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Army • Budget Estimates FY 2025 • RDT&E Program

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RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
APPROPRIATION LANGUAGE

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, \$14,073,308,000.00 to remain available for obligation until September 30, 2026.

The FY 2025 Overseas Operational Costs accounted for in the Base budget total \$3,157 thousand.

FY 2023 includes \$7,626 thousand in Overseas Operations Costs (OOC) Actuals. FY 2024 includes \$3,166 thousand in OOC Requested. FY 2025 includes \$3,157 thousand for the OOC Budget Estimate. OOC were financed previously with former Overseas Contingency Operations (OCO) funding.

COST STATEMENT

The following Justification Books were prepared at a cost of \$277,115.51 Aircraft (ACFT), Missiles (MSLS), Weapons & Tracked Combat Vehicles (WTCV), Ammunition (AMMO), Other Procurement Army (OPA) 1 – Tactical & Support Vehicles, Other Procurement Army (OPA) 2 – Communications & Electronics, Other Procurement Army (OPA) 3 & 4 - Other Support Equipment & Spares, Research, Development, Test and Evaluation (RDTE) for: Budget Activity 1, Budget Activity 2, Budget Activity 3, Budget Activity 4, Budget Activity 5A, Budget Activity 5B, Budget Activity 5C, Budget Activity 5D, Budget Activity 6, Budget Activity 7, and Budget Activity 8.

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FY 2025 RDT&E, ARMY PROGRAM ELEMENT DESCRIPTIVE SUMMARIES
Introduction and Explanation of Contents

1. **General.** The purpose of this document is to provide summary information concerning the Research, Development, Test and Evaluation, Army program. The descriptive summaries are comprised of R-2 (Army RDT&E Budget Item Justification – program element level), R-2A (Army RDT&E Budget Item Justification – project level), R-3 (Army RDT&E Cost Analysis), R-4 (Schedule Profile Detail) and R-5 (Termination Liability Funding for MDAPs) Exhibits, which provide narrative information on all RDT&E program elements and projects through FY 2025.

2. **Relationship of the FY 2025 Budget Submitted to Congress to the FY 2024 Budget Submitted to Congress.** This paragraph provides a list of program elements/projects that are major new starts and terminated programs. Explanations for these changes can be found in the narrative sections of the Program Element R-2A Exhibits.

New Start Programs:

<i><u>Budget Activity</u></i>	<i><u>OSDPE / Project</u></i>	<i><u>Project Title</u></i>
02	0602148A / CC3	FVL Radar Technologies
02	0602183A / DK1	Air Vehicle Integrated & Alternative Tech (AVIATe)
02	0602386A / SM1	Scale-Up Microbial Products for Biomanufacturing
02	0602150A / SU1	Counter Small Unmanned Aircraft Sys (C-sUAS) Tech
03	0603464A / CE9	Armaments Advanced Technology
03	0603119A / DI9	Comprehensive Adapt Operational Energy Adv Tech
03	0603043A / DK2	Air Vehicle Improvement & Adv Tech (AVIATe)
03	0603044A / EA7	Enhanced Indirect Fire Adv Tech
03	0603466A / IB1	Integrated Beam Control Systems Demo for C-CM
03	0603116A / LR1	Long Range Sensing Adv Tech
03	0603465A / CK2	High Speed Maneuverable Missile (HSMM) Adv Tech
03	0603042A / DI6	Anti-Tamper Advanced Tech Development
04	0604386A / CQ9	Biotechnology for Materials - Dem/Val
04	0604019A / DJ5	Multi-Domain Artillery Cannon System (MDACS)
04	0305251A / FA8	Cyberspace Operations Forces and Force Support
04	0603639A / FG1	Cannon-Delivered Area Effects Munitions (C-DAEM)
04	0603639A / XT5	30mm Anti-Personnel and Counter UAS

05	0604805A / DH4	CMOSS Mounted Form Factor (CMFF) Radio Cards
05	0604710A / DI5	FALCONS
05	0605244A / DJ3	Joint Reduced Range Rocket
05	0605242A / DJ4	Theater SIGINT System (TSIGS)
05	0605247A / DJ8	Spectrum Situational Awareness System (S2AS)
05	0605054A / DJ9	Guam Defense System - Management
05	0604854A / DH7	Next Generation Howitzer
05	0604818A / DK3	Sensor Computing Environment (SCE)
05	0604713A / EL2	Army Field Feeding Equipment
05	0605038A / EQ7	NBC Reconnaissance Vehicle (NBCRV) Sensor Suite
05	0605051A / ITD	Improved Threat Detection System (ITDS)
05	0604827A / LS2	Lethal Semi-Autonomous Aerial Unmanned Sys-Eng Dev
05	0604802A / MS1	Battalion Mortar System Modernization
05	0605241A / DG5	Future Long Range Assault Aircraft
05	0604805A / DH5	CMOSS Mounted Form Factor (CMFF)Chassis
06	0605805A / 857	DoD Explosives Safety Standards
07	0607101A / DJ7	Radiological Detection System Development

Program Terminations (including transfers to Procurement and Sustainment):

<u>Budget Activity</u>	<u>OSDPE / Project</u>	<u>Project Title</u>
02	0602002A / DC5	Team Ignite
02	0602145A / BI4	Materials Application and Integration Tech
03	0603464A / AG5	Extended Range Artillery Munition Suite Adv Tech
03	0603118A / AY7	Small Arms Fire Control Advanced Technology
03	0603118A / BB8	Soldier Centric Advanced Technology
03	0603462A / BI5	Materials Application and Integration Adv Tech
03	0603462A / BK4	Next Gen Intelligent Fire Control(NG-IFC) Adv Tech

03	0603041A / CM8	Convergence Battlefield Integration
04	0603801A / CK7	FARA Ecosystem
04	0603801A / F12	Future Attack Reconnaissance Aircraft
04	0604120A / EJ2	MOUNTED
04	0604120A / BV4	Area Protection and Alt Nav Technology Development
05	0604802A / EP2	Shoulder-Launched Munitions
05	0604802A / EP4	One-Way Luminescence for Small Caliber Ammo
05	0604802A / FA6	30mm Lethality
05	0604818A / EJ6	TACTICAL ENHANCEMENT
05	0605041A / CY5	CYBER Situational Understanding
05	0605053A / BS9	Robotic Payloads
05	0604808A / CS3	Next Generation Advanced Bomb Suit (NGABS)
06	0605326A / 33B	Soldier-Centered Analyses For Future Force
07	0203735A / 280	RECOV VEH IMPROV PROG
07	0303028A / FG2	Counterintelligence & Human Intel Modernization
07	0607142A / EW9	Aviation Rocket System Product Improvement and Dev

3. **Classification:** This document contains no classified data. Appropriately cleared individuals can obtain further information on Classified/Special Access Programs by contacting the Department of the Army.

Department of the Army
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 Exhibit R-1 FY 2025 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2024

Appropriation: 2040A Research, Development, Test and Evaluation, Army

Line No	Program Element Number	Item	Act	Sec	FY 2023	FY 2024 PB	FY 2025
					Actuals	Request with CR Adjustments*	Request
1	0601102A	Defense Research Sciences	01	U	386,594	296,670	310,191
2	0601103A	University Research Initiatives	01	U	97,598	75,672	78,166
3	0601104A	University and Industry Research Centers	01	U	119,270	108,946	109,726
4	0601121A	Cyber Collaborative Research Alliance	01	U	5,355	5,459	5,525
5	0601601A	Artificial Intelligence and Machine Learning Basic Research	01	U	7,985	10,708	10,309
	Basic Research				616,802	497,455	513,917
6	0602002A	Army Agile Innovation and Development-Applied Research	02	U	127	5,613	8,032
7	0602134A	Counter Improvised-Threat Advanced Studies	02	U	5,966	6,242	6,163
8	0602141A	Lethality Technology	02	U	180,191	85,578	96,094
9	0602142A	Army Applied Research	02	U	27,833	34,572	
10	0602143A	Soldier Lethality Technology	02	U	266,501	104,470	102,236
11	0602144A	Ground Technology	02	U	256,916	60,005	66,707
12	0602145A	Next Generation Combat Vehicle Technology	02	U	273,166	166,500	149,108
13	0602146A	Network C3I Technology	02	U	221,293	81,618	84,576
14	0602147A	Long Range Precision Fires Technology	02	U	113,099	34,683	32,089
15	0602148A	Future Vertical Lift Technology	02	U	103,022	73,844	52,685
16	0602150A	Air and Missile Defense Technology	02	U	94,972	33,301	39,188
17	0602180A	Artificial Intelligence and Machine Learning Technologies	02	U	15,481	24,142	20,319
18	0602181A	All Domain Convergence Applied Research	02	U	26,362	14,297	12,269
19	0602182A	C3I Applied Research	02	U	26,913	30,659	25,839
20	0602183A	Air Platform Applied Research	02	U	40,372	48,163	53,206
21	0602184A	Soldier Applied Research	02	U	15,427	18,986	21,069

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					FY 2023 Actuals	Request with CR Adjustments*	
22	0602213A	C3I Applied Cyber	02	U	13,605	22,714	28,656
23	0602386A	Biotechnology for Materials - Applied Research	02	U	21,015	16,736	11,780
25	0602785A	Manpower/Personnel/Training Technology	02	U	19,343	19,969	19,795
26	0602787A	Medical Technology	02	U	79,851	66,266	68,481
999	999999999	Classified Programs	02	U			35,766
Applied Research					1,801,455	948,358	934,058
27	0603002A	Medical Advanced Technology	03	U	31,398	4,147	3,112
28	0603007A	Manpower, Personnel and Training Advanced Technology	03	U	15,146	16,316	16,716
29	0603025A	Army Agile Innovation and Demonstration	03	U	17,757	23,156	14,608
30	0603040A	Artificial Intelligence and Machine Learning Advanced Technologies	03	U	6,162	13,187	18,263
31	0603041A	All Domain Convergence Advanced Technology	03	U	40,955	33,332	23,722
32	0603042A	C3I Advanced Technology	03	U	12,252	19,225	22,814
33	0603043A	Air Platform Advanced Technology	03	U	13,062	14,165	17,076
34	0603044A	Soldier Advanced Technology	03	U	462	1,214	10,133
35	0603116A	Lethality Advanced Technology	03	U	11,460	20,582	33,969
36	0603117A	Army Advanced Technology Development	03	U	138,774	136,280	
37	0603118A	Soldier Lethality Advanced Technology	03	U	150,020	102,778	94,899
38	0603119A	Ground Advanced Technology	03	U	415,104	40,597	45,880
39	0603134A	Counter Improvised-Threat Simulation	03	U	20,782	21,672	21,398
40	0603386A	Biotechnology for Materials - Advanced Research	03	U	54,778	59,871	36,360
41	0603457A	C3I Cyber Advanced Development	03	U	41,354	28,847	19,616
42	0603461A	High Performance Computing Modernization Program	03	U	293,043	255,772	239,597
43	0603462A	Next Generation Combat Vehicle Advanced Technology	03	U	467,533	217,394	175,198

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Line No	Program Element Number	Item	Act	Sec	FY 2024 PB		FY 2025 Request
					FY 2023 Actuals	Request with CR Adjustments	
44	0603463A	Network C3I Advanced Technology	03	U	174,768	105,549	94,424
45	0603464A	Long Range Precision Fires Advanced Technology	03	U	225,921	153,024	164,943
46	0603465A	Future Vertical Lift Advanced Technology	03	U	265,429	158,795	140,578
47	0603466A	Air and Missile Defense Advanced Technology	03	U	108,758	21,015	28,333
49	0603920A	Humanitarian Demining	03	U	20,674	9,068	9,272
999	999999999	Classified Programs	03	U			155,526
		Advanced Technology Development			2,525,592	1,455,986	1,386,437
51	0603305A	Army Missile Defense Systems Integration	04	U	117,723	12,904	13,031
52	0603308A	Army Space Systems Integration	04	U	30,453	19,120	19,659
53	0603327A	Air and Missile Defense Systems Engineering	04	U	15,000		
54	0603619A	Landmine Warfare and Barrier - Adv Dev	04	U	59,911	47,537	58,617
55	0603639A	Tank and Medium Caliber Ammunition	04	U	49,609	91,323	116,027
56	0603645A	Armored System Modernization - Adv Dev	04	U	133,300	43,026	23,235
57	0603747A	Soldier Support and Survivability	04	U	4,030	3,550	4,059
58	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	U	72,364	65,567	90,265
59	0603774A	Night Vision Systems Advanced Development	04	U	96,819	73,675	64,113
60	0603779A	Environmental Quality Technology - Dem/Val	04	U	75,614	31,720	34,091
61	0603790A	NATO Research and Development	04	U	3,666	4,143	4,184
62	0603801A	Aviation - Adv Dev	04	U	1,113,295	1,502,160	6,591
63	0603804A	Logistics and Engineer Equipment - Adv Dev	04	U	24,287	7,604	12,445
64	0603807A	Medical Systems - Adv Dev	04	U	5,598	1,602	582
65	0603827A	Soldier Systems - Advanced Development	04	U	20,807	27,681	24,284
66	0604017A	Robotics Development	04	U	27,444	3,024	3,039
67	0604019A	Expanded Mission Area Missile (EMAM)	04	U	250,351	97,018	102,589

