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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 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</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	-	269.186	281.239	315.772	-	315.772	245.380	347.669	406.934	270.679	Continuing	Continuing
CR9: <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>	-	192.268	110.625	88.480	-	88.480	77.210	146.522	221.795	243.267	Continuing	Continuing
CS1: <i>M-SHORAD Inc 3</i>	-	66.933	160.426	204.880	-	204.880	152.905	190.918	174.796	16.966	Continuing	Continuing
FI4: <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	-	9.985	10.188	22.412	-	22.412	15.265	10.229	10.343	10.446	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Air and Missile Defense Modernization Priority.

The Maneuver-Short Range Air Defense (M-SHORAD) capability provides air protection to the maneuvering forces by defeating, destroying, or neutralizing Rotary-Wing (RW), Fixed-Wing (FW), Unmanned Aircraft Systems (UAS), and Rockets, Artillery and Mortar (RAM) threats. This capability will be provided through a multi-phase, Family of Systems (FoS) approach, to include the rapidly fielded M-SHORAD Increment 1 (Inc. 1) and follow-on M-SHORAD Increments 2 and 3. Increments 2 and 3 will develop nascent capability and support Army demonstration and test initiatives to increase integrated offensive and defensive capability across warfighter functions and multiple domains.

(CR9) Inc. 2 will provide a 50-kilowatt (kW)-class laser capability integrated onto a Stryker Combat Vehicle to provide an air defense capability to defeat RW, UAS, RAM, and Intelligence, Surveillance, and Reconnaissance (ISR) threats to the maneuvering forces. FY 2025 funding in the amount of \$88.480 million supports Inc. 2 Product Development, Test and Evaluation, Engineering Technical Support and Program Management.

(CS1) Inc. 3 will provide a Next Generation Short Range Interceptor (NGSRI) to replace the existing Stinger missile. The new interceptor with support equipment will improve targeting capabilities to acquire targets with increased lethality and range, providing increased protection to the maneuver formations. Additionally, the NGSRI will be compatible with the existing M-SHORAD Inc.1 platform and will provide a Soldier Portable Capability (SPC) to meet the need for dismounted Air Defense. Inc. 3 will integrate the M-SHORAD Inc. 1 platform with the NGSRI and the new 30mm Multi-Mode Proximity Airburst (MMPA) ammunition. FY 2025 funding in the amount of \$204.880 million supports Inc. 3 prototype and development effort and Technology Demonstration of critical technologies. The FY 2025 funding also supports required Test and Evaluation, initiation of the integration effort and Program Management. The total cost of the M-SHORAD Inc. 3 Middle Tier of Acquisition effort is \$813.600 million RDT&E from FY 2023 to FY 2028. The remainder of the M-SHORAD program is fully funded across the Future Years Defense Program.

(FI4) Inc. 1 (formerly known as Initial Maneuver Short Range Air Defense (IM-SHORAD)) is an Air Defense weapon system consisting of multiple ground-to-air missile launchers, sensors, and a gun integrated on a Stryker Combat Vehicle. The Inc. 1 system provides the Army improved capabilities for defense of maneuver formations and other tactical echelons from low altitude air attack and surveillance. The system is in response to an adaptive suite of airborne threat capabilities, supported by an integrated mix of surface-to-air and surface-to-surface shooters that threaten the ability of maneuver forces to conduct operations. Specifically, maneuver formations

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>
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require the Inc. 1 air defense identification and defeat capabilities to counter FW, RW, and UAS threats. FY 2025 funding in the amount of \$22.412 million supports Inc. 1 System Initial Operational Test (IOT), Product Improvement Tasks, and includes support for Program Management, Test and Evaluation, and Engineering Technical Support.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	274.838	281.239	331.362	-	331.362
Current President's Budget	269.186	281.239	315.772	-	315.772
Total Adjustments	-5.652	0.000	-15.590	-	-15.590
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.652	-			
• Adjustments to Budget Years	-	-	-15.590	-	-15.590

Change Summary Explanation

FY 2025 changes are due to reprioritization of resources across the portfolio.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>				Project (Number/Name) CR9 / <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>			
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
CR9: <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>	-	192.268	110.625	88.480	-	88.480	77.210	146.522	221.795	243.267	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to Army Signature Modernization efforts and the Army Air and Missile Defense Modernization Priority.

