRWR), is an Army Engineering Change Proposal (ECP) to APR-39D(V)2, approved in the Acquisition Decision Memorandum (ADM) signed June 24, 2019. This ECP will implement

UNCLASSIFIED

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<p>enhanced hardware and software upgrades to keep APR-39 technically relevant against new and emerging agile threats. APR-39E(V)2 is part of the suite of ASE mission equipment for the FVL platforms.</p> <p>Phase 3 adds active Radio Frequency Electronic Countermeasures (RF-ECM) capability for selected aircraft with Material Development Decision (MDD) planned in the future.</p> <p>Justification: FY 2025 Base RDT&E funding of \$4.703 million supports APR-39E(V)2 Hardware and Software System Development, and Systems Engineering and Program Management (SEPM).</p> <p>ER8: Common Missile Warning System (CMWS). The CMWS program is a missile warning system that cues both flare and laser-based countermeasures to defeat incoming Infrared (IR)-seeking missiles and will alert aircrews to the presence of certain incoming munitions. The B-Kit consists of the components which perform the missile detection and aircrew notification, munitions detection and aircrew notification, false alarm rejection, and countermeasure employment/cueing functions of the system. The CMWS Electronic Control Unit (ECU) receives ultraviolet (UV) missile detection data from Electro-Optic Missile Sensors (EOMS), which detect UV signals, and sends a missile alert signal to warn aircrews via on-board avionics. Tier 1 threat missiles detected and tracked by CMWS are subsequently defeated by a combination of missile seeker countermeasures, including decoy flares and IR Laser Jamming (currently Common Infrared Countermeasures (CIRCM) -multiple platforms and Advanced Threat Infrared Countermeasures (ATIRCM)-equipped CH-47 platform only). In addition CMWS ECU receives from the EOMS munitions detection data which it also passes to the aircrew through aural and visual alerts. The aircrew then applies the appropriate Tactics, Techniques and Procedures (TTPs) to break contact or engage the enemy with own-ship ordnance. CMWS Generation 3 (Gen 3) ECU in conjunction with ongoing software development efforts will address outstanding materiel release conditions and ensure protection against emerging IR-guided missile threats. Due to evolving threats, CMWS will remain in the Army inventory beyond 2040 and must remain relevant against emerging threats.</p> <p>The A-Kit for CMWS includes mounting hardware, wiring harnesses, cables, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type.</p> <p>As a part of Phase 2a of the Joint Urgent Operational Needs Statement (JUONS) (SO-0010) program, the Army integrated the DoN LAIRCM system onto the Army and Special Operations Aircraft Platforms. Due to a number of challenges, circumstances, and variables, the Army updated the Advanced Threat Warning/CIRCM QRC and LIMWS Directed Requirements (dated November 16, 2018). The updated requirements extended the utilization of ATW DoN LAIRCM on conventional Army aircraft and canceled the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintained the need for ATW/ CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft were transferred to Special Operations Aircraft budget line in FY23). As a result, the Army did not acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system. As of FY 2025, the ATW and JUONS RDT&E efforts have been completed, and aircraft deployed with JUONS have been de-modified.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>	
<p>LIMWS QRC addresses the HQDA Directed Requirement to provide a greater capability than CMWS, the current Program of Record (POR), to bridge the gap between CMWS and the future threat detection system, the Improved Threat Detection System (ITDS). LIMWS is required to provide increased detection range, improved detection in clutter, more agile algorithms to rapidly respond to emerging threats, and eliminates the need for sensor alignments.</p> <p>Justification: CMWS: FY 2025 Base RDTE dollars in the amount of \$5.097 million will fund Future Sensor and Algorithm Analysis, Threat and Vulnerability Analysis, and Systems Engineering and Program Management (SEPM).</p> <p>LIMWS: LIMWS does not have funding in FY25.</p> <p>ITD: Improved Threat Detection System (ITDS). The ITDS (Improved Threat Detection System) budget line includes funding to support the development and integration of improved Aircraft Survivability Equipment (ASE) products onto current US Army Aviation platforms as well as Future Vertical Lift (FVL) future platforms. ITDS will use an incremental approach to align with PM ASE's System of Systems approach, including both detect and defeat capabilities, and integrate to an open system architecture digital backbone, improving full coverage against evolving threats in hostile environments.</p> <p>ITDS is an FY2024 (PE 0605049A) new start program applying a Middle Tier of Acquisition (MTA) adaptive acquisition pathway. PM ASE is executing this ITDS MTA Rapid Prototyping effort under an Other Transactional Authority agreement with multiple phases. The result will be a residual operational capability that will detect, classify, cue, and declare on existing and emerging Electro-Optical/Infra-red (EO/IR) Guided Man-Portable Air Defense Systems (MANPADS), Rocket Propelled Grenades (RPG)/ unguided rockets, Anti-Tank Guided Missiles (ATGM), Ballistic munitions, Unmanned Aerial Vehicles (UAV), and Lasers.</p> <p>Justification: ITDS: FY2025 Base RDTE dollars in the amount of \$28.425 million will fund continuation of development efforts including prototype demonstration and test, execution of contract(s) to initiate Product Development, and program management/ technical oversight for ITDS.</p> <p>References: - Joint Staff, J-8 Deputy Director for Requirements (DOR) memorandum, April 24, 2015 - Phase 2a SOCOM JUONs SO-0010, Joint Rapid Acquisition Cell (JRAC) memorandum, May 29, 2015 - Directed Requirement for the Phase 3 Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW/CIRCM QRC) to Support Joint Urgent Operational Need (JUON) SO-0010, CIRCM Critical Intelligence Parameters Breach, December 18, 2015 - Directed Requirement for Limited Interim Missile Warning System to Detect Enemy Man Portable Air Defense Systems, March 26, 2017 - Update to the Directed Requirement for the United States Special Operations Command Joint Urgent Operational Needs SO-0010 Threat Detection and Countermeasures to Enemy Man Portable Air Defense System Capability, November 16, 2018 - Directed Requirement for Limited Interim Missile Warning System to Detect Enemy Man Portable Air Defense Systems, November 16, 2018</p>		