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					FY 2023 Actuals	Request with CR Adjustments	
68	0604020A	Cross Functional Team (CFT) Advanced Development & Prototyping	04	U	74,189	117,557	63,831
69	0604035A	Low Earth Orbit (LEO) Satellite Capability	04	U	34,213	38,851	21,935
70	0604036A	Multi-Domain Sensing System (MDSS) Adv Dev	04	U	47,915	191,394	239,135
71	0604037A	Tactical Intel Targeting Access Node (TITAN) Adv Dev	04	U	863	10,626	4,317
72	0604100A	Analysis Of Alternatives	04	U	10,270	11,095	11,234
73	0604101A	Small Unmanned Aerial Vehicle (SUAV) (6.4)	04	U	1,373	5,144	1,800
74	0604103A	Electronic Warfare Planning and Management Tool (EWPMT)	04	U		2,260	2,004
75	0604113A	Future Tactical Unmanned Aircraft System (FTUAS)	04	U	134,719	53,143	127,870
76	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor	04	U	366,637	816,663	149,463
77	0604115A	Technology Maturation Initiatives	04	U	209,220	281,314	252,000
78	0604117A	Maneuver - Short Range Air Defense (M-SHORAD)	04	U	269,186	281,239	315,772
79	0604119A	Army Advanced Component Development & Prototyping	04	U	198,111	204,914	
80	0604120A	Assured Positioning, Navigation and Timing (PNT)	04	U	54,728	40,930	24,168
81	0604121A	Synthetic Training Environment Refinement & Prototyping	04	U	236,396	109,714	136,029
82	0604134A	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	U	14,298	16,426	17,341
83	0604135A	Strategic Mid-Range Fires	04	U	379,535	31,559	
84	0604182A	Hypersonics	04	U	309,068	43,435	
85	0604386A	Biotechnology for Materials - Dem/Val	04	U			20,862
86	0604403A	Future Interceptor	04	U	7,880	8,040	8,058
88	0604531A	Counter - Small Unmanned Aircraft Systems Advanced Development	04	U	36,629	64,242	59,983
90	0604541A	Unified Network Transport	04	U	35,616	40,915	31,837

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					FY 2023 Actuals	Request with CR Adjustments ¹	
91	0305251A	Cyberspace Operations Forces and Force Support	04	U	55,599		2,270
999	999999999	Classified Programs	04	U		19,200	277,181
	Advanced Component Development & Prototypes						
					4,576,716	4,420,315	2,343,901
92	0604201A	Aircraft Avionics	05	U	3,213	13,673	7,171
93	0604270A	Electronic Warfare Development	05	U	3,987	12,789	35,942
94	0604601A	Infantry Support Weapons	05	U	80,115	64,076	52,586
95	0604604A	Medium Tactical Vehicles	05	U	21,354	28,226	15,088
96	0604611A	JAVELIN	05	U	15,899	7,827	10,405
97	0604622A	Family of Heavy Tactical Vehicles	05	U	51,261	44,197	50,011
98	0604633A	Air Traffic Control	05	U	2,527	1,134	982
99	0604641A	Tactical Unmanned Ground Vehicle (TUGV)	05	U	107,975	142,125	92,540
100	0604642A	Light Tactical Wheeled Vehicles	05	U	13,667	53,564	100,257
101	0604645A	Armored Systems Modernization (ASM) - Eng Dev	05	U	60,827	102,201	48,097
102	0604710A	Night Vision Systems - Eng Dev	05	U	89,273	48,720	89,259
103	0604713A	Combat Feeding, Clothing, and Equipment	05	U	1,509	2,223	3,286
104	0604715A	Non-System Training Devices - Eng Dev	05	U	17,910	21,441	28,427
105	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	U	54,244	74,738	69,653
106	0604742A	Constructive Simulation Systems Development	05	U	28,404	30,985	30,097
107	0604746A	Automatic Test Equipment Development	05	U	4,989	13,626	12,927
108	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	U	7,890	8,802	8,914
109	0604798A	Brigade Analysis, Integration and Evaluation	05	U	22,207	20,828	26,352
110	0604802A	Weapons and Munitions - Eng Dev	05	U	284,859	243,851	242,949
111	0604804A	Logistics and Engineer Equipment - Eng Dev	05	U	74,150	37,420	41,829

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					Actuals	Request with CR Adjustments*	Request
112	0604805A	Command, Control, Communications Systems - Eng Dev	05	U	43,533	34,214	92,300
113	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	U	25,035	6,496	7,143
114	0604808A	Landmine Warfare/Barrier - Eng Dev	05	U	36,707	13,581	19,134
115	0604818A	Army Tactical Command & Control Hardware & Software	05	U	128,240	168,574	165,229
116	0604820A	Radar Development	05	U	77,158	94,944	76,090
117	0604822A	General Fund Enterprise Business System (GFEBs)	05	U	10,022	2,965	1,995
118	0604827A	Soldier Systems - Warrior Dem/Val	05	U	19,237	11,333	29,132
119	0604852A	Suite of Survivability Enhancement Systems - EMD	05	U	75,520	79,250	77,864
120	0604854A	Artillery Systems - EMD	05	U	42,261	42,490	50,495
121	0605013A	Information Technology Development	05	U	85,713	104,024	120,076
122	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	U	65,055	102,084	126,354
123	0605030A	Joint Tactical Network Center (JTNC)	05	U	17,274	18,662	20,191
124	0605031A	Joint Tactical Network (JTN)	05	U	29,050	30,328	31,214
125	0605035A	Common Infrared Countermeasures (CIRCM)	05	U	9,602	11,509	11,691
126	0605036A	Combating Weapons of Mass Destruction (CWMD)	05	U		1,050	7,846
127	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	05	U			7,886
128	0605041A	Defensive CYBER Tool Development	05	U	33,029	27,714	4,176
129	0605042A	Tactical Network Radio Systems (Low-Tier)	05	U	4,265	4,318	4,288
130	0605047A	Contract Writing System	05	U	13,220	16,355	9,276
131	0605049A	Missile Warning System Modernization (MWSM)	05	U		27,571	
132	0605051A	Aircraft Survivability Development	05	U	18,425	24,900	38,225
133	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1	05	U	126,308	196,248	167,912
134	0605053A	Ground Robotics	05	U	25,131	35,319	28,378

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					Actuals	Request with CR Adjustments	Request
135	0605054A	Emerging Technology Initiatives	05	U	212,750	201,274	164,734
136	0605143A	Biometrics Enabling Capability (BEC)	05	U	9,186		
137	0605144A	Next Generation Load Device - Medium	05	U	24,094	36,970	2,931
138	0605148A	Tactical Intel Targeting Access Node (TITAN) EMD	05	U	103,987	132,136	157,036
139	0605203A	Army System Development & Demonstration	05	U	143,616	81,657	
140	0605205A	Small Unmanned Aerial Vehicle (SUAV) (6.5)	05	U	6,292	31,284	37,876
141	0605206A	CI and HUMINT Equipment Program-Army (CIHEP-A)	05	U		2,170	1,296
142	0605216A	Joint Targeting Integrated Command and Coordination Suite (JTIC2S)	05	U		9,290	28,553
143	0605224A	Multi-Domain Intelligence	05	U	6,008	41,003	18,913
144	0605231A	Precision Strike Missile (PrSM)	05	U	250,034	272,786	184,046
145	0605232A	Hypersonics EMD	05	U	533,520	900,920	538,017
146	0605233A	Accessions Information Environment (AIE)	05	U	9,720	27,361	32,265
147	0605235A	Strategic Mid-Range Capability	05	U	4,833	348,855	182,823
148	0605236A	Integrated Tactical Communications	05	U	11,993	22,901	23,363
149	0605241A	Future Long Range Assault Aircraft Development	05	U			1,253,637
150	0605242A	Theater SIGINT System (TSIGS)	05	U			6,660
151	0605244A	Joint Reduced Range Rocket (JR3)	05	U			13,565
152	0605247A	Spectrum Situational Awareness System (S2AS)	05	U			9,330
153	0605450A	Joint Air-to-Ground Missile (JAGM)	05	U	2,280	3,014	3,030
154	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	U	245,791	284,095	602,045
155	0605531A	Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	05	U	11,548	36,016	59,563
157	0605625A	Manned Ground Vehicle	05	U	519,131	996,653	504,841
158	0605766A	National Capabilities Integration (MIP)	05	U	16,790	15,129	16,565

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					Actuals	Request with CR Adjustments ⁺	Request
159	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	05	U	9,033	27,243	27,013
160	0605830A	Aviation Ground Support Equipment	05	U	2,851	1,167	979
161	0303032A	TROJAN - RH12	05	U	3,761	3,879	3,930
162	0303767A	AMBIT - Pre-Auctioned SRF	05	U	21,730		
163	0304270A	Electronic Warfare Development	05	U	97,616	137,186	131,096
999	999999999	Classified Programs	05	U			83,136
System Development & Demonstration					4,077,609	5,639,364	6,150,910
164	0604256A	Threat Simulator Development	06	U	138,264	38,492	71,298
165	0604258A	Target Systems Development	06	U	53,434	11,873	15,788
166	0604759A	Major T&E Investment	06	U	144,173	76,167	78,613
167	0605103A	Rand Arroyo Center	06	U	30,800	37,078	38,122
168	0605301A	Army Kwajalein Atoll	06	U	297,859	314,872	321,755
169	0605326A	Concepts Experimentation Program	06	U	83,668	95,551	86,645
170	0605502A	Small Business Innovative Research	06	U	382,638		
171	0605601A	Army Test Ranges and Facilities	06	U	414,662	439,118	461,085
172	0605602A	Army Technical Test Instrumentation and Targets	06	U	72,760	42,220	75,591
173	0605604A	Survivability/Lethality Analysis	06	U	35,750	37,518	37,604
174	0605606A	Aircraft Certification	06	U	4,777	2,718	2,201
175	0605702A	Meteorological Support to RDT&E Activities	06	U	6,820		
176	0605706A	Materiel Systems Analysis	06	U	22,004	26,902	27,420
177	0605709A	Exploitation of Foreign Items	06	U	6,186	7,805	6,245
178	0605712A	Support of Operational Testing	06	U	69,879	75,133	76,088
179	0605716A	Army Evaluation Center	06	U	67,058	71,118	73,220

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(Dollars in Thousands)

Appropriation: 2040A Research, Development, Test and Evaluation, Army

Line No	Program Element Number	Item	Act	Sec	FY 2024 PB		FY 2025 Request
					FY 2023 Actuals	Request with CR Adjustments	
180	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	U	5,874	11,204	11,257
181	0605801A	Programwide Activities	06	U	88,780	93,895	91,895
182	0605803A	Technical Information Activities	06	U	36,821	31,327	32,385
183	0605805A	Munitions Standardization, Effectiveness and Safety	06	U	59,088	50,409	50,766
184	0605857A	Environmental Quality Technology Mgmt Support	06	U	1,842	1,629	1,659
185	0605898A	Army Direct Report Headquarters - R&D - MHA	06	U	53,003	55,843	59,727
186	0606002A	Ronald Reagan Ballistic Missile Defense Test Site	06	U	85,873	91,340	73,400
187	0606003A	CounterIntel and Human Intel Modernization	06	U	1,424	6,348	4,574
188	0606942A	Assessments and Evaluations Cyber Vulnerabilities	06	U	5,816	6,025	10,105
189	0909999A	Financing for Cancelled Account Adjustments	06	U	135		
Management Support					2,169,388	1,624,585	1,707,443
190	0603778A	MLRS Product Improvement Program	07	U	17,790	14,465	14,188
191	0605024A	Anti-Tamper Technology Support	07	U	9,028	7,472	7,489
192	0607101A	Combating Weapons of Mass Destruction (CWMD) Product Improvement	07	U			271
193	0607131A	Weapons and Munitions Product Improvement Programs	07	U	54,216	8,425	9,363
194	0607136A	Blackhawk Product Improvement Program	07	U		1,507	25,000
195	0607137A	Chinook Product Improvement Program	07	U	65,596	9,265	4,816
196	0607139A	Improved Turbine Engine Program	07	U	219,713	201,247	67,029
197	0607142A	Aviation Rocket System Product Improvement and Development	07	U	10,899	3,014	
198	0607143A	Unmanned Aircraft System Universal Products	07	U	10,493	25,393	24,539
199	0607145A	Apache Future Development	07	U	26,607	10,547	8,243
200	0607148A	AN/TPQ-53 Counterfire Target Acquisition Radar System	07	U	59,312	54,167	53,652
201	0607150A	Intel Cyber Development	07	U	13,343	4,345	9,753

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 (Dollars in Thousands)