Maneuver Short Range Air Defense Increment 2 (M-SHORAD Inc. 2) / Directed Energy Maneuver-Short Range Air Defense (DE M-SHORAD) is a 50 kW-class laser weapon system integrated onto a Stryker Combat Vehicle. The system will provide air defense capability to defeat Rotary Wing (RW); Groups 1-3 Unmanned Aircraft Systems (UAS), Rocket, Artillery, and Mortar (RAM), and Intelligence, Surveillance, and Reconnaissance (ISR) threats to a maneuver unit. The Army Rapid Capabilities and Critical Technologies Office (RCCTO) is developing the prototype system known as DE M-SHORAD. The RCCTO is utilizing an Other Transaction Agreement (OTA) contract to complete the development of additional prototypes. As a result of a FY 2026 Directed Energy Integrated Test Campaign the Army will determine the best lethality and affordability across DE platforms. The plan to transition to the Program Executive Office Missiles and Space (PEO M&S) M-SHORAD Product Office and the program will become M-SHORAD Inc. 2. The M-SHORAD Product Office will continue system development, test and characterization, capitalizing on the RCCTO efforts and initiate future acquisition activities.

Army Multi-Purpose High Energy Laser (AMP-HEL) is a 20kW-class laser weapon system integrated onto an Infantry Squad Vehicle to provide hard-kill defeat capability against Group 1 and 2 UAS.

FY 2025 funding in the amount of \$88.480 million supports Inc. 2 Product Development, Test and Evaluation, and Engineering Technical Support and Program Management.

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

	FY 2023	FY 2024	FY 2025
Title: DE M-SHORAD RCCTO Prototype Efforts	123.822	106.891	85.250
FY 2024 Plans: FY 2024 funds (\$106.891 million) will complete integration and support demonstrations and experimentation of the prototype vehicles for delivery at the end of FY 2024 and continue Contractor Logistic Support (CLS).			
FY 2025 Plans:			

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) CR9 / <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 funds will support completion of additional prototypes. Activities include prototype integration, acceptance testing, evaluation, demonstration and assessment for deliveries in FY 2025 to support the Directed Energy Integrated Test Campaign and continue CONUS/OCONUS CLS.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The decrease of \$21.641 million from FY 2024 to FY 2025 reflects the completion of purchases of hardware for the integration and delivery of prototypes in FY 2025.			
<i>Title:</i> Army Multi-Purpose High Energy Laser (AMP-HEL)	58.513	-	-
<i>Title:</i> M-SHORAD Inc. 2 PEO MS Transition Efforts	9.933	3.734	3.230
<i>FY 2024 Plans:</i> The M-SHORAD Product Office will use the FY 2024 funds (\$3.734 million) to expand the program office to support future acquisition activities and to continue the development of acquisition and contract documents to support a competitive production decision.			
<i>FY 2025 Plans:</i> The M-SHORAD Product Office will use the FY 2025 funds to support future acquisition activities, hardware evaluation, CLS support, testing and program management and continue the development of acquisition and contract documents as part of the Directed Energy Integrated Test Campaign at the Rapid Capabilities and Critical Technologies Office (RCCTO).			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The slight decrease in funds (\$0.504M) is due to program management adjustments.			
Accomplishments/Planned Programs Subtotals	192.268	110.625	88.480

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Army RCCTO is developing the prototype system known as DE M-SHORAD. The RCCTO is utilizing an Other Transaction Agreement (OTA) contract to complete the development of additional prototypes. As a result of a FY 2026 Directed Energy Integrated Test Campaign the Army will determine the best lethality and affordability across DE platforms. The plan to transition to the Program Executive Office Missiles and Space (PEO M&S) M-SHORAD Product Office and the program will become M-SHORAD Inc. 2. The M-SHORAD Product Office will continue system development, test and characterization, capitalizing on the RCCTO efforts and initiate future acquisition activities.