UNCLASSIFIED

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>
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- Aircraft Survivability Equipment (ASE) Modernization Fielding Guidance, Change 1, November 19, 2018
- Acquisition Decision Memorandum (ADM) for Radio Frequency (RF) Project Manager Aircraft Survivability Equipment (PM ASE) Engineering Change Proposal (ECP) for Radar Warning Receiver AN/APR39-D(V)2 to AN/APR39-E(V)2, June 24, 2019 by PEO IEW&S.
- MDD Request for the ITDS Program of Record, Aviation Capability Development and Integration Directorate (Aviation CDID), 6 July 2021.
- MDD Request for the ITDS Program of Record, DCS, G-8, 14 March 2022.
- Assignment of an Army Office of Primary Responsibility (OPR) for the ITDS Capability, Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT)), 18 April 2022.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	19.123	24.900	13.107	-	13.107
Current President's Budget	18.425	24.900	38.225	-	38.225
Total Adjustments	-0.698	0.000	25.118	-	25.118
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.698	-			
• Adjustments to Budget Years	-	-	25.118	-	25.118

Change Summary Explanation

Funding realigned from XT4 (PE 0605049A): Advanced Threat Detection System (ATDS) in FY24 to ITD (PE 0605051A): Improved Threat Detection System (ITDS) in FY25.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development				Project (Number/Name) ER7 / Aircraft Survivability Equipment Development			
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
ER7: Aircraft Survivability Equipment Development	-	11.642	15.177	4.703	-	4.703	9.528	10.335	11.481	11.596	0.000	74.462
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of Future Vertical Lift (FVL) platforms.

The objective of the ASE Development project is to improve RF ASE for Army aviation. APR-39 RWR detects, categorizes, and prioritizes RF emitters and provides a visual / aural alert to aircrew members warning them of targeting by RF-guided weapons. The MDA approved Phases 1 and 2 of a 3-phased path forward.

Phase 1, APR-39C(V)1/4, serves as an obsolescence / sustainment upgrade to the Processor LRU of APR-39A(V) RWR implemented to ensure that the currently fielded system remains viable until affordable improved RF ASE capability can be pursued in Phases 2 and 3.