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

Line No	Program Element Number	Item	Act	Sec	FY 2023	FY 2024 PB	FY 2025
					Actuals	Request with CR Adjustments	Request
202	0607312A	Army Operational Systems Development	07	U	26,131	19,000	
203	0607313A	Electronic Warfare Development	07	U	11,417	6,389	5,559
204	0607315A	Enduring Turbine Engines and Power Systems	07	U		2,411	2,620
206	0607665A	Family of Biometrics	07	U	1,073	797	590
207	0607865A	Patriot Product Improvement	07	U	146,753	177,197	168,458
208	0203728A	Joint Automated Deep Operation Coordination System (JADOCS)	07	U	18,606	42,177	27,582
209	0203735A	Combat Vehicle Improvement Programs	07	U	187,377	146,635	272,926
210	0203743A	155mm Self-Propelled Howitzer Improvements	07	U	112,257	122,902	55,205
211	0203752A	Aircraft Engine Component Improvement Program	07	U	148	146	142
212	0203758A	Digitization	07	U		1,515	1,562
213	0203801A	Missile/Air Defense Product Improvement Program	07	U	2,996	4,520	1,511
214	0203802A	Other Missile Product Improvement Programs	07	U	8,698	10,044	23,708
215	0205412A	Environmental Quality Technology - Operational System Dev	07	U	764	281	269
216	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07	U	19,443	75,952	20,590
217	0208053A	Joint Tactical Ground System	07	U	8,813	203	
220	0303028A	Security and Intelligence Activities	07	U		301	
221	0303140A	Information Systems Security Program	07	U	15,554	15,323	15,733
222	0303141A	Global Combat Support System	07	U	21,775	13,082	2,566
223	0303142A	SATCOM Ground Environment (SPACE)	07	U	14,551	26,838	26,643
226	0305179A	Integrated Broadcast Service (IBS)	07	U	9,426	9,456	5,701
227	0305204A	Tactical Unmanned Aerial Vehicles	07	U	4,500		
228	0305206A	Airborne Reconnaissance Systems	07	U	6,402		
229	0305219A	MQ-1 Gray Eagle UAV	07	U		6,629	6,681

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 Total Obligational Authority
 (Dollars in Thousands)

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

Line No	Program Element Number	Item	Act	Sec	FY 2023	FY 2024 PB	FY 2025
					Actuals	Request with CR Adjustments*	Request
230	0708045A	End Item Industrial Preparedness Activities	07	U	128,617	75,317	67,187
999	999999999	Classified Programs	07	U	6,664	8,786	32,518
Operational Systems Development					1,238,962	1,105,748	962,094
231	0608041A	Defensive CYBER - Software Prototype Development	08	U	92,460	83,570	74,548
Software And Digital Technology Pilot Programs					92,460	83,570	74,548
232	0901560A	Continuing Resolution Programs	20	U		1,366,740	
Undistributed						1,366,740	
Total Research, Development, Test and Evaluation, Army					17,098,984	17,142,121	14,073,308

*A full-year FY 2024 appropriation for this account was not enacted at the time the budget was prepared; account is operating under the Further Additional Continuing Appropriations and Other Extensions Act, 2024 (Public Law 118-35). The amounts included for FY 2024 reflect the annualized level provided by the continuing resolution.

*FY 2023 includes \$7,626 thousand in Overseas Operations Costs (OOC) Actuals. FY 2024 includes \$3,166 thousand in OOC Requested. FY 2025 includes \$3,157 thousand for the OOC Budget Estimate. OOC were financed previously with former Overseas Contingency Operations (OCO) funding.

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Line #	Budget Activity	Program Element Number	Program Element Title	Page
51	04	0603305A	Army Missile Defense Systems Integration.....	Volume 2a - 1
52	04	0603308A	Army Space Systems Integration.....	Volume 2a - 13
53	04	0603327A	Air and Missile Defense Systems Engineering.....	Volume 2a - 23
54	04	0603619A	Landmine Warfare and Barrier - Adv Dev.....	Volume 2a - 30
55	04	0603639A	Tank and Medium Caliber Ammunition.....	Volume 2a - 53
56	04	0603645A	Armored System Modernization - Adv Dev.....	Volume 2a - 93
57	04	0603747A	Soldier Support and Survivability.....	Volume 2a - 110
58	04	0603766A	Tactical Electronic Surveillance System - Adv Dev.....	Volume 2a - 118
59	04	0603774A	Night Vision Systems Advanced Development.....	Volume 2a - 143
60	04	0603779A	Environmental Quality Technology - Dem/Val.....	Volume 2a - 164
61	04	0603790A	NATO Research and Development.....	Volume 2a - 187
62	04	0603801A	Aviation - Adv Dev.....	Volume 2a - 197
63	04	0603804A	Logistics and Engineer Equipment - Adv Dev.....	Volume 2a - 225
64	04	0603807A	Medical Systems - Adv Dev.....	Volume 2a - 247
65	04	0603827A	Soldier Systems - Advanced Development.....	Volume 2a - 260
66	04	0604017A	Robotics Development.....	Volume 2a - 298

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67	04	0604019A	Expanded Mission Area Missile (EMAM).....	Volume 2a - 318
68	04	0604020A	Cross Functional Team (CFT) Advanced Development & Prototyping.....	Volume 2a - 337

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Air and Missile Defense Systems Engineering	0603327A	53	04.....	Volume 2a - 23
Armored System Modernization - Adv Dev	0603645A	56	04.....	Volume 2a - 93
Army Missile Defense Systems Integration	0603305A	51	04.....	Volume 2a - 1
Army Space Systems Integration	0603308A	52	04.....	Volume 2a - 13
Aviation - Adv Dev	0603801A	62	04.....	Volume 2a - 197
Cross Functional Team (CFT) Advanced Development & Prototyping	0604020A	68	04.....	Volume 2a - 337
Environmental Quality Technology - Dem/Val	0603779A	60	04.....	Volume 2a - 164
Expanded Mission Area Missile (EMAM)	0604019A	67	04.....	Volume 2a - 318
Landmine Warfare and Barrier - Adv Dev	0603619A	54	04.....	Volume 2a - 30
Logistics and Engineer Equipment - Adv Dev	0603804A	63	04.....	Volume 2a - 225
Medical Systems - Adv Dev	0603807A	64	04.....	Volume 2a - 247
NATO Research and Development	0603790A	61	04.....	Volume 2a - 187
Night Vision Systems Advanced Development	0603774A	59	04.....	Volume 2a - 143
Robotics Development	0604017A	66	04.....	Volume 2a - 298
Soldier Support and Survivability	0603747A	57	04.....	Volume 2a - 110
Soldier Systems - Advanced Development	0603827A	65	04.....	Volume 2a - 260
Tactical Electronic Surveillance System - Adv Dev	0603766A	58	04.....	Volume 2a - 118

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Program Element Title	Program Element Number	Line #	BA	Page
Tank and Medium Caliber Ammunition	0603639A	55	04.....	Volume 2a - 53

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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 0603305A / <i>Army Missile Defense Systems Integration</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	-	117.723	12.904	13.031	-	13.031	13.042	13.181	13.324	13.457	0.000	196.662
TR5: <i>Missile Defense Battlelab</i>	-	117.723	12.904	13.031	-	13.031	13.042	13.181	13.324	13.457	0.000	196.662

A. Mission Description and Budget Item Justification

This Program Element (PE) funds missile defense systems integration efforts for the US Army Space and Missile Defense Command in its role as the Army Service Component Command (ASCC) to USSTRATCOM and USSPACECOM.

USASMDC: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC as the Army proponent for ground-based midcourse defense (GMD), the Army integrator for global missile defense, and the ASCC of the U.S. Strategic Command (USSTRATCOM). Upon its establishment, USASMDC became the Army Service Component Command of the United States Space Command (USSPACECOM). Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and Direct Reporting Units dated 4 September 2007, and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designate USASMDC as the Army specified proponent for Global Missile Defense (GMD) capabilities. As the Army proponent for GMD, USASMDC is responsible for developing warfighting concepts, conducting warfighting experiments to validate those concepts, identifying capabilities needed to implement the validated concepts, and developing Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to realize GMD capabilities. As the Army integrator for global missile defense, USASMDC is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM and USSPACECOM to execute their global missile defense responsibilities to provide protection of the homeland and regional/theater missile defense.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	118.001	12.904	13.010	-	13.010
Current President's Budget	117.723	12.904	13.031	-	13.031
Total Adjustments	-0.278	0.000	0.021	-	0.021
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.157	-			
• SBIR/STTR Transfer	-0.121	-			
• Adjustments to Budget Years	-	-	0.021	-	0.021

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: TR5: *Missile Defense Battlelab*

FY 2023	FY 2024

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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 0603305A / <i>Army Missile Defense Systems Integration</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2023	FY 2024
Congressional Add: <i>Program increase - integrated environmental control and power</i>	16.000	-
Congressional Add: <i>A2IFS (Advanced Dynamic and Features Simulation)</i>	20.000	-
Congressional Add: <i>System Engineering Research into System Integration Air and Missile</i>	10.000	-
Congressional Add: <i>Mobile Solid State High Power Microwave</i>	25.000	-
Congressional Add: <i>Pragmatic Artificial Intelligence and New Technology</i>	15.000	-
Congressional Add: <i>Gun Launched Interceptors (GLI)</i>	3.000	-
Congressional Add: <i>Sensing, Modeling, Analysis, Requirements, and Training (SMART)</i>	10.000	-
Congressional Add: <i>Weather Impacts Tool Kit (WITK)</i>	5.000	-
Congressional Add: <i>AI/ML for Integrated Fires (AIF)</i>	2.000	-
Congressional Add Subtotals for Project: TR5	106.000	-
Congressional Add Totals for all Projects	106.000	-

Change Summary Explanation

Minor increase in FY25 funding from the previous PB to the current PB due to revised economic assumptions.

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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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab
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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
TR5: <i>Missile Defense Battlelab</i>	-	117.723	12.904	13.031	-	13.031	13.042	13.181	13.324	13.457	0.000	196.662
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project TR5 funds the Strategic Missile Defense (SMD) Force Development activities of the United States Army Space and Missile Defense Command (USASMDC) Space and Missile Defense Center of Excellence (SMDCoE). The SMDCoE is the warfighting function lead and Department of the Army force modernization proponent to develop the associated operational prototyping, experimentation, operational analysis, and modeling and simulation in support of missile defense capabilities for current and future Forces. The SMDCoE SMD Force Development workforce supports the research and doctrine development from one of the SMDCoE principal locations in Huntsville, AL; Colorado Springs, CO; and Joint Base Langley-Eustis. As the Army proponent for SMD, USASMDC is responsible for developing warfighting concepts, conducting warfighting experiments to validate those concepts, identifying capabilities needed to implement the validated concepts, and developing Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to develop future SMD capabilities. As the Army integrator for SMD, USASMDC is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM and USSPACECOM to execute their SMD responsibilities.

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

	FY 2023	FY 2024	FY 2025
<p>Title: Disruptive Concepts and Technologies Development</p> <p>Description: Provide concept development / DOTMLPF-P support to the Army Air and Missile Defense Cross Functional Team (AMD CFT) for priority programs.</p> <p>FY 2024 Plans: Mature operating concepts leveraging advanced technologies to include Artificial Intelligence Air and Missile Defense (AIAMD), enduring Indirect Fires Protection Capability (IFPC) and laser technology air and missile defense protection systems. Develop concepts to integrate emerging technologies supporting the development of next generation capabilities to match, then outpace the threat in order to ensure success in competition, crisis, conflict, and change.</p> <p>FY 2025 Plans: SMDCoE maintains focus on developing concepts to integrate emerging technologies which support the development of next generation capabilities to match, then outpace the threat in order to ensure success in competition, crisis, conflict, and change.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to economic assumptions.</p>	7.436	8.156	8.270
<p>Title: Strategic Missile Defense Experiments, Wargames and Prototypes</p>	1.715	1.876	1.876

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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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Description: Develop and assess current SMD technologies and assess capabilities through participation in wargames and experiments.</p> <p>FY 2024 Plans: USASMDC SMDCoE will continue to pursue Army modernization priorities through participation in the Joint Warfighting Concept and support to combatant command wargaming, experimentation and concept development.</p> <p>FY 2025 Plans: USASMDC SMDCoE develops and tests concepts to improve pre-launch awareness of mobile launched hypersonic weapons, to modernize the ability to track hypersonic weapons, and develop a more integrated and coordinated global missile defense command and control network.</p>				
<p>Title: Strategic Missile Defense Models and Simulations Infrastructure</p> <p>Description: USASMDC is the proponent for multiple models and simulations (M&S) critical to the Army and Joint analysis, exercise, wargaming, and experimentation communities.</p> <p>FY 2024 Plans: Continue improve Missile Defense analysis, advanced modelling and simulations by leveraging lessons learned from previous efforts. Evaluate new technologies in realistic operating environments to accurately reflect modern missile defense capabilities. Develop the Future Force Experimentation Air Defense System (FFEADS) simulation model to provide operator-in-the-loop representations of all Army air and missile defense weapon, and command and control systems.</p> <p>FY 2025 Plans: Conduct and improve Missile Defense analysis, advanced modelling and simulations by leveraging lessons learned from previous efforts. Evaluate new technologies in realistic operating environments to accurately reflect modern missile defense capabilities. Provide program management for maintenance, sustainment, and development for Extended Air Defense Simulation (EADSIM), and the Joint Embedded Messaging System (JEMS). Develop the Future Force Experimentation Air Defense System (FFEADS) simulation model to provide operator-in-the-loop representations of all Army air and missile defense weapon, and command and control systems.</p>		0.749	0.875	0.875
<p>Title: Strategic Missile Defense Operations Resourcing and Support</p> <p>Description: Requirement supports the SMDCoE responsibility to provide resources to support underlying operating expenses for the strategic missile defense force development mission area.</p> <p>FY 2024 Plans:</p>		1.823	1.997	2.010