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CR9 / Directed Energy M-SHORAD / M-SHORAD Inc 2
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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			
Product Management	Various	Various : Huntsville, AL	-	14.752	Dec 2022	11.014	Dec 2023	7.311	Dec 2024	-		7.311	Continuing	Continuing	-
AMP-HEL Product Management	Various	Various : Various	-	1.057	Jun 2023	-		-		-		-	0.000	1.057	-
Subtotal			-	15.809		11.014		7.311		-		7.311	Continuing	Continuing	N/A

Remarks
Inc. 2 captures both RCCTO and PEO Missiles and Space program management in Management Services. These costs include both core and contractor support.

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			
DE M-SHORAD Systems Development, Prototypes and Integration Inc. 2	C/CPFF	Kord Technologies : Huntsville, AL	-	78.785	Apr 2023	55.434	Dec 2023	20.417	Dec 2024	-		20.417	Continuing	Continuing	-
DE M-SHORAD Software Support	MIPR	various : various	-	1.355	Oct 2022	-		2.942	Dec 2024	-		2.942	Continuing	Continuing	-
DE M-SHORAD GFE	MIPR	PM Stryker : Warren, MI	-	6.755	Apr 2023	-		-		-		-	0.000	6.755	-
AMP-HEL Development Contract	C/CPFF	RCCTO OTA : Redstone Arsenal, AL	-	51.404	Mar 2023	-		-		-		-	0.000	51.404	-
PEO CS&CSS to procure (4) Govt ISVs	MIPR	PEO CS&CSS : Warren, MI	-	3.052	May 2023	-		-		-		-	0.000	3.052	-
Subtotal			-	141.351		55.434		23.359		-		23.359	Continuing	Continuing	N/A

Remarks
RCCTO will use these funds to complete integration and deliver remaining prototype systems from multiple vendors to better inform the Army and PEO Missiles and Space to the best material directed energy solution.

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) CR9 / <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>
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Support (\$ 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			
Contractor Logistics Support (CLS)	C/CPFF	Kord Technologies : Huntsville, AL	-	21.131	May 2023	23.079	Nov 2023	48.495	Nov 2024	-		48.495	Continuing	Continuing	-
Support Costs	MIPR	OGA : Multiple	-	-		6.608	Oct 2023	-		-		-	Continuing	Continuing	-
AMP-HEL Contractor Logistics Support (CLS)	C/CPFF	RCCTO OTA : Alburque, NM	-	1.000		-		-		-		-	0.000	1.000	-
Subtotal			-	22.131		29.687		48.495		-		48.495	Continuing	Continuing	N/A

Remarks
Inc. 2 Support Costs captures CLS. The RCCTO will continue to support the initial 4 prototypes plus 2 additional prototypes for a total of 3 vendors with multiple configurations as the Army continues to evaluate and select the best material solution for directed energy.

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			
DE M-SHORAD Developmental Test / Demonstration and Evaluation	MIPR	Various : Various	-	-		14.490	Jan 2024	-		-		-	Continuing	Continuing	-
DE M-SHORAD Acceptance Testing	MIPR	Various : Various	-	-		-		9.315	Jan 2025	-		9.315	0.000	9.315	-
PEO Developmental Testing/User Assessment	MIPR	PEO M&S : Huntsville, AL	-	10.977	Feb 2023	-		-		-		-	0.000	10.977	-
AMP-HEL Testing	MIPR	Various : Various	-	2.000	Jun 2023	-		-		-		-	0.000	2.000	-
Subtotal			-	12.977		14.490		9.315		-		9.315	Continuing	Continuing	N/A

Remarks
Inc. 2 Test and Evaluation costs captures RCCTO testing efforts. Funding is needed for contractor support and various OGAs to include ATEC, RTC, YPG, and WSMR. These activities help to inform the reliability and sustainability of the prototype systems for the RCCTO and PEO Missiles and Space.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CR9 / Directed Energy M-SHORAD / M-SHORAD Inc 2