Phase 2A is RWR Modernization begins by adopting the United States Navy APR-39D(V)2 system. APR-39D(V)2 will significantly improve the RF threat coverage, automatic detection and identification of threat types, bearing, and lethality. Phase 2B, the APR-39E(V)2, MRWR, is an Army ECP to APR-39D(V)2, approved in the ADM signed June 24, 2019. This ECP will implement enhanced hardware and software upgrades to keep APR-39 technically relevant against new and emerging agile threats. APR-39E(V)2 is part of the suite of ASE mission equipment for the FVL platforms.

Phase 3 adds active RF-ECM capability for selected aircraft with MDD planned in the future.

Justification: FY 2025 Base RDT&E funding of \$4.703 million supports APR-39E(V)2 Hardware and Software System Development, and Systems Engineering and Program Management.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2023	FY 2024	FY 2025
Title: Phase 2 Radio Frequency Countermeasure (CM)	11.642	15.177	4.703
Description: Phase 2A is RWR Modernization begins by adopting the United States Navy APR-39D(V)2 system. APR-39D(V)2 will significantly improve the RF threat coverage, automatic detection and identification of threat types, bearing, and lethality. Phase 2B, the APR-39E(V)2, MRWR, is an Army ECP to APR-39D(V)2, approved in the ADM signed June 24, 2019. This ECP will implement enhanced hardware and software upgrades to keep APR-39 technically relevant against new and emerging agile threats. APR-39E(V)2 is part of the suite of ASE mission equipment for the FVL platforms.			
FY 2024 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army	Date: March 2024
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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER7 / Aircraft Survivability Equipment Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Will fund APR-39E(V)2 Hardware and Software System Development, Systems Engineering and Program Management (SEPM), Limit User Testing (LUT), Government Environmental and EMI Qualification Testing.			
FY 2025 Plans: Will fund APR-39E(V)2 Hardware and Software System Development, and Systems Engineering and Program Management (SEPM).			
FY 2024 to FY 2025 Increase/Decrease Statement: Decreased due to completing AH-64 platform integration efforts.			
Accomplishments/Planned Programs Subtotals	11.642	15.177	4.703

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AZ3511: Radio Frequency CM	158.883	146.016	117.932	-	117.932	111.894	117.840	100.267	101.272	3,257.349	4,111.453

Remarks

D. Acquisition Strategy

Army RF ASE is managed by Project Manager (PM) ASE for development, testing, procurement, integration and installation on Army rotary wing and fixed wing Special Electronic Mission Aircraft (SEMA) aviation platforms. PM ASE proposed a three-phased path forward commensurate with user priorities and affordability considerations. The MDA approved Phases 1 and 2 of a 3-phased path forward.

Phase 1, APR-39C(V)1/4, serves as an obsolescence / sustainment upgrade to the Processor LRU of APR-39A(V) RWR implemented to ensure that the currently fielded system remains viable until affordable improved RF ASE capability can be pursued in Phases 2 and 3.

Phase 2A is RWR Modernization begins by adopting the United States Navy APR-39D(V)2 system. APR-39D(V)2 will significantly improve the RF threat coverage, automatic detection and identification of threat types, bearing, and lethality. Phase 2B, the APR-39E(V)2, MRWR, is an Army ECP to APR-39D(V)2, approved in the ADM signed June 24, 2019. This ECP will implement enhanced hardware and software upgrades to keep APR-39 technically relevant against new and emerging agile threats. APR-39E(V)2 is part of the suite of ASE mission equipment for the FVL platforms.

Phase 3 adds active RF-ECM capability for selected aircraft with MDD planned in the future.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605051A / Aircraft Survivability Development				ER7 / Aircraft Survivability Equipment Development							
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
Threat Management/SEPM	Various	Various : -	14.344	1.167	Nov 2022	1.120	Nov 2023	0.770	Nov 2024	-		0.770	Continuing	Continuing	-
Subtotal			14.344	1.167		1.120		0.770		-		0.770	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
APR-39E(V)2 SW & HW Development	Various	OGA : Aberdeen Proving Grounds, MD	133.261	5.773	Oct 2022	9.807	Oct 2023	3.933	Oct 2024	-		3.933	Continuing	Continuing	-
Subtotal			133.261	5.773		9.807		3.933		-		3.933	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
DT/OT	Various	Various : -	9.579	2.560	Mar 2023	3.750	Mar 2024	-		-		-	Continuing	Continuing	-
Government System Test and Evaluation	Various	Various : -	36.743	2.142	Oct 2022	0.500	Oct 2023	-		-		-	Continuing	Continuing	-
Subtotal			46.322	4.702		4.250		-		-		-	Continuing	Continuing	N/A
Project Cost Totals			193.927	11.642		15.177		4.703		-		4.703	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER7 / Aircraft Survivability Equipment Development