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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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Resources provide the support staff for senior SMDCoE leadership, budget and program support, reimbursement for Army Contracting Command (ACC), and a variety of logistical support requirements all necessary to sustain operations and ensure efficient accomplishment of the larger force development mission. FY 2025 Plans: Continue to provide operational and logistical support to ensure the long-range planning and overall mission accomplishment of the Army SMDCoE. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to economic assumptions.				
Accomplishments/Planned Programs Subtotals		11.723	12.904	13.031
		FY 2023	FY 2024	
Congressional Add: Program increase - integrated environmental control and power		16.000	-	
FY 2023 Accomplishments: Develop cooling tech for the Force to facilitate integration of power generation equipment with environmental control systems. Develop advanced high efficiency AC and DC compatible electronics cooling technologies for the rapid integration of highly compact and energy efficient DC generators. Integrate thermal and power management subsystems to refine and mature platforms for directed energy weapon (DEW) in pods or small stationary container systems to more effectively operate and contribute to Integrated Air and Missile Defense objectives.				
Congressional Add: A2IFS (Advanced Dynamic and Features Simulation)		20.000	-	
FY 2023 Accomplishments: Develop advanced ground test techniques and technologies to dramatically decrease the cost and schedule associated with the development of ground testing and hypersonic systems development by: Providing continuous test capability to accelerate the deployment of advanced systems Providing precise control of testing environment provides highest fidelity data capture Providing a secure method to develop future systems without adversary observation.				
Congressional Add: System Engineering Research into System Integration Air and Missile		10.000	-	

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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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab	
		FY 2023	FY 2024
FY 2023 Accomplishments: Conduct an Advanced System Engineering Research into System Integration Air and Missile (SERSAM) for complete kill chain of air and missile defense technology evaluation capability. SERSAM will be designed and developed to include offensive and defensive weapon technologies to engage threats in a realistic system of systems environment. Work will include technology trade studies of advanced technologies and defense systems. Simulated engagement plans would be utilized to drive the testbed simulations (e.g. 3DOF, 6DOF) with High Frequency.			
Congressional Add: Mobile Solid State High Power Microwave		25.000	-
FY 2023 Accomplishments: Develop High Power Microwave (HPM) technologies and systems capable of engaging specific target classes. Develop and Demonstrate Scalable HPM Devices that can be integrated on multiple platforms. Assess HPM lethality to optimized effects in threat systems. Identify HPM protection capabilities to battlefield systems.			
Congressional Add: Pragmatic Artificial Intelligence and New Technology		15.000	-
FY 2023 Accomplishments: Establish the Laboratory to apply Artificial Intelligence (AI) "Expert Systems" to near-term, engineering solutions. Machine Learning based Computer Vision with application to both Automatic Target Recognition (ATR) and image-based map generation. Test asset deployment planning optimization using AI expert systems. Planning and optimization using AI expert systems for the Integrated Defense Planner Lab AI enabled weapons pairing to optimize weapon to threat assignments in a complex environments.			
Congressional Add: Gun Launched Interceptors (GLI)		3.000	-
FY 2023 Accomplishments: Counter - Rocket, Artillery, Mortar / Unmanned Aerial Systems (C-RAM / C-UAS) defenses can be overwhelmed by swarm attack. Prototype a maneuverable, laser guided GLI by utilizing an Insensitive Munitions compliant solid propulsion divert system and a laser seeker assembly. Design, integrate,			

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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 0603305A / <i>Army Missile Defense Systems Integration</i>	Project (Number/Name) TR5 / <i>Missile Defense Battlelab</i>	
		FY 2023	FY 2024
and test a prototype GLI to address the C-RAM / C-UAS mission as part of the Integrated Air and Missile Defense role.			
Congressional Add: Sensing, Modeling, Analysis, Requirements, and Training (SMART) FY 2023 Accomplishments: Rapid Mission planning and Range Safety capabilities leveraging existing, proven and low-risk systems. Complete, accredit, and deploy the Flight Analysis Software Toolkit for weapons flight mission planning and flight testing. Includes requirement to expedite evaluation of pre-test predictions with observed performance in long range weapon test event. Develop deployable ground-based (land/sea) unmanned sensors that measure weapon system accuracy, lethality, and potential for collateral effects.		10.000	-
Congressional Add: Weather Impacts Tool Kit (WITK) FY 2023 Accomplishments: Rapid Mission planning and Range Safety capabilities leveraging existing, proven and low-risk systems. Complete, accredit, and deploy the Flight Analysis Software Toolkit for weapons flight mission planning and flight testing. Includes requirement to expedite evaluation of pre-test predictions with observed performance in long range weapon test event. Develop deployable ground-based (land/sea) unmanned sensors that measure weapon system accuracy, lethality, and potential for collateral effects.		5.000	-
Congressional Add: AI/ML for Integrated Fires (AIF) FY 2023 Accomplishments: Develop and Artificial Intelligence/Machine Learning (AI/ML) engineering software for command and control for integrated fares capability. Apply AI software that captures expert knowledge into a autonomous capability Develop methodologies, decision making criteria matching expert knowledge for Command and Control applications for integrated fires in complex environments.		2.000	-
Congressional Adds Subtotals		106.000	-

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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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab

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

N/A

Remarks

SMDCoE strategic missile defense capability development efforts have a natural association and linkage with Army Space and High Altitude (SHA) capability development also performed within the SMDCoE. Emerging space and high altitude technologies and concepts often influence SMD identification, tracking and response.

D. Acquisition Strategy

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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab
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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			
Government Personnel and Operations Support	TBD	SMDC : COS / HSV	31.004	8.356		8.934		9.040		-		9.040	Continuing	Continuing	-
Subtotal			31.004	8.356		8.934		9.040		-		9.040	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			
Contracts	Various	SMDC : COS / HSV	13.480	3.367		3.970		3.991		-		3.991	Continuing	Continuing	-
Integrated Environmental Control and Power (CA)	TBD	SMDC : Various	5.000	16.000		-		-		-		-	0.000	21.000	-
A2IFS (Advanced Dynamic and Instrumentation and Features Simulation) (CA)	TBD	SMDC : Various	23.500	20.000		-		-		-		-	0.000	43.500	-
System Engineering Reseach into System Integration Air and Missile (CA)	TBD	SMDC : Various	-	10.000		-		-		-		-	0.000	10.000	-
Mobile Solid State High Power Microwave (CA)	TBD	SMDC : Various	-	25.000		-		-		-		-	0.000	25.000	-
Pragmatic Arificial Intelligence and New Technology (CA)	TBD	SMDC : Various	-	15.000		-		-		-		-	0.000	15.000	-
Gun Launched Interceptors (CA)	TBD	SMDC : Various	-	3.000		-		-		-		-	0.000	3.000	-
Sensing, Modeling, Analysis, Requirements, and Training (SMART) (CA)	TBD	SMDC : Various	-	10.000		-		-		-		-	0.000	10.000	-
Weather Impacts Tool Kit (WITK) (CA)	TBD	SMDC : Various	-	5.000		-		-		-		-	0.000	5.000	-

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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 0603305A / Army Missile Defense Systems Integration	Project (Number/Name) TR5 / Missile Defense Battlelab

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
Experiments & Technology Enhancements of Prototypes	[Redacted]																											
Development of Extended Air Defense Simulation Updates	[Redacted]																											
Reconfigurable Tactical Operations System (RTOS) Development	[Redacted]																											
Force Development Support to the Air and Missile Defense...	[Redacted]																											
AN/TPY-2 Forward Based Mode (FBM) Program Management	[Redacted]																											
Missile Defense Simulation Support for the Joint Warfight...	[Redacted]																											
Force Design Requirements Assessment for Missile Defense...	[Redacted]																											
Hypersonics Tracking Capability Development	[Redacted]																											
Provide Support to Army Future Command's Modernization E...	[Redacted]																											
Future Force Experimentation Air Defense System (FFEADS)...	[Redacted]																											
Analysis Support to Joint Inter Agency Missile Defense O...	[Redacted]																											

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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 0603305A / <i>Army Missile Defense Systems Integration</i>	Project (Number/Name) TR5 / <i>Missile Defense Battlelab</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Experiments & Technology Enhancements of Prototypes	1	2022	4	2029
Development of Extended Air Defense Simulation Updates	1	2022	4	2029
Reconfigurable Tactical Operations System (RTOS) Development	1	2022	4	2029
Force Development Support to the Air and Missile Defense Cross Functional Team	1	2022	4	2029
AN/TPY-2 Forward Based Mode (FBM) Program Management	1	2022	4	2029
Missile Defense Simulation Support for the Joint Warfighting Concept	1	2022	4	2029
Force Design Requirements Assessment for Missile Defense Forces	1	2022	4	2029
Hypersonics Tracking Capability Development	1	2022	4	2029
Provide Support to Army Future Command's Modernization Enterprise Processes	1	2022	4	2029
Future Force Experimentation Air Defense System (FFEADS) Development	2	2022	3	2024
Analysis Support to Joint Inter Agency Missile Defense Office (JIAMDO)	1	2022	3	2024

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

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603308A / Army Space Systems Integration
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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	-	30.453	19.120	19.659	-	19.659	19.678	19.889	20.102	20.303	0.000	149.204
990: Space And Missile Defense Integration	-	30.453	19.120	19.659	-	19.659	19.678	19.889	20.102	20.303	0.000	149.204

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the United States Army Space and Missile Defense Command (USASMDC) development activities, and employment of global space and high-altitude (SHA) capabilities to the Army, joint force, allies and partners, to enable multi-domain combat effects; enhance deterrence, assurance, and detection of strategic attacks; and protect the Nation. The USASMDC is the warfighting function lead and Department of the Army force modernization proponent for integration of current and future SHA systems to enable Army forces on the battlefield. The USASMDC workforce supports the research and doctrine development from one of the USASMDC principal locations in Huntsville, AL; Colorado Springs, CO; and Joint Base Langley-Eustis. Employing cutting-edge technology and incorporating feedback from the warfighter, the command develops critical space and high-altitude capabilities to maintain overmatch of the nation's near-peer adversaries and to deter, deny and defeat any challenge. USASMDC/ARSTRAT: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC/ARSTRAT as the Army proponent for space, the Army integrator for global missile defense (GMD), and the Army Service Component Command (ASCC) of the USSTRATCOM. Army Regulation (AR) 10-87, Army Commands, Army Service Component Commands, and Direct Reporting Units, dated 4 September 2007, and AR 5-22, The Army Force Modernization Proponent System, dated 19 August 2009, designated USASMDC/ARSTRAT as the Army specified proponent for Space/High Altitude capabilities. As the Army proponent for space and high altitude, USASMDC/ARSTRAT is responsible for developing warfighting concepts, conduct warfighting experiments to validate those concepts, identify capabilities needed to implement the validated concepts, and develop Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	30.945	19.120	19.417	-	19.417
Current President's Budget	30.453	19.120	19.659	-	19.659
Total Adjustments	-0.492	0.000	0.242	-	0.242
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.181	-			
• SBIR/STTR Transfer	-0.311	-			
• Adjustments to Budget Years	-	-	0.242	-	0.242

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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 0603308A / <i>Army Space Systems Integration</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 990: *Space And Missile Defense Integration*

Congressional Add: *Multi-mission Synthetic Aperture Radar Payload Development*

Congressional Add: *Full Spectrum Protective Technologies for Cyber Mission Assurance*

Congressional Add Subtotals for Project: 990

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	5.000	-
	8.000	-
	13.000	-
	13.000	-

Change Summary Explanation

Fiscal Year 2025 increase of \$209K is due to realignment of civilian manpower to support Air and Missile Defense, Hypersonics and Strategic Weapons, Directed Energy Technologies, Space and High-Altitude Technologies, or Test and Evaluation.