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
M-SHORAD Inc. 2 Other Transaction Agreement (OTA) Award ...			1 OTA Award																									
M-SHORAD Inc. 2 Prototyping (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 Contractor Logistics Support (CLS) (P1-6...																												
M-SHORAD Inc. 2 Development Testing (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 ATEC Operational Assessment OCONUS (P1-4...																												
M-SHORAD Inc. 2 Acceptance Testing (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 Prototype Deliveries (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 DE Integrated Test Campaign (RCCTO/PEO MS)																												
M-SHORAD Inc. 2 Transition/Future Acquisition Activities...																												
M-SHORAD Inc. 2 Contractor Logistics Support (CLS) PEO M...																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) CR9 / <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
M-SHORAD Inc. 2 Other Transaction Agreement (OTA) Award (RCCTO)	3	2023	3	2023
M-SHORAD Inc. 2 Prototyping (P5-6) (RCCTO)	3	2023	2	2025
M-SHORAD Inc. 2 Contractor Logistics Support (CLS) (P1-6) RCCTO	3	2023	4	2027
M-SHORAD Inc. 2 Development Testing (P5-6) (RCCTO)	2	2023	4	2023
M-SHORAD Inc. 2 ATEC Operational Assessment OCONUS (P1-4) (RCCTO)	3	2024	4	2024
M-SHORAD Inc. 2 Acceptance Testing (P5-6) (RCCTO)	1	2025	3	2025
M-SHORAD Inc. 2 Prototype Deliveries (P5-6) (RCCTO)	1	2025	4	2025
M-SHORAD Inc. 2 DE Integrated Test Campaign (RCCTO/PEO MS)	2	2026	4	2026
M-SHORAD Inc. 2 Transition/Future Acquisition Activities (PEO MS)	1	2025	4	2030
M-SHORAD Inc. 2 Contractor Logistics Support (CLS) PEO Missiles and Space	1	2028	4	2030

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) CS1 / <i>M-SHORAD Inc 3</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
CS1: <i>M-SHORAD Inc 3</i>	-	66.933	160.426	204.880	-	204.880	152.905	190.918	174.796	16.966	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Air and Missile Defense Modernization Priority.

Inc. 3 will provide a Next Generation Short Range Interceptor (NGSRI) to replace the existing Stinger missile. The new interceptor with support equipment will improve targeting capabilities to acquire targets with increased lethality and range, providing increased protection to the maneuver formations. Additionally, the NGSRI will be compatible with the existing M-SHORAD Inc. 1 platform and will provide a Soldier Portable Capability (SPC) to meet the need for dismounted Air Defense. Inc. 3 will integrate the M-SHORAD Inc. 1 platform with the NGSRI and the new 30mm Multi-Mode Proximity Airburst (MMPA) ammunition.

FY 2025 funding (CS1) in the amount of \$204.880 million supports Inc. 3 prototype and development effort and Technology Demonstration of critical technologies. The FY 2025 funding also includes Test and Evaluation, initiates the NGSRI and 30mm MMPA integration effort with the M-SHORAD Inc. 1 platform and provides Program Management support.

The total cost of the M-SHORAD Inc. 3 Middle Tier of Acquisition effort is \$813.600 million RDT&E from FY 2023 to FY 2028. The remainder of the M-SHORAD program is fully funded across the Future Years Defense Program.

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

	FY 2023	FY 2024	FY 2025
Title: M-SHORAD Inc. 3 Materiel Development/Integration	66.133	160.426	204.280
FY 2024 Plans: Continue product development and conduct early technology demonstrations of critical technologies with multiple vendors. Perform Design Reviews.			
FY 2025 Plans: Complete subsystem and system-level technology demonstrations, development contractors perform component qualification, and long-lead item purchases to support United States Government (USG) Developmental Testing			
FY 2024 to FY 2025 Increase/Decrease Statement: The funding increase from \$160.426 million in FY 2024 to \$204.280 million in FY 2025 is associated with the increased number of prototype NGSRI interceptors and Command Launcher Assemblies needed for FY 2026 and FY 2027 Government Developmental Testing.			
Title: Integration of NGSRI and 30mm MMPA ammunition with M-SHORAD Inc. 1	0.800	-	0.600