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
Phase 2B APR-39E(V)2 Software and Hardware Development	█				█				█				█				█				█							
Phase 2B APR-39E(V)2 Government System Test and Evaluation	█				█				█				█				█				█							
Phase 2B APR-39E(V)2 DT/OT	█				█				█				█				█				█							
Phase 2B APR-39E(V)2 Platform Integration	█				█				█				█				█				█							
Threat Management	█				█				█				█				█				█							

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER7 / Aircraft Survivability Equipment Development

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Threat Vulnerability Analysis//SIL Updates	3	2016	4	2017
Phase 2B APR-39E(V)2 Software and Hardware Development	2	2018	4	2025
Phase 2B APR-39E(V)2 Government System Test and Evaluation	3	2021	2	2024
Phase 2B APR-39E(V)2 DT/OT	2	2022	2	2024
Phase 2B APR-39E(V)2 Platform Integration	2	2020	4	2023
Threat Management	4	2020	4	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development				Project (Number/Name) ER8 / Common Missile Warning System (CMWS)			
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
ER8: Common Missile Warning System (CMWS)	-	6.783	9.723	5.097	-	5.097	4.714	4.764	4.818	4.866	0.000	40.765
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Common Missile Warning System (CMWS) program is a missile warning system that cues both flare and laser-based countermeasures to defeat incoming Infrared (IR) seeking missiles and will alert aircrews to the presence of certain incoming munitions. The B-Kit consists of the components which perform the missile detection and aircrew notification, munitions detection and aircrew notification, false alarm rejection, and countermeasure employment/cueing functions of the system. The CMWS Electronic Control Unit (ECU) receives ultraviolet (UV) missile detection data from Electro-Optic Missile Sensors (EOMS), which detect UV signals, and sends a missile alert signal to warn aircrews via on-board avionics. Tier 1 threat missiles detected and tracked by the CMWS are subsequently defeated by a combination of missile seeker countermeasures, including decoy flares and IR Laser Jamming (currently Common Infrared Countermeasures (CIRCM) and Advanced Threat Infrared Countermeasures (ATIRCM) equipped CH-47 platform only). In addition, the CMWS ECU receives from the EOMS munitions detection data which it also passes to the aircrew through aural and visual alerts. The aircrew then applies the appropriate Tactics, Techniques and Procedures (TTPs) to break contact or engage the enemy with own-ship ordnance. The CMWS Generation 3 (Gen 3) ECU in conjunction with ongoing software development efforts will address outstanding materiel release conditions and ensure protection against emerging IR-guided missile threats. Due to evolving threats, CMWS will remain in the Army inventory beyond 2040 and must remain relevant against emerging threats.

The A-Kit for CMWS includes mounting hardware, wiring harnesses, cables, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type.

As a part of Phase 2a of the Joint Urgent Operational Needs Statement (JUONS) (SO-0010) program, the Army integrated the DoN LAIRCM system onto the Army and Special Operations Aircraft Platforms. Due to a number of challenges, circumstances, and variables, the Army updated the Advanced Threat Warning/CIRCM QRC and LIMWS Directed Requirements (dated November 16, 2018). The updated requirements extended the utilization of ATW DoN LAIRCM on conventional Army aircraft and canceled the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintained the need for ATW/CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft were transferred to Special Operations Aircraft budget line in FY23). As a result, the Army did not acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system. As of FY 2025, the ATW and JUONS RDT&E efforts have been completed, and aircraft deployed with JUONS have been de-modified.

Phase 4 Limited Interim Missile Warning System Quick Reaction Capability (LIMWS QRC) addresses the Headquarters Department of the Army (HQDA) Directed Requirement to provide a greater capability than CMWS, the current Program of Record (POR), to bridge the gap between CMWS and the future threat detection system, the Improved Threat Detection System (ITDS). LIMWS is required to provide increased detection range, improved detection in clutter, more agile algorithms to rapidly respond to emerging threats, and eliminates the need for sensor alignments.