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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 0603308A / Army Space Systems Integration				Project (Number/Name) 990 / Space And Missile Defense Integration			
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
990: Space And Missile Defense Integration	-	30.453	19.120	19.659	-	19.659	19.678	19.889	20.102	20.303	0.000	149.204
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Space and High Altitude (SHA) Force Development activities of the United States Army Space and Missile Defense Command (USASMDC) Space and Missile Defense Center of Excellence (SMDCoE) and Technical Center (TC). The SMDCoE is the warfighting function lead and Department of the Army force modernization proponent for integration of current and future SHA systems to enable Army forces on the battlefield. The SMDCoE workforce supports the research and doctrine development from one of the SMDCoE principle locations in Huntsville, AL; Colorado Springs, CO; and Joint Base Langley-Eustis. As the Army proponent for SHA, the SMDCoE is responsible for developing warfighting concepts, identifying and validating needed capabilities, conducting warfighting experiments, and developing Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions for the Army to leverage the SHA domains in support of Army operations. The SMDCoE focuses on providing solutions for capability gaps of land domain forces in a multi-domain battle environment in two ways: First, by leveraging the benefits of the SHA domains to enable decentralized land force operations in support of the Army's mission command philosophy; and second by delivering synchronized capabilities from, through and into the space domain in direct support of land domain forces. Effective integration of SHA capabilities enable the application of strategic land power and execution of Multi-Domain Operations (MDO). Additionally, SHA capabilities anchor the Army's ability to penetrate and disintegrate enemy anti-access and area denial (A2AD) systems and exploit the resultant freedom of maneuver to achieve strategic objectives and force a return to competition on favorable terms. Under the direction of an experienced member of the Senior Executive Service (SES), the SMDCoE receives guidance from the USASMDC Commanding General and works in close coordination with the Army Combined Arms Center, Army Futures Command, the United States Strategic Command, the United States Space Command the Missile Defense Agency.

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

	FY 2023	FY 2024	FY 2025
Title: Space and High Altitude Capability Development Proponency	9.787	10.910	11.200
Description: Perform Army Force Modernization Responsibilities for the SHA Altitude Domains.			
FY 2024 Plans: Continue to develop concepts, transition technologies, and provide acquisition support for SHA technologies to assure uninterrupted access to space based technologies and leverage the capabilities provided for Army force operations on the battlefield.			
FY 2025 Plans:			

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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 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Support Army modernization efforts by developing concepts to integrate emerging technologies to enhance Multi-Domain Operations with a particular focus on increasing Multi-Domain Task Force (MDTF), Multi-Domain Effects Battalion (MDEB) and Theater Strike Effects Groups (TSEG) capabilities. FY 2024 to FY 2025 Increase/Decrease Statement: Minor increase due to economic assumptions.				
Title: Joint Friendly Force Tracking (J-FFT) Testbed Description: Development and deployment of J-FFT capabilities. FY 2024 Plans: J-FFT will continue to exploit, expand and provide mission owners with approved infrastructures at all classification levels that achieve improved performance and reduce costs. Ensure J-FFT technologies remain a key contributor to support coalition assessments and exercises that advancing US and allies FFT interoperability. FY 2025 Plans: J-FFT testbed and development teams respond to the growth in FFT device use by enabling multiple device types, data types, and displays supported by the various FFT and HF TTL data architectures. The JFFT Testbed will develop and deliver new capabilities for added functionality in data visualization and management. JFFT will continue to exploit, expand and provide approved infrastructures at all classification levels that improve performance and reduce costs.		3.200	3.368	3.368
Title: Assured Positioning, Navigation and Timing / Navigation Warfare (A-PNT/NAVWAR) Description: Provide PNT/NAVWAR capability development support for the Army. FY 2024 Plans: Continue to identify, develop, integrate and provide the Assured-Positioning, Navigation, and Timing (A-PNT) Cross Functional Team (CFT)with products and analysis to guide development and fielding of capabilities to achieve the PNT overmatch necessary to support future Army operations. FY 2025 Plans: The SMDCoE Army Capability Manager for Space and High-Altitude (ACM SHA) works to mitigate capability gaps due to the growing threat to PNT, to provide situational awareness of the NAVWAR environment, and to prevent adversary use of PNT information through coordinated employment of NAVWAR capabilities.		2.355	2.263	2.263
Title: Space and High Altitude Models, Simulations and Operations Support		2.111	2.579	2.619

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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 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Supports the SMDCoE responsibility to provide Space and High-Altitude modeling and simulations, and resources underlying operating expenses and support.</p> <p>FY 2024 Plans: Continue to support modeling and simulation, operational analysis and overarching operations to test and provide analytical rigor behind space and high altitude concepts and capability development</p> <p>FY 2025 Plans: Resources provide the computational and network resources, modeling and simulation, and operational analysis required to support major decisions concerning the acquisition of systems and the development of concepts of operations (CONOPS) that provide the best Joint, and Army Space and High-Altitude capabilities to current and future Warfighters.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Minor increase due to economic assumptions.</p>			
<p>Title: Space and High-Altitude Engineering Subject Matter Expertise</p> <p>Description: This program provides engineering subject matter expertise within the technical areas of Air and Missile Defense, Hypersonics and Strategic Weapons, Directed Energy Technologies, Space and High-Altitude Technologies Test and Evaluation in support of the Space and Missile Defense Technical Center.</p> <p>FY 2025 Plans: The manpower provides engineering subject matter expertise within the technical areas of Air and Missile Defense, Hypersonics and Strategic Weapons, Directed Energy Technologies, Space and High-Altitude Technologies Test and Evaluation in support of the Space and Missile Defense Technical Center.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to civilian manpower alignment to support Air and Missile Defense, Hypersonics and Strategic Weapons, Directed Energy Technologies, Space and High-Altitude Technologies, or Test and Evaluation.</p>	-	-	0.209
Accomplishments/Planned Programs Subtotals	17.453	19.120	19.659

	FY 2023	FY 2024
<p>Congressional Add: Multi-mission Synthetic Aperture Radar Payload Development</p> <p>FY 2023 Accomplishments: This project will develop a low-cost multi-function multi-mission SAR sensor payload that can be used to provide SAR imagery for multiple mission functions including weather prediction, mission planning and other tactical and strategic operations. Project will result in a design of LEO satellite to</p>	5.000	-

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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 0603308A / <i>Army Space Systems Integration</i>	Project (Number/Name) 990 / <i>Space And Missile Defense Integration</i>

	FY 2023	FY 2024
provide high resolution, multi-spectral imagery of cloud cover, including sensor, orbital configuration and down linked high resolution multi-spectral capability for multiple missions.		
Congressional Add: Full Spectrum Protective Technologies for Cyber Mission Assurance	8.000	-
FY 2023 Accomplishments: Develop protective technologies and capabilities to safeguard critical assets across the space and missile defense capability areas from cyber exploitation to ensure a sustained competitive edge against near-peer adversaries.		
Congressional Adds Subtotals	13.000	-

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

N/A

Remarks

SMDCoE space and high altitude capability development efforts have a natural association and linkage with Army Strategic Missile Defense (SMD) capability development also performed within the SMDCoE. Emerging space and high altitude technologies and concepts often influence SMD identification, tracking and response.

D. Acquisition Strategy

N/A.

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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 / 4				PE 0603308A / Army Space Systems Integration				990 / Space And Missile Defense Integration								
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	
Government Personnel and Operations support	Various	SMDC/ARSTRAT : Huntsville, AL and Colorado Springs,	35.938	14.433		15.752		16.291		-		16.291	Continuing	Continuing	-	
Subtotal			35.938	14.433		15.752		16.291		-		16.291	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	
Multi-mission Synthetic Aperture Radar Payload Development	TBD	Various : Various	-	5.000		-		-		-		-	0.000	5.000	-	
Full Spectrum Protective Technologies for Cyber Mission Assurance	TBD	Various : Various	-	8.000		-		-		-		-	0.000	8.000	-	
Subtotal			-	13.000		-		-		-		-	0.000	13.000	N/A	
Support (\$ 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	
J-FFT Testbed and Development	Various	SMDC/ARSTRAT : Colorado Springs, CO	3.170	3.020		3.368		3.368		-		3.368	Continuing	Continuing	-	
Subtotal			3.170	3.020		3.368		3.368		-		3.368	Continuing	Continuing	N/A	
Project Cost Totals			39.108	30.453		19.120		19.659		-		19.659	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 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration

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
Space Superiority Capability Development	[Blue bar]																											
Counter ISR Capability Development	[Blue bar]																											
Space Operations Multit-Domain Environment Analysis	[Blue bar]																											
Multi-Domain Task Force (MTDF) Multi-Domain Expeditionar...	[Blue bar]			[Grey bar]																								
APNT CFT Analysis Support	[Blue bar]																											
Joint Space Warfighting Forum (JSWF) Analysis Support	[Blue bar]																											
Tactical Space Layer Sensor to Shooter Concept Development	[Blue bar]																											
Development of SMDC MMN Force Tracking	[Blue bar]				[Grey bar]																							
Jericho Thunder Analysis Support	[Blue bar]								[Grey bar]																			
Space Superiority Joint Architecture Analysis	[Blue bar]								[Grey bar]																			
Force Design Assessment of Army Forces	[Blue bar]																											
NAVWAR/PNT Gap Analysis and Advocacy	[Blue bar]										[Grey bar]																	
Space Simulation Support to TRADOC ARCIC Experimentation	[Blue bar]																											

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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 0603308A / Army Space Systems Integration	Project (Number/Name) 990 / Space And Missile Defense Integration

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
NAVWAR Defense/Attack Operating Concepts and Requirement	[Redacted]																											
Army Enduring JFFT Development	[Redacted]																											
High Altitude Persistent Platform Capability Development...	[Redacted]																											
APNT Integrated Space Communications	[Redacted]																											

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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 0603308A / <i>Army Space Systems Integration</i>	Project (Number/Name) 990 / <i>Space And Missile Defense Integration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Space Superiority Capability Development	1	2021	4	2029
Counter ISR Capability Development	1	2021	4	2029
Space Operations Mult-Domain Environment Analysis	1	2021	4	2029
Multi-Domain Task Force (MTDF) Multi-Domain Expeditionary Brigade (MDEB) Study	3	2021	3	2023
APNT CFT Analysis Support	1	2021	4	2029
Joint Space Warfighting Forum (JSWF) Analysis Support	1	2021	4	2029
Tactical Space Layer Sensor to Shooter Concept Development	3	2021	4	2029
Development of SMDC MMN Force Tracking	1	2021	4	2023
Jericho Thunder Analysis Support	1	2021	4	2024
Space Superiority Joint Architecture Analysis	1	2021	4	2024
Force Design Assessment of Army Forces	1	2021	4	2029
NAVWAR/PNT Gap Analysis and Advocacy	1	2021	4	2025
Space Simulation Support to TRADOC ARCIC Experimentation	1	2021	4	2029
NAVWAR Defense/Attack Operating Concepts and Requirement	1	2021	4	2029
Army Enduring JFFT Development	1	2021	4	2029
High Altitude Persistent Platform Capability Development Documentation	1	2021	4	2029
APNT Integrated Space Communications	1	2021	4	2025

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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 0603327A / <i>Air and Missile Defense Systems Engineering</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	0.000	15.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
FG9: <i>Air and Missile Defense (AMD) Electronic Warfare</i>	-	15.000	-	-	-	-	-	-	-	-	Continuing	Continuing

Note

There is no requested funding for Project FG9: Air and Missile Defense (AMD) Electronic Warfare for FY 2025.

A. Mission Description and Budget Item Justification

Funding in this program supports Cyber and Electromagnetic Activities (CEMA) and Deep CEMA efforts to conduct realistic assessments of Army Integrated Fires performance, identify system vulnerabilities, and develop mitigations against threats across the Cyber and Electromagnetic spectrum. Army radars and sensors, integrated air and missile defense mission command and fire control, Radio Frequency (RF) data and voice networks, and Positioning, Navigation, and Timing (PNT) technology will be assessed against current and postulated threat systems and techniques. Potential solutions developed by the Army, other Services, and Defense agencies (for example Missile Defense Agency) to close identified gaps will be demonstrated and assessed in live and simulated CEMA environments. Assessment events will be conducted approximately every two years. Implementation of potential solutions will occur between events using system-specific funding. The proposed solutions will then be assessed at the next event after implementation.

Included in this line are funds to plan and execute periodic CEMA and Deep CEMA activities, in conjunction with Air and Missile Defense and Long-Range Cross Functional Teams to support the Army Integrated Fires system, to include other Service and other Agency radar and sensor systems as appropriate. Funding will be used to develop solutions to protect Army weapon systems from emerging and future CEMA threats such as advanced Electronic Warfare techniques, Radio Frequency-enabled cyber effects, use of photonics, etc. Efforts in this program will also develop tools for use by Army radar and sensor systems to improve overall system performance in contested environments, to include effects-based CEMA Modeling and Simulation (M&S) to assess Army CEMA concepts in Hardware-In-The-Loop (HWIL) environment. Additionally, virtual models of critical hardware and software are being developed and implemented to allow for destructive testing with advanced CEMA threats in a lab environment. There will be continual interface with intelligence communities to maintain cognizance of emerging CEMA threats and incorporate these threats in future CEMA demonstrations. These activities follow a time-phased roadmap that identifies the investments needed to improve the resiliency of Army radar and sensors, C2, and RF data and voice networks in contested CEMA environments.

Deep CEMA efforts support assessment of quantum-based hardware, development of software algorithms, and will integrate cutting-edge technology prototypes into Army weapon systems for advanced experimentation and assessment.