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: FY 2023 funding provides for the integration of M-SHORAD Inc 1 with the new 30mm ammunition. Includes development of interface specifications and prototype hardware.</p> <p>FY 2025 Plans: Funding initiates the integration effort with the M-SHORAD Inc 1 Original Equipment Manufacturer that will enable the full capability of the NGSRI and 30mm MMPA. The program will provide funds to develop hardware required to support integration of the 30mm ammunition onto the M-SHORAD platform.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase of \$0.608 million from FY 2024 to FY 2025 is due to the start of integration effort with the M-SHORAD Inc 1 Original Equipment Manufacturer in FY 2025.</p>			
Accomplishments/Planned Programs Subtotals	66.933	160.426	204.880

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>
• C26311: <i>M-SHORAD INC 3 INTERCEPTORS</i>	-	-	0.000	-	0.000	-	-	18.954	178.731	0.000	197.685

Remarks

D. Acquisition Strategy
The Inc. 3 NGSRI will replace the current Stinger missile with a new Short Range Air Defense missile that is both Soldier-portable and compatible with existing Stinger Vehicle Universal Launchers. FY 2023 is program initiation. The NGSRI will be developed through the Middle Tier of Acquisition Rapid Prototyping pathway using the Aviation and Missile Technology Consortium Other Transaction Authority (OTA) awarded to two suppliers. The program anticipates transition to Major Capabilities Acquisition following the Operational Assessment and final down-select to one vendor prior to Milestone C which is in 2Q FY 2028. Two integration efforts will begin during the OTA; integration of the new 30mm MMPA ammunition, developed by PM Maneuver Ammunition Systems, onto the platform, and integration efforts for the NGSRI to operate with the existing launcher platforms' fire control computers.

Sensor/Weapon Component Effort: The M-SHORAD Inc. 3 system is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CS1 / M-SHORAD Inc 3
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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			
Product Management Inc. 3	C/LH	Trident, Intuitive Research and others : Huntsville, AL	-	1.392	Mar 2023	2.888	Oct 2023	3.218	Oct 2024	-		3.218	Continuing	Continuing	-
Subtotal			-	1.392		2.888		3.218		-		3.218	Continuing	Continuing	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			
Engineering & Technical Support	MIPR	Combat Capabilities Development Command : Redstone Arsenal, AL	-	5.368	Mar 2023	2.657	Oct 2023	3.909	Oct 2024	-		3.909	Continuing	Continuing	-
Systems Development and Integration	C/CPFF	Raytheon and Lockheed Martin : Tuscon, AZ and Grand Prarie, TX	-	52.768	Aug 2023	152.556	Dec 2023	189.823	Dec 2024	-		189.823	Continuing	Continuing	-
Integration of M-SHORAD Inc. 1 with NGSRI	SS/CPFF	General Dynamics : Warren, MI	-	-		-		0.450	Dec 2024	-		0.450	Continuing	Continuing	-
Integration of M-SHORAD Inc. 1 with 30mm MMPA	Various	Combat Capabilities Development Command Armaments Center and Northrop Grumman : Picatinny Arsenal, New Jersey and Mesa, Arizona	-	0.800	Sep 2023	-		0.150	Dec 2024	-		0.150	Continuing	Continuing	-
Subtotal			-	58.936		155.213		194.332		-		194.332	Continuing	Continuing	N/A