UNCLASSIFIED

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

CMWS: FY 2025 Base Research Development Test and Evaluation (RDTE) dollars in the amount of \$5.097 million will fund Future Sensor and Algorithm Analysis, Threat and Vulnerability Analysis, Systems Engineering and Program Management (SEPM).

LIMWS: LIMWS does not have funding in FY25.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2023	FY 2024	FY 2025
<p>Title: CMWS Product Development and Management Services</p> <p>Description: Research Development Test and Evaluation (RDTE) funding supports continuing development engineering threat and vulnerability analysis, Systems Engineering and Program Management (SEPM), and integration with other ASE Systems.</p> <p>FY 2024 Plans: FY 2024 Base Research Development Test and Evaluation (RDTE) dollars in the amount of \$7.875 million will fund Future Sensor and Algorithm Analysis, Threat and Vulnerability Analysis, Systems Engineering and Program Management (SEPM), Model Based System Engineering (MBSE), Aviation Artificial Intelligence (AI) Training Environment effort, and Future Vertical Lift (FVL).</p> <p>FY 2025 Plans: FY 2025 Base Research Development Test and Evaluation (RDTE) dollars in the amount of \$5.097 million will fund Future Sensor and Algorithm Analysis, Threat and Vulnerability Analysis, Systems Engineering and Program Management (SEPM).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 includes decreased Base RDTE funding due to reduction of future sensor and algorithm analysis efforts.</p>	6.783	7.875	5.097
<p>Title: Phase 4 LIMWS QRC</p> <p>Description: Phase 4 Limited Interim Missile Warning System Quick Reaction Capability (LIMWS QRC) is a follow-on bridging solution to the Joint Urgent Operational Needs Statement (JUONS) SO-0010 to provide a greater capability than the current Program of Record (POR), Common Missile Warning System (CMWS), until the future threat detection system, the Improved Threat Detection System (ITDS). LIMWS is a Chief of Staff of the Army approved Directed Requirement issued by Army G-8 on March 26, 2017. LIMWS QRC provides an enhanced missile warning system to detect emerging and evolving enemy Man Portable Air Defense Systems (MANPADS) threats.</p> <p>FY 2024 Plans: FY 2024 Base Research Development Test and Evaluation (RDTE) dollars in the amount of \$1.848 million fund United States Government (USG) Systems Engineering and Program Management (SEPM) and Threat Analysis and Algorithm Concepts.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	1.848	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
LIMWS does not have funding in FY 2025.			
Accomplishments/Planned Programs Subtotals	6.783	9.723	5.097

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
• AZ3517: CMWS	100.172	72.041	51.646	-	51.646	13.927	13.980	13.951	14.090	706.012	985.819

Remarks

D. Acquisition Strategy

CMWS: Procurement of US Government Common Missile Warning System (CMWS) A-Kit and B-Kits are complete. CMWS is managed as Mission Equipment for deploying units and fielded as directed by Headquarters Department of the Army (HQDA) G-3/5/7. The CMWS program will continue to be supported through a five year services-only Cost Plus Fixed Fee or Cost Plus Incentive Fee contract, with services which began on July 31, 2019.

Phase 2a JUONS DoN LAIRCM and Phase 3 CIRCM QRC: JUONS S0-0010 acquisition strategy includes aircraft prime contractor engineering support contracted to a Government test organization. Aircraft integration for JUONS will be handled through government operated organizations and industry partners.

Phase 4 Limited Interim Missile Warning System Quick Reaction Capability (LIMWS QRC): Acquisition strategy included a full and open competition for selection of prime vendor for development of B-Kits, development of A-Kits, and support testing for the lead program. Additional platform A-Kit development will be completed by government organizations, small business and industry partners.

Threat and Vulnerability analysis efforts will be used to determine if an algorithm update is required to maintain missile warning threat overmatch and provide input to improve US Government authoritative threat modeling updates.

Future Sensor and Algorithm Analysis development equally supports Man Portable Air Defense Systems (MANPADS) and Hostile Fire overmatch through evaluation of emerging sensor technologies and advances in algorithm techniques. This analysis identifies opportunities to optimize performance and modernize fielded systems in order to maintain relevance for the future.