There is no funding requested in this project in FY25.

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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 0603327A / <i>Air and Missile Defense Systems Engineering</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	15.000	0.000	0.000	-	0.000
Current President's Budget	15.000	0.000	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: FG9: *Air and Missile Defense (AMD) Electronic Warfare*

Congressional Add: *Program Increase - Machine Learning for Integrated Fires*

Congressional Add: *Program Increase - Software Memory Protection Methods*

	FY 2023	FY 2024
	10.000	-
	5.000	-
Congressional Add Subtotals for Project: FG9	15.000	-
Congressional Add Totals for all Projects	15.000	-

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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 0603327A / Air and Missile Defense Systems Engineering				Project (Number/Name) FG9 / Air and Missile Defense (AMD) Electronic Warfare			
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
FG9: Air and Missile Defense (AMD) Electronic Warfare	-	15.000	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this program supports Cyber and Electromagnetic Activities (CEMA) and Deep CEMA efforts to conduct realistic assessments of Army Integrated Fires performance, identify system vulnerabilities, and develop mitigations against threats across the Cyber and Electromagnetic spectrum. Army radars and sensors, integrated air and missile defense mission command and fire control, Radio Frequency (RF) data and voice networks, and Positioning, Navigation, and Timing (PNT) technology will be assessed against current and postulated threat systems and techniques. Potential solutions developed by the Army, other Services, and Defense agencies (for example Missile Defense Agency) to close identified gaps will be demonstrated and assessed in live and simulated CEMA environments. Assessment events will be conducted approximately every two years. Implementation of potential solutions will occur between events using system-specific funding. The proposed solutions will then be assessed at the next event after implementation.

Included in this line are funds to plan and execute periodic CEMA and Deep CEMA activities, in conjunction with Air and Missile Defense and Long-Range Cross Functional Teams to support the Army Integrated Fires system, to include other Service and other Agency radar and sensor systems as appropriate. Funding will be used to develop solutions to protect Army weapon systems from emerging and future CEMA threats such as advanced Electronic Warfare techniques, Radio Frequency-enabled cyber effects, use of photonics, etc. Efforts in this program will also develop tools for use by Army radar and sensor systems to improve overall system performance in contested environments, to include effects-based CEMA Modeling and Simulation (M&S) to assess Army CEMA concepts in Hardware-In-The-Loop (HWIL) environment. Additionally, virtual models of critical hardware and software are being developed and implemented to allow for destructive testing with advanced CEMA threats in a lab environment. There will be continual interface with intelligence communities to maintain cognizance of emerging CEMA threats and incorporate these threats in future CEMA demonstrations. These activities follow a time-phased roadmap that identifies the investments needed to improve the resiliency of Army radar and sensors, C2, and RF data and voice networks in contested CEMA environments.

Deep CEMA efforts support assessment of quantum-based hardware, development of software algorithms, and will integrate cutting-edge technology prototypes into Army weapon systems for advanced experimentation and assessment.

There is no funding requested in this project in FY25.

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

	FY 2023	FY 2024
Congressional Add: Program Increase - Machine Learning for Integrated Fires	10.000	-
FY 2023 Accomplishments: Continues software memory protection and machine learning.		

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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 0603327A / Air and Missile Defense Systems Engineering	Project (Number/Name) FG9 / Air and Missile Defense (AMD) Electronic Warfare

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024
Continues support of memory protection and machine learning in contested environment.		
Congressional Add: Program Increase - Software Memory Protection Methods	5.000	-
FY 2023 Accomplishments: Continue development of technology transition paths for software memory protection methods that align with on-going missile programs and air and defense missile systems.		
Execute prototype implementation of software memory protection methods to immunize missile programs, and air and missile defense systems, from the primary cybersecurity threat to software today, memory corruption exploits.		
Congressional Adds Subtotals	15.000	-

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

Remarks

D. Acquisition Strategy

Assessment events will be conducted approximately every two years in live and simulated CEMA environments. In addition to Government planning and conduct of assessments, funding will also be provided through various contracts for subject matter expertise.

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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 0603327A / Air and Missile Defense Systems Engineering	Project (Number/Name) FG9 / Air and Missile Defense (AMD) Electronic Warfare	

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				
FY23 Survivability Exercise Planning Efforts	■																															
Cyber Risk Reduction IBCS		■																														
CEMA Tabletop and Bulnerability Assessment			■																													
Memory Protection Solution Analysis										■																						
CEMA Protection Solution Integration IBCS											■																					

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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 0603327A / Air and Missile Defense Systems Engineering	Project (Number/Name) FG9 / Air and Missile Defense (AMD) Electronic Warfare

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FY21 Survivability Exercise Planning Efforts	4	2020	2	2021
FY21 Survivability Exercise	2	2021	3	2021
FY21 Survivability Exercise Analysis and Trade Studies	3	2021	1	2022
FY 21 Survivability Exercise Report and Implementation	2	2022	4	2022
Air and Missile Defense Systems Hardware Virtualization	2	2019	4	2022
Interoperability of Integrated Air and Missile Defense (Congressional Adds)	4	2018	2	2021
FY23 Survivability Exercise Planning Efforts	4	2022	2	2023
Cyber Risk Reduction IBCS	2	2023	3	2023
CEMA Tabletop and Bulnerability Assessment	3	2023	4	2023
Memory Protection Solution Analysis	1	2024	1	2024
CEMA Protection Solution Integration IBCS	2	2024	4	2024

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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</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	-	59.911	47.537	58.617	-	58.617	28.844	24.421	6.310	6.373	Continuing	Continuing
CE5: <i>Breaching Capability Development - Mounted</i>	-	6.896	7.131	7.830	-	7.830	4.654	-	-	-	0.000	26.511
EK7: <i>Area Denial Capability Development</i>	-	53.015	40.406	50.787	-	50.787	24.190	24.421	6.310	6.373	Continuing	Continuing

A. Mission Description and Budget Item Justification

Projects CE5 - The current mounted breaching system, the M58 Mine Clearing Line Charge (MICLIC), is a rocket-projected explosive line charge that was initially fielded over 50 years ago and is becoming increasingly less effective against modernized threat obstacles which does not support Multi-Domain Operations (MDO). This effort will focus on the development of the XM123 Ground Obstacle Breaching Lane Neutralizer (GOBLN) system, an MDO-capable modular mission payload which will provide greater effectiveness against current and emerging threat obstacles and enhanced operational reliability, supportability, mobility and survivability beyond the current state. The target platforms for GOBLN are the Assault Breacher Vehicle (ABV) and the Remote Combat Vehicle (RCV). GOBLN has been endorsed by the Next Generation Combat Vehicle (NGCV) Cross Functional Team (CFT) to fulfill the RCV breaching requirements. The modularity also allows for integration with other current and future platforms. The FY 2025 request supports continued Technology Maturation and Risk Reduction (TMRR), a soldier touchpoint that will include a prototype demonstration of the baseline configuration, and continued pre-MS-B activities.

Project EK7 Area Denial Capability Development provides for the advanced capability development of Close Terrain Shaping Obstacle (CTSO) systems and develops modernized, non-persistent U.S. Anti-personnel landmine policy compliant munition fields. During joint, multi-domain, high intensity conflict CTSO systems disrupt, fix, turn and block enemy freedom of maneuver while enhancing friendly freedom of maneuver within the same battle space. CTSO systems enable maneuver commanders to directly influence where battlefield engagements occur. CTSO systems will replace a portion of the Family of Scatterable Mines (FASCAM) systems which are beyond their designed life.

The project will develop prototype systems and evaluate integrated technologies in a realistic operating environment for the next generation of CTSO systems to achieve doctrinally required obstacle effects during combat operations. CTSO systems will use an open system and modular architecture to facilitate future development, maintenance, repair, and product improvements.

FY 2025 budget supports INC1 XM250 (Top Attack), which provides additional improvements for top attack anti-vehicle obstacle capability. Capabilities include on-off-on to allow for recoverability of unused DLMS, self-locating, anti-tampering, improved lethality and sensing, and command & control to allow freedom of maneuver on the battlefield.

XM204 Interim Top Attack program, the first CTSO capability insertion, has entered into production. Initial Operational Capability (IOC) is projected for 3Q FY 2025 dependent on MDA decision to restart production in March FY 2025 based on PVT test completion in February FY 2025, to meet United States Army Europe (USAREUR) Operational Needs Statement (ONS) #18-22702. XM204 can operate independently but can be used in conjunction with the Standoff Activated Volcano Obstacle (SAVO) system to create a complex obstacle.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>
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The Army is incrementally developing an enduring solution to fill the close directed obstacle capability gap. Increment 1 XM250 (Top Attack) is the enduring top attack solution. Future increments will include complimentary lethal capability and advanced network integration to provide a complex CTSO capability that complies with U.S. Anti-Personnel Landmine Policy. CTSO provides the commander greater speed and flexibility to transition between offensive and defensive operations. The enduring CTSO capability development supports the approved Common Anti-Vehicular Munition (CAVM)-based Close Terrain Shaping Obstacle (CTSO) Abbreviated-Capability Development Document (A-CDD) and Army Futures Command (AFC) Terrain Shaping Strategy for Land Domain and Multi-Domain Operations (MDO). CTSO systems are a networked munition capability suite composed of multiple types of lethal effects which can be employed independently or together to create a controlled, scalable complex obstacle.

The total cost of the CTSO XM250 Increment 1 Middle Tier of Acquisition effort is \$267.5 million RDT&E from FY22 to FY27.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	61.953	47.537	6.165	-	6.165
Current President's Budget	59.911	47.537	58.617	-	58.617
Total Adjustments	-2.042	0.000	52.452	-	52.452
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.042	-			
• Adjustments to Budget Years	-	-	52.452	-	52.452

Change Summary Explanation

The additional \$7.830M on Project CE5 is required to continue the development of the XM123 Ground Obstacle Breaching Lane Neutralizer (GOBLN). The additional \$44.622M on Project EK7 is required to continue development of the INC 1 XM250 Terrain Shaping Obstacle Program.

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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 0603619A / Landmine Warfare and Barrier - Adv Dev				Project (Number/Name) CE5 / Breaching Capability Development - Mounted			
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
CE5: Breaching Capability Development - Mounted	-	6.896	7.131	7.830	-	7.830	4.654	-	-	-	0.000	26.511
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The current mounted breaching system, the M58 Mine Clearing Line Charge (MICLIC), is a rocket-projected explosive line charge that was initially fielded over 50 years ago and is becoming increasingly less effective against modernized threat obstacles which does not support Multi-Domain Operations (MDO). This effort will focus on the development of the XM123 Ground Obstacle Breaching Lane Neutralizer (GOBLN) system, an MDO-capable modular mission payload which will provide greater effectiveness against current and emerging threat obstacles and enhanced operational reliability, supportability, mobility and survivability beyond the current state. The target platforms for GOBLN are the Assault Breacher Vehicle (ABV) and the Remote Combat Vehicle (RCV). GOBLN has been endorsed by the Next Generation Combat Vehicle (NGCV) Cross Functional Team (CFT) to fulfill the RCV breaching requirements. The modularity also allows for integration with other current and future platforms. The FY 2025 request supports continued Technology Maturation and Risk Reduction (TMRR), a soldier touchpoint that will include a prototype demonstration of the baseline configuration, and continued pre-MS-B activities.

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

	FY 2023	FY 2024	FY 2025
Title: XM123 Ground Obstacle Breaching Lane Neutralizer (GOBLN)	6.896	7.131	7.830
Description: Develop the Next Generation Mounted Breaching capability to engage near-peer current and emerging threat obstacles.			
FY 2024 Plans: FY 2024 will support continued TMRR, a system-level concept demonstration/soldier touchpoint, and preparation activities for an FY26 MS-B.			
FY 2025 Plans: FY 2025 will support continued TMRR, refinement of the system baseline through further development of key subsystem enabling technologies, a soldier touchpoint to demonstrate the a baseline configuration, and requirements/CDD development.			
FY 2024 to FY 2025 Increase/Decrease Statement: Increase supports an additional planned soldier touchpoint, further development of key subsystems, and development of baseline requirements.			
Accomplishments/Planned Programs Subtotals	6.896	7.131	7.830

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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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) CE5 / Breaching Capability Development - Mounted

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

N/A

Remarks

D. Acquisition Strategy

The Ground Obstacle Breaching Lane Neutralizer (GOBLN) Program of Record (POR) was established as an output of the Explosive Breacher Acquisition Shaping Panel Part 2 held on 13 June 2022 with Army Leadership. An Acquisition Decision Memorandum (ADM) was signed on 17 March 2023 formally establishing the XM123 GOBLN Program-of-Record and entry into the Technology Maturation and Risk Reduction phase. The goal of the TMRR phase is to integrate mature subsystems and hold system-level concept demonstrations followed by a demonstration of the Engineering and Manufacturing Development (EMD) configuration ahead of a MS-B planned for FY 2026. Prototype assessments will be conducted with industry via competitive Other Transaction Authority (OTA) agreements and other contractual means. The design will be refined in the EMD phase through a competitively selected systems contractor using a Government-developed Technical Data Package (TDP), with MS-C expected in FY 2030. LRIP will be added to support deliveries in FY 2031, some of which will be used for operational testing expected to occur in 1QFY2032. Initial Operational Capability (IOC) is expected in FY 2032 with FMR planned for FY 2033.