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CS1 / M-SHORAD Inc 3
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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			
Technology Demonstration Support	MIPR	Army Test and Evaluation Center : Redstone Arsenal, Alabama	-	0.303	Aug 2023	0.750	Oct 2023	0.789	Jan 2025	-		0.789	Continuing	Continuing	-
Test Support	MIPR	Combat Capabilities Development Command : Redstone Arsenal, Alabama	-	-		1.325	Oct 2023	1.451	Jan 2025	-		1.451	Continuing	Continuing	-
Modeling and Simulation Development	MIPR	Combat Capabilities Development Command : Redstone Arsenal, AL	-	6.177	Aug 2023	0.250	Oct 2023	5.055	Dec 2024	-		5.055	Continuing	Continuing	-
Soldier Touch Points (STPs)	MIPR	DEVCOM Analysis Center (DAC) : Aberdeen Proving Ground, MD	-	0.125	Dec 2023	-		0.035	Jan 2025	-		0.035	Continuing	Continuing	-
Subtotal			-	6.605		2.325		7.330		-		7.330	Continuing	Continuing	N/A

	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		-	66.933	160.426	204.880	-	204.880	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 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CS1 / M-SHORAD Inc 3

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
Industry Collaboration	Industry Collaboration																											
Prototype contract awards																												
Design, Development and Prototype Build, MTA-RP									Design, Development and Prototype Build																			
Technology Demonstrations (TD)									TD																			
Platform Integration									Platform Integration																			
Developmental Testing (DT)									DT																			
Operational Assessment (OA)									OA																			
Milestone C									MS C																			
Low Rate Initial Production (LRIP) Award									LRIP Award																			
LRIP 1									LRIP 1																			
LRIP 2									LRIP 2																			
Live Fire Test and Evaluation (LFT&E)									LFT&E																			

Note
MTA-RP: Middle Tier of Acquisition - Rapid Prototyping

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) CS1 / <i>M-SHORAD Inc 3</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Industry Collaboration	4	2022	4	2023
Prototype contract awards	4	2023	4	2023
Design, Development and Prototype Build, MTA-RP	4	2023	4	2027
Technology Demonstrations (TD)	3	2024	4	2025
Platform Integration	3	2025	3	2028
Developmental Testing (DT)	3	2026	3	2027
Operational Assessment (OA)	3	2027	4	2027
Milestone C	2	2028	2	2028
Low Rate Initial Production (LRIP) Award	3	2028	3	2028
LRIP 1	3	2028	3	2029
LRIP 2	3	2029	3	2030
Live Fire Test and Evaluation (LFT&E)	3	2029	4	2030

Note

MTA-RP: Middle Tier of Acquisition - Rapid Prototyping

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>				Project (Number/Name) F14 / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>			
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
F14: <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	-	9.985	10.188	22.412	-	22.412	15.265	10.229	10.343	10.446	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Air and Missile Defense Modernization Priority.

The Maneuver Short Range Air Defense (M-SHORAD) Increment 1 (Inc.1) systems add commensurate mobility and survivability to the maneuvering forces through protection against enemy air threats. The system consists of existing capabilities integrated onto a Stryker A1 Double-V Hull (DVH) Infantry Carrier Vehicle (ICV). The Reconfigurable Integrated-weapons Platform (RIWP) and Mission Equipment Package (MEP) house multiple missile and gun effectors integrated onto the Stryker A1 DVH vehicle.

FY 2025 funding (F14) in the amount of \$22.412 million supports Initial Operational Testing (IOT) and upgrades for the M-SHORAD Inc. 1 systems through individual materiel changes to address operational lessons-learned and other system performance improvements/enhancements providing capability overmatch against emerging threats.

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

	FY 2023	FY 2024	FY 2025
Title: Initial M-SHORAD Materiel Development/Integration	9.985	10.188	22.412
Description: Funding is in support of development, integration, and testing of the M-SHORAD Inc. 1 capability.			
FY 2024 Plans: Continue Engineering & Technical Support for dual SVUL developmental testing (DT) and support of future planning for MSHORAD Inc.1 technology insertions, upgrades through individual materiel changes to address operational lessons learned, and other system performance improvements/enhancements to provide overmatch capability against emerging threats.			
FY 2025 Plans: Conduct Systems IOT and continue Engineering & Technical Support for support of future MSHORAD Inc. 1 technology insertions, upgrades through individual materiel changes to address operational lessons learned, and other system performance improvements/enhancements to provide overmatch capability against emerging threats.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase of \$12.222 million to \$22.412 million is for IOT Testing and rate adjustments.			
Accomplishments/Planned Programs Subtotals	9.985	10.188	22.412

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army	Date: March 2024
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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) F14 / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>
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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>
• C14301: <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	246.867	400.697	69.091	-	69.091	42.676	-	-	-	Continuing	Continuing

Remarks

FY 2023 PROC funding increased in the amount of \$111.120 million due to receipt of Ukraine funding.