CMWS Systems Engineering and Program Management (SEPM) is necessary due to the nature of emerging and current threat(s). Threat(s) analyses include, when required, collaboration support with intelligence organizations, course of action planning, root cause investigations, threat and laboratory hardware maintenance, and lab tools upgrade to support specific performance analyses.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>	Project (Number/Name) ER8 / <i>Common Missile Warning System (CMWS)</i>
Development of Model Based Systems Engineering (MBSE) models of CMWS and LIMWS will align to Program Executive Office Aviation (PEO AVN) system engineering models. Continued MBSE development supports improved performance, weight reduction and testing.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605051A / Aircraft Survivability Development				ER8 / Common Missile Warning System (CMWS)							
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
CMWS Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	11.900	0.351	Jan 2023	1.017	Jan 2023	0.461	Jan 2025	-		0.461	Continuing	Continuing	Continuing
Subtotal			11.900	0.351		1.017		0.461		-		0.461	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
CMWS Future Sensor and Algorithm Analysis	Various	Various : Various	9.566	2.935	Mar 2023	3.251	Mar 2023	1.459	Mar 2025	-		1.459	Continuing	Continuing	-
Limited Interim Missile Warning System (LIMWS) - Development Engineering	Various	Various : PM ASE, HSV, AL	219.061	-		1.332	Mar 2023	-		-		-	Continuing	Continuing	Continuing
CMWS Threat and Vulnerability Analysis	Various	Various : Various	13.608	3.497	Mar 2023	3.607	Mar 2023	3.177	Mar 2025	-		3.177	Continuing	Continuing	Continuing
Subtotal			242.235	6.432		8.190		4.636		-		4.636	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
LIMWS - Government Testing	Various	Various : PM ASE, HSV, AL	78.455	-		0.516	Mar 2023	-		-		-	Continuing	Continuing	Continuing
Subtotal			78.455	-		0.516		-		-		-	Continuing	Continuing	N/A
Project Cost Totals			332.590	6.783		9.723		5.097		-		5.097	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)	

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
CMWS Threat and Vulnerability Analysis	[Redacted]																											
CMWS Future Sensor and Algorithm Analysis	[Redacted]																											
Phase 4 LIMWS QRC Development Engineering and Test	[Redacted]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CMWS System Dev/Tier 2 and 3 Upgrades	2	2011	4	2019
CMWS Gen 3 Production	3	2012	4	2016
CMWS Threat Analysis Database (TAD)	2	2012	4	2019
CMWS Vulnerability Analysis and Assessment of Technology	2	2015	4	2019
CMWS Threat and Vulnerability Analysis	1	2020	4	2030
CMWS Future Sensor and Algorithm Analysis	1	2017	4	2030
Phase 3 ATW/CIRCM QRC Engineering, Integration, and Test	2	2016	1	2020
Phase 4 LIMWS QRC Development Engineering and Test	3	2017	4	2024

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

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development				Project (Number/Name) ITD / Improved Threat Detection System (ITDS)			
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
ITD: Improved Threat Detection System (ITDS)	-	-	-	28.425	-	28.425	-	-	-	-	0.000	28.425
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding transitioned from XT4 (PE 0605049A): Advanced Threat Detection System (ATDS) in FY24 to ITD (PE 0605051A): Improved Threat Detection System (ITDS) is a New Start in FY25.

A. Mission Description and Budget Item Justification

The ITDS (Improved Threat Detection System) budget line includes funding to support the development and integration of improved Aircraft Survivability Equipment (ASE) products onto current US Army Aviation platforms as well as Future Vertical Lift (FVL) future platforms. ITDS will use an incremental approach to align with PM ASE's System of Systems approach, including both detect and defeat capabilities, and integrate it onto an open system architecture digital backbone, improving full coverage against evolving threats in hostile environments.

ITDS applies a Middle Tier of Acquisition (MTA) adaptive acquisition pathway. PM ASE is executing this ITDS MTA Rapid Prototyping effort under an Other Transactional Authority agreement with multiple phases. The result will be a residual operational capability that will detect, classify, cue, and declare on existing and emerging Electro-Optical/Infra-red (EO/IR) Guided Man-Portable Air Defense Systems (MANPADS), Rocket Propelled Grenades (RPG)/ unguided rockets, Anti-Tank Guided Missiles (ATGM), Ballistic munitions, Unmanned Aerial Vehicles (UAV), and Lasers.