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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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) CE5 / Breaching Capability Development - Mounted
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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			
TMRR Development Government	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	1.892	3.371	Feb 2023	3.630	Oct 2023	3.500	Nov 2024	-		3.500	0.000	12.393	-
Prototype Test Hardware	Various	Various : Various	-	-		-		0.814	Dec 2024	-		0.814	0.000	0.814	-
Payload Development	MIPR	DEVCOM C5ISR : Fort Belvoir, VA	-	0.492	Jun 2023	-		-		-		-	0.000	0.492	-
SkyRaider HW Upgrades	MIPR	DEVCOM C5ISR : Fort Belvoir, VA	-	0.076	Jul 2023	-		-		-		-	0.000	0.076	-
Subtotal			1.892	3.939		3.630		4.314		-		4.314	0.000	13.775	N/A

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			
Sensor Modification and Integration	MIPR	DEVCOM C5ISR : Fort Belvoir, VA	0.768	0.960	May 2023	1.410	Nov 2023	1.500	Nov 2024	-		1.500	Continuing	Continuing	-
Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	1.000	1.200	Feb 2023	1.381	Oct 2023	0.516	Oct 2024	-		0.516	Continuing	Continuing	-
Warhead Specialist	C/CPFF	American Systems Corporation : Chantilly, VA	0.066	0.049	Jan 2023	-		-		-		-	0.000	0.115	-
Platform Virtual Integration	MIPR	DEVCOM GVSC : Warren, MI	-	0.242	Mar 2023	-		-		-		-	0.000	0.242	-
Shipping	Allot	Shipping : Picatinny Arsenal, NJ	-	0.056	Nov 2022	-		-		-		-	0.000	0.056	-
Subtotal			1.834	2.507		2.791		2.016		-		2.016	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 / 4	R-1 Program Element (Number/Name) PE 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) CE5 / <i>Breaching Capability Development - Mounted</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
Technology Maturation and Risk Reduction	[Blue bar]																											
Touchpoint 1 (Launcher Subsystem Verification Test)	[Blue bar]																											
Material Development Decision		▲ 1 MDD																										
Touchpoint 2 (Sensor/Detection Subsystem Demonstration)			■																									
Touchpoint 3 (Neutralization Subsystem Verification)					■																							
Soldier Touchpoint 4 (System Concept Demonstration)						■																						
Soldier Touchpoint 5 (System Demonstration)											■																	
EMD Configuration Demonstration															■													
Validated CDD																												
Milestone B																												
Engineering and Manufacturing Development																												
Integration Testing																												
Critical Design Review																												

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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) CE5 / <i>Breaching Capability Development - Mounted</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technology Maturation and Risk Reduction	3	2021	4	2026
Touchpoint 1 (Launcher Subsystem Verification Test)	1	2023	1	2023
Material Development Decision	2	2023	2	2023
Touchpoint 2 (Sensor/Detection Subsystem Demonstration)	3	2023	3	2023
Touchpoint 3 (Neutralization Subsystem Verification)	2	2024	2	2024
Soldier Touchpoint 4 (System Concept Demonstration)	3	2024	4	2024
Soldier Touchpoint 5 (System Demonstration)	2	2025	3	2025
EMD Configuration Demonstration	2	2026	2	2026
Validated CDD	4	2026	4	2026
Milestone B	4	2026	4	2026
Engineering and Manufacturing Development	4	2026	2	2030
Integration Testing	4	2026	2	2030
Critical Design Review	3	2029	3	2029
Milestone C	3	2030	3	2030
LRIP Contract	4	2030	4	2031
Operational Testing	1	2032	3	2032

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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 0603619A / Landmine Warfare and Barrier - Adv Dev				Project (Number/Name) EK7 / Area Denial Capability 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
EK7: Area Denial Capability Development	-	53.015	40.406	50.787	-	50.787	24.190	24.421	6.310	6.373	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project EK7 Area Denial Capability Development provides for the advanced capability development of Close Terrain Shaping Obstacle (CTSO) systems and develops modernized, non-persistent U.S. Anti-personnel landmine policy compliant munition fields. During joint, multi-domain, high intensity conflict CTSO systems disrupt, fix, turn and block enemy freedom of maneuver while enhancing friendly freedom of maneuver within the same battle space. CTSO systems enable maneuver commanders to directly influence where battlefield engagements occur. CTSO systems will replace a portion of the Family of Scatterable Mines (FASCAM) systems which are beyond their designed life.

The project will develop prototype systems and evaluate integrated technologies in a realistic operating environment for the next generation of CTSO systems to achieve doctrinally required obstacle effects during combat operations. CTSO systems will use an open system and modular architecture to facilitate future development, maintenance, repair, and product improvements.

FY 2025 budget supports INC1 XM250 (Top Attack), which provides additional improvements for top attack anti-vehicle obstacle capability. Capabilities include on-off-on to allow for recoverability of unused DLMS, self-locating, anti-tampering, improved lethality and sensing, and command & control to allow freedom of maneuver on the battlefield.

XM204 Interim Top Attack program, the first CTSO capability insertion, has entered into production. Initial Operational Capability (IOC) is projected for 3Q FY 2025 dependent on MDA decision to restart production in March FY 2025 based on PVT test completion in February FY 2025, to meet United States Army Europe (USAREUR) Operational Needs Statement (ONS) #18-22702. XM204 can operate independently but can be used in conjunction with the Standoff Activated Volcano Obstacle (SAVO) system to create a complex obstacle.

The Army is incrementally developing an enduring solution to fill the close directed obstacle capability gap. Increment 1 XM250 (Top Attack) is the enduring top attack solution. Future increments will include complimentary lethal capability and advanced network integration to provide a complex CTSO capability that complies with U.S. Anti-Personnel Landmine Policy. CTSO provides the commander greater speed and flexibility to transition between offensive and defensive operations. The enduring CTSO capability development supports the approved Common Anti-Vehicular Munition (CAVM)-based Close Terrain Shaping Obstacle (CTSO) Abbreviated-Capability Development Document (A-CDD) and Army Futures Command (AFC) Terrain Shaping Strategy for Land Domain and Multi-Domain Operations (MDO). CTSO systems are a networked munition capability suite composed of multiple types of lethal effects which can be employed independently or together to create a controlled, scalable complex obstacle.

The total cost of the CTSO XM250 Increment 1 Middle Tier of Acquisition effort is \$267.5 million RDT&E from FY22 to FY27.

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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: Terrain Shaping Obstacles Capability Development</p> <p>Description: Develop, build, and demonstrate Terrain Shaping Obstacle common munitions system. Demonstrate system in an operationally relevant environment.</p> <p>FY 2024 Plans: Complete CTSO Increment 1 munition design against peer targets and demonstrate performance and lethality. Conduct remaining updates of all fuzing and ammunition safety features to address certification pre-reviews. Demonstrate a fully integrated munition and communication prototype at User Jury 2 - shaping the AFC CDD that establishes final requirements for qualification and fielding. Coordinate and conduct Cyber Vulnerability Investigation to inform final cyber hardening design tasks. Complete Critical Design Review. Conduct Risk Reduction efforts for Bottom Attack Munitions to inform CTSO INC 2.</p> <p>FY 2025 Plans: Complete final Critical Design Review (CDR) activities, document progress to date on all contract activities. Complete development of software, electrical and algorithm for CAVM. Conduct Final Qualification Test (FQT) dry run. Complete development and release of Computer Software Items for the DLM. Complete hardware build to support execution of the C-SVT test program. Conduct evaluation of Ground Sensor Algorithm Update #1. Continue development of program software and Software Requirements Reviews (SwRR). Demonstrate updated development items at early user assessment 3. Begin development of Full Task Trainers and training visual aids. Continue development of training support packages.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 Capability Development activities increased due to significant development efforts at Prime Contractor in FY 2025.</p>	39.804	25.447	34.640
<p>Title: Engineering Support</p> <p>Description: Provide engineering support for Terrain Shaping Capability.</p> <p>FY 2024 Plans: Provide engineering support for CTSO Increment 1 system design documentation, User Jury 2, contractor integration verification, and Critical Design Review. Leverage previous Test & Evaluation Strategy (TES) to develop the Test & Evaluation Master Plan (TEMP) to support progression towards system level qualification.</p> <p>FY 2025 Plans: Provide Engineer Support for CTSO Increment 1 (XM250) for Milestone documentation of progress to date, completion of Test & Evaluation Master Plan (TEMP), early user assessment 3, and qualification testing. Support contractor detailed design activities in support of CDR.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	12.162	11.222	12.885

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 Engineer activities increase due to economic adjustment.			
<p>Title: Program Management and Oversight</p> <p>Description: Program management and oversight of Terrain Shaping Obstacle Capability development and system evaluation.</p> <p>FY 2024 Plans: Provide program management and oversight of Terrain Shaping Obstacle Capability in support of development and qualification of the Increment 1 Top Attack Munition capabilities.</p> <p>FY 2025 Plans: Provide program management and oversight of Terrain Shaping Obstacle Capability in support of development and qualification of the Increment 1 Top Attack Munition capabilities.</p>	0.310	0.362	0.362
<p>Title: Test & Evaluation</p> <p>Description: Conduct testing and evaluation of Terrain Shaping Obstacle Capability performance.</p> <p>FY 2024 Plans: FY 2024 CTSO INC 1 Interim testing will be conducted on cyber vulnerabilities and Threat Countermeasures against fully integrated munition & communications prototypes. Complete Contractor risk reduction testing, such as environmental, transportation, and lethality testing. Conduct fully integrated system sensor testing. Conduct tests at environmentally relevant locations to assess performance. Conduct E3 testing to ensure final design of electrical architecture can remain operational under full operational stresses. Refine model inputs to support future system evaluation. Repairs destroyed target vehicles from CTSO Increment 1 contractor risk reduction tests and provides vehicle support for sensor test events for INC 1's expanded target suite.</p> <p>FY 2025 Plans: FY 2025 CTSO INC 1 testing includes Electromagnetic Environment Effects (E3) risk reduction, Environmental, packaging, and Highly Accelerated Life Test (HALT)/Highly Accelerated Stress Screening test (HASS) activities. Program will conduct E3 susceptibility testing along with FQT tests. Test team will also support early user assessment 3 to confirm detailed design/capabilities. Testing will also include transportation, adversarial cyber, and warhead penetration assessments. Testing will require rental and/or repairs of targets to be used during FY 2025 test activities.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 T&E activities reduced due to reduction in target costs to rent/repair as opposed to acquiring new, and completion of the majority of ground sensor evaluations being completed prior to the start of FY 2025.</p>	0.739	3.375	2.900
Accomplishments/Planned Programs Subtotals	53.015	40.406	50.787

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

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	Total Cost
			Base	OCO	Total					Complete	
• F78310: CLOSE TERRAIN SHAPING OBSTACLE (CTSO), XM204	16.215	37.964	0.000	-	0.000	-	-	10.999	11.109	0.000	76.287

Remarks

D. Acquisition Strategy

In support of the Army's modernization priorities, the Army Acquisition Executive approved Terrain Shaping Obstacles (TSO) development using a series of incremental acquisition efforts to accelerate mature technology development and facilitate the fielding of lethal, non-persistent munitions to the Warfighter.

The XM250 program was approved as a Middle Tier of Acquisition (MTA) pathway to allow for rapid prototyping of a complex obstacle solution with Army decision points to transition to a Program of Record for Close Terrain Shaping top attack capability. In FY 2025, XM250 will continue all development and design activities informed by early user assessments ahead of 1Q FY 2026 Critical Design Review (CDR). Program will conduct risk reduction and subsystem tests to support final design decisions. Program will build hardware for Contractor System Verification Testing and demonstrate system design at User Assessment #3 prior to CDR. XM250 will also begin development of Full Task Trainers, training visual aids, and training support packages.

The XM204 system is the interim solution that supports the USAREUR ONS 18-22702. XM204 production was paused in FY 2023 to address reliability issues. Initial Operational Capability (IOC) is projected for 3Q FY 2024 dependent on Milestone Decision Authority (MDA) decision to restart production in March FY 2024 based on Production Verification Test (PVT) completion in February FY 2024, and complete production in FY 2025.

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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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability Development
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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			
Program Management	Various	PM Close Combat Systems : Picatinny Arsenal, NJ	3.993	0.310	Dec 2022	0.362	Dec 2023	0.362	Dec 2024	-		0.362	Continuing	Continuing	-
Subtotal			3.993	0.310		0.362		0.362		-		0.362	Continuing	Continuing	N/A

Remarks
In FY 2022, funding in the amount of \$0.338 million for manpower was realigned to Operation and Maintenance. Program support costs have been accurately updated to reflect the realignments.