D. Acquisition Strategy

The Army has an active Indefinite Delivery / Indefinite Quantity (IDIQ) contract with General Dynamic Land Systems (GDLS) for the procurement and fielding of systems, spares, engineering services and logistics support.

The program transitioned from a Directed Requirement to the Middle Tier Acquisition - Rapid Fielding (MTA-RF) Acquisition Pathway in FY 2024. System Initial Operational Test (IOT) in FY 2025 supports Milestone C Decision and transition to the Major Capabilities Acquisition (MCA) Pathway in FY 2026.

Recurring RDT&E in FY 2025 and beyond will provide for upgrades of the M-SHORAD Inc. 1 systems through materiel changes and upgrades, addressing operational lessons-learned and other system performance improvements/enhancements to provide overmatch capability against emerging threats.

Sensor/Weapon Component Effort: The M-SHORAD Inc. 1 program is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) F14 / Maneuver - Short Range Air Defense (M-SHORAD)
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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			
Product Management Inc. 1	Various	Trident, Intuitive Research and others : Huntsville, Alabama	7.290	1.071	Oct 2022	0.342	Oct 2023	0.953	Oct 2024	-		0.953	Continuing	Continuing	-
Subtotal			7.290	1.071		0.342		0.953		-		0.953	Continuing	Continuing	N/A

Remarks
Product Management increase from FY 2024 to FY 2025 due to IOT efforts, and preparation of Milestone C documentation.

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			
Product Improvements - Inc. 1	SS/CPFF	GDLS : Sterling, MI	3.479	5.701	Oct 2022	5.150	Oct 2023	4.373	Oct 2024	-		4.373	Continuing	Continuing	-
Subtotal			3.479	5.701		5.150		4.373		-		4.373	Continuing	Continuing	N/A

Remarks
Product Improvements funding covers required system improvements and allows for correction of issues identified during Operational User Assessment (OUA), DT, and IOT

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			
Developmental Testing Inc. 1	MIPR	Redstone Test Center (RTC) and White Sands Missile Range (WSMR) : Redstone, AL and WSMR, NM	12.573	0.457	Oct 2022	1.390	Oct 2023	-		-		-	0.000	14.420	-
Test Support Inc. 1	MIPR	RTC, WSMR, Target Management Office and others :	16.331	0.324	Oct 2022	1.390	Oct 2023	2.830	Oct 2024	-		2.830	0.000	20.875	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) F14 / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>

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
Engineering and Technical Support / Emerging Threat Analysis																												
Capabilities Development Document (CDD) approval for additional systems above 144	▲ 1																											
Dual Stinger Vehicle Universal Launcher (SVUL) Developmental Testing (DT)					■ Dual SVUL DT																							
Operational Utility Assessment (OUA)					■ Operational Utility Assessment (OUA)																							
Developmental Testing (DT)					■ DT																							
Initial Operational Test (IOT)									■ IOT																			
AMD Survivability Development																												
MS C																	▲ 2 Milestone C											

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) F14 / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering and Technical Support / Emerging Threat Analysis	1	2022	4	2029
Capabilities Development Document (CDD) approval for additional systems above Directed Requirement	1	2023	1	2023
Dual Stinger Vehicle Universal Launcher (SVUL) Developmental Testing (DT)	4	2023	4	2023
Operational Utility Assessment (OUA)	3	2024	3	2024
Developmental Testing (DT)	2	2024	4	2024
Initial Operational Test (IOT)	3	2025	4	2025
AMD Survivability Development	1	2026	4	2029
MS C	3	2026	3	2026