Justification:

ITDS: FY2025 Base RDTE dollars in the amount of \$28.425 million will fund continuation of development effort including prototype demonstration and test, execution of contract(s) to initiate Product Development, and program management/ technical oversight for ITDS.

References:

- MDD Request for the ITDS Program of Record, Aviation Capability Development and Integration Directorate (Aviation CDID), 6 July 2021.
- MDD Request for the ITDS Program of Record, DCS, G-8, 14 March 2022.
- Assignment of an Army Office of Primary Responsibility (OPR) for the ITDS Capability, Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT)), 18 April 2022.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2023	FY 2024	FY 2025
Title: ITDS Product Development and Management Services	-	-	28.425

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ITD / Improved Threat Detection System (ITDS)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: ITDS will use an incremental approach to align with PM ASE's System of Systems approach, including both detect and defeat capabilities, and integrate it onto an open system architecture digital backbone, improving full coverage against evolving threats in hostile environments.</p> <p>FY 2025 Plans: Improved Threat Detection System (ITDS): FY2025 Base RDTE dollars in the amount of \$28.425 million will fund continuation of development effort including prototype demonstration and test, execution of contract(s) to initiate Product Development, and program management/ technical oversight for ITDS.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding transitioned from XT4 (PE 0605049A): Advanced Threat Detection System (ATDS) in FY24 to ITD (PE 0605051A): Improved Threat Detection System (ITDS) in FY25.</p>			
Accomplishments/Planned Programs Subtotals	-	-	28.425

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0605049A: Missile Warning System Modernization (MWSM)	-	27.571	0.000	-	0.000	-	-	-	-	0.000	27.571

Remarks
Funding transitioned from XT4 (PE 0605049A): Advanced Threat Detection System (ATDS) in FY24 to ITD (PE 0605051A): Improved Threat Detection System (ITDS) in FY25.

D. Acquisition Strategy
ITDS is an FY2024 (PE 0605049A) new start program applying a Middle Tier of Acquisition (MTA) adaptive acquisition pathway. PM ASE is executing this ITDS MTA Rapid Prototyping effort under an Other Transactional Authority agreement with multiple phases. The result will be a residual operational capability that will detect, classify, cue, and declare on existing and emerging Electro-Optical/Infra-red (EO/IR) Guided Man-Portable Air Defense Systems (MANPADS), Rocket Propelled Grenades (RPG)/ unguided rockets, Anti-Tank Guided Missiles (ATGM), Ballistic munitions, Unmanned Aerial Vehicles (UAV), and Lasers.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army													Date: March 2024		
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
2040 / 5				PE 0605051A / Aircraft Survivability Development					ITD / Improved Threat Detection System (ITDS)						
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering Program Management	TBD	Various : Various	-	-		-		2.727	Nov 2024	-		2.727	0.000	2.727	-
Subtotal			-	-		-		2.727		-		2.727	0.000	2.727	N/A
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Engineering	TBD	Various : Various	-	-		-		13.612	Dec 2024	-		13.612	0.000	13.612	-
Subtotal			-	-		-		13.612		-		13.612	0.000	13.612	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Threat Warning Lab (ITWL)	TBD	Various : Various	-	-		-		1.506	Mar 2025	-		1.506	0.000	1.506	-
Government B-Kit Testing	TBD	Various : Various	-	-		-		10.580	Mar 2025	-		10.580	0.000	10.580	-
Subtotal			-	-		-		12.086		-		12.086	0.000	12.086	N/A
Project Cost Totals			-	-		-		28.425		-		28.425	0.000	28.425	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ITD / Improved Threat Detection System (ITDS)

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
ITDS MTA Initiation					1 ITDS MTA Initiation																							
ITDS Development Engineering																												
ITDS Residual Operational Capability (ROC)																									2 ITDS ROC			

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ITD / Improved Threat Detection System (ITDS)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PEO Acquisition Decision Memorandum 9ADM)	1	2019	1	2019
Enhanced Market Research	2	2019	2	2020
Enhanced Market Research Report	2	2020	2	2020
ITDS MTA Initiation	2	2024	2	2024
ITDS Development Engineering	2	2024	4	2029
ITDS Residual Operational Capability (ROC)	2	2029	2	2029