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			
CTSO INC 1 XM250 Rapid Prototype Development	C/CPFF	Textron Defense Systems : Wilmington, MA	5.970	39.485	Feb 2023	23.447	Nov 2023	34.640	Oct 2024	-		34.640	Continuing	Continuing	-
CTSO Munition Risk Reduction	Various	Various : Various	-	-		2.000	Jun 2024	-		-		-	0.000	2.000	-
Subtotal			5.970	39.485		25.447		34.640		-		34.640	Continuing	Continuing	N/A

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			
DEVCOM Armaments Center Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	34.484	8.968	Jan 2023	8.237	Dec 2023	8.710	Dec 2024	-		8.710	Continuing	Continuing	-
Contractor Engineer Support	MIPR	American Systems INC : Chantilly, VA	0.276	0.110	Mar 2023	0.076	Mar 2024	0.078	Mar 2025	-		0.078	Continuing	Continuing	-
Mitre Engineering Support (C4)	FFRDC	Mitre : McLean, VA	3.077	0.741	Nov 2023	0.835	Aug 2024	0.850	Aug 2025	-		0.850	Continuing	Continuing	-

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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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability Development
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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			
DEVCOM Army Research Laboratory Engineering Support	MIPR	DEVCOM Army Research Laboratory : Adelphi, MD	2.544	-		0.301	Dec 2023	0.301	Dec 2024	-		0.301	Continuing	Continuing	-
DEVCOM Data Analysis Center	MIPR	DEVCOM-DAC : Aberdeen Proving Ground, MD	2.478	0.358	May 2023	0.264	Dec 2023	0.264	Dec 2024	-		0.264	Continuing	Continuing	-
Logistics Support	MIPR	CECOM ILSC : Aberdeen, MD	0.141	0.029	Dec 2023	0.090	Dec 2023	0.090	Mar 2025	-		0.090	Continuing	Continuing	-
Prototyping Development of Network and RF	MIPR	C6ISR Aberdeen Proving Ground : Aberdeen, MD	-	0.609	May 2023	-		0.647	May 2025	-		0.647	0.000	1.256	-
ENFIRE Support	MIPR	Product Director Combat Terrain Information Systems (PD-CTIS) : Aberdeen Proving Ground, MD	-	0.092	Dec 2023	-		0.100	Jan 2025	-		0.100	0.000	0.192	-
NETT Warrior Support	MIPR	NETT Warrior : Ft. Belvoir, VA	-	-		-		0.245	Jan 2025	-		0.245	0.000	0.245	-
Milestone Development Support	SS/FFP	Booz Allen Hamilton : Picatinny Arsenal, NJ	6.951	1.589	Mar 2023	0.951	May 2024	1.600	Jan 2025	-		1.600	0.514	11.605	-
Program Support	C/FFP	Bowhead : Picatinny Arsenal, NJ	1.347	-		0.468	May 2024	-		-		-	Continuing	Continuing	-
Subtotal			51.298	12.496		11.222		12.885		-		12.885	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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability Development
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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			
CTSO INC 1 System Verification Testing Targets	MIPR	Redstone Test Center (RTC) : Redstone Arsenal, AL	-	0.500	Dec 2023	0.750	Apr 2024	0.800	Mar 2025	-		0.800	0.000	2.050	-
CTSO INC 1 Environmental and Transportation Test	MIPR	Yuma Test Center (YTC) : Yuma, AZ	-	0.022	Jan 2024	0.400	Jan 2024	0.300	Jun 2025	-		0.300	0.000	0.722	-
CTSO INC 1 Ground Sensor Perf, C2 Sys Perf, CTR live Fire, End to End Testing	MIPR	Yuma Proving Ground : Yuma, AZ	-	-		0.500	Jun 2024	0.300	Apr 2025	-		0.300	0.000	0.800	-
CTSO INC 1 HERO E3 Testing	MIPR	White Sands Missile Range : White Sands, NM	-	-		0.260	Apr 2024	0.260	Jun 2025	-		0.260	0.000	0.520	-
CTSO INC 1 E3 Direct Strike Lightning (DSL) Risk Reduction Testing	MIPR	Redstone Test Center (RTC) : Redstone Arsenal, AL	0.105	-		0.105	Dec 2023	0.115	Feb 2025	-		0.115	0.000	0.325	-
CTSO INC 1 Early User Assessment 2	MIPR	Fort Leonardwood : Fort Leonardwood, MO	-	-		0.250	May 2024	-		-		-	0.000	0.250	-
CTSO INC 1 Adversarial Cyber Security Development Test	MIPR	Aberdeen Proving Ground : Aberdeen, MD	-	-		-		0.200	Apr 2025	-		0.200	0.000	0.200	-
CTSO INC1 Early User Assessment 3	MIPR	Fort Leonard wood : Fort Leonard Wood, MO	-	-		-		0.675	Jun 2025	-		0.675	0.000	0.675	-
CTSO INC 1 Warhead Assessment	MIPR	DEVCOM DAC : White Sands, NM	-	-		0.075	May 2024	0.200	Jul 2025	-		0.200	0.000	0.275	-
CTSO INC 1 Software Evaluation	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Grounds, MD	-	0.054	Dec 2023	-		0.050	Nov 2024	-		0.050	0.000	0.104	-

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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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability Development
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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			
CTSO INC 1 E3 Personnel Electrostatic Discharge (PESD) & Helicopter (HESD) Risk Reduction Testing	MIPR	Picatinny Arsenal : Picatinny, NJ	-	-		0.100	Dec 2023	-		-		-	0.000	0.100	-
CTSO INC 1 E3 Hazards of Electronic Radiation to Ordnance (HERO) Risk Reduction Testing	MIPR	Whites Sands Missile Range : White Sands, NM	-	-		0.150	Dec 2023	-		-		-	0.000	0.150	-
CTSO INC 1 Test and Evaluation Support	MIPR	Army Evaluation Center (AEC) : Aberdeen Proving Grounds, MD	-	0.015	Dec 2023	0.085	Jan 2024	-		-		-	0.000	0.100	-
CTSO INC 1 Warhead Evaluation Testing	MIPR	Iowa Army Ammunition Plant : Middletown, IA	-	-		0.200	Apr 2024	-		-		-	0.000	0.200	-
CTSO INC 1 Ground Sensor Perf, C2 Sys Performance Testing	MIPR	Aberdeen Proving Ground : Aberdeen, MD	-	-		0.500	Jun 2024	-		-		-	0.000	0.500	-
CTSO INC 1 Cyber tabletop Exercise and Cooperative Vulnerability Identification	MIPR	DEVCOM DAC : White Sands, NM	-	0.020	Jul 2023	-		-		-		-	0.000	0.020	-
CTSO INC 1 Sensor Performance Testing	MIPR	Yuma Test Center (YTC) : Yuma, AZ	-	0.020	Feb 2024	-		-		-		-	0.000	0.020	-
CTSO INC 1 Operational Integration Test	MIPR	DEVCOM C6ISR NVESD Center : Fort Belvoir, VA	-	0.010	Feb 2024	-		-		-		-	0.000	0.010	-
Modeling & Simulation Advanced Joint Effectiveness Model(AJEM)	MIPR	DEVCOM Data Analysis Center (DAC) : Aberdeen Proving Grounds, MD	-	0.018	Mar 2024	-		-		-		-	0.000	0.018	-

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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 0603619A / Landmine Warfare and Barrier - Adv Dev						Project (Number/Name) EK7 / Area Denial Capability Development			

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	Cost To Complete			
Modeling & Simulation One Semi-Automated Forces (One SAF)	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	0.365	0.050	Aug 2023	-		-		-		-	0.000	0.415	-	
Modeling & Simulation Common Scene Generator	MIPR	Aviation & Missile Command : Redstone Arsenal, AL	-	0.015	Mar 2024	-		-		-		-	0.000	0.015	-	
Subtotal			0.470	0.724		3.375		2.900		-		2.900	0.000	7.469	N/A	
Project Cost Totals			61.731	53.015		40.406		50.787		-		50.787	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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability 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
XM204 Interim Top Attack Capability																												
XM204 Government Qualification Testing																												
XM204 Manufacturing Development																												
XM204 Production																												
XM204 Urgent Material Release																												
XM204 Initial Operational Capability																												
Increment 1 Improved Top Attack Capability Development																												
INC 1 (XM250) Top Attack Rapid Prototype Decision																												
INC 1 (XM250) Top Attack Rapid Prototype Phase																												
INC 1 (XM250) Top Attack Early User Assessment 1																												
INC 1 (XM250) Top Attack Preliminary Design Review																												
INC 1 (XM250) Top Attack Early User Assessment 2																												
INC1 (XM250) Top Attack Early User Assessment 3																												

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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 0603619A / Landmine Warfare and Barrier - Adv Dev	Project (Number/Name) EK7 / Area Denial Capability 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
INC 1 (XM250) Top Attack Critical Design Review									8																			
INC 1 (XM250) Top Attack Qualification Testing													[Blue Bar]															
INC 1 (XM250) MS C Decision																	11											
INC 1 (XM250) Production and Deployment Phase																					[Blue Bar]							
INC 1 (XM250) Type Classification																					12							
INC 1 (XM250) Top Attack IOT&E																												
INC 1 (XM250) Full Material Release																									15			
INC 2 Bottom Attack Capability																												
INC 2 Bottom Attack Rapid Prototype Decision													9															
INC 2 Bottom Attack Rapid Prototype Phase																	[Blue Bar]											
INC 2 Bottom Attack Early User Assessment 1																	10											
INC 2 Bottom Attack Early User Assessment 2																									13			
INC 3 Full Network Capability																												

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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 0603619A / Landmine Warfare and Barrier - Adv Dev		Project (Number/Name) EK7 / Area Denial Capability 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
INC 3 Full Network Rapid Prototype Decision																												
INC 3 Full Network Prototype Phase																												
INC 3 Full Network Early User Assessment 1																												

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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
XM204 Interim Top Attack Capability	4	2019	1	2026
XM204 Materiel Development Decision	4	2015	4	2015
XM204 Model and Simulation Development	1	2016	4	2018
XM204 Concept Prototype Agreements Award(s)	2	2016	2	2016
XM204 Concept Prototype Build	2	2016	4	2016
XM204 Concept Prototype Test and Evaluation	1	2017	1	2017
XM204 Analysis of Alternatives	1	2016	4	2016
XM204 Materiel Solution Analysis	1	2017	3	2019
XM204 Munitions Delivery System Analysis	4	2018	4	2019
XM204 Development Decision	3	2019	3	2019
XM204 Capability Development Award	4	2019	4	2019
XM204 User Jury	4	2019	4	2019
XM204 System Development	4	2019	2	2022
XM204 Prototype Testing	1	2020	2	2020
XM204 SubSystem Integration Testing	2	2020	2	2021
XM204 Preliminary Design Review	3	2020	3	2020
XM204 Critical Design Review	3	2021	3	2021
XM204 Government Qualification Testing	4	2021	1	2023
XM204 Manufacturing Development	4	2021	1	2023
XM204 Production and Deployment Decision	4	2022	4	2022
XM204 Operational Assessment Test	4	2022	4	2022
XM204 Production	4	2022	1	2026

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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
XM204 Urgent Material Release	2	2023	2	2023
XM204 Initial Operational Capability	2	2025	2	2025
TSO Future Capability Evaluation	2	2020	4	2021
TSO Development of Alternative Methods of Defeat	2	2020	4	2021
Increment 1 Improved Top Attack Capability Development	1	2023	4	2027
INC 1 (XM250) Top Attack Rapid Prototype Decision	1	2023	1	2023
INC 1 (XM250) Top Attack Rapid Prototype Phase	1	2023	4	2025
INC 1 (XM250) Top Attack Early User Assessment 1	4	2023	4	2023
INC 1 (XM250) Top Attack Preliminary Design Review	1	2024	1	2024
INC 1 (XM250) Top Attack Early User Assessment 2	4	2024	4	2024
INC1 (XM250) Top Attack Early User Assessment 3	3	2025	3	2025
INC 1 (XM250) Top Attack Critical Design Review	4	2025	4	2025
INC 1 (XM250) Top Attack Qualification Testing	3	2025	4	2027
INC 1 (XM250) MS C Decision	4	2027	4	2027
INC 1 (XM250) Production and Deployment Phase	4	2027	4	2037
INC 1 (XM250) Type Classification	1	2028	1	2028
INC 1 (XM250) Top Attack IOT&E	4	2027	4	2028
INC 1 (XM250) Full Material Release	4	2028	4	2028
INC 1 (XM250) Initial Operational Capability	4	2030	4	2030
INC 2 Bottom Attack Capability	2	2026	2	2034
INC 2 Bottom Attack Rapid Prototype Decision	2	2026	2	2026
INC 2 Bottom Attack Rapid Prototype Phase	3	2026	3	2029
INC 2 Bottom Attack Early User Assessment 1	2	2027	2	2027
INC 2 Bottom Attack Early User Assessment 2	2	2028	2	2028
INC 3 Full Network Capability	3	2028	3	2031

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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 0603619A / <i>Landmine Warfare and Barrier - Adv Dev</i>	Project (Number/Name) EK7 / <i>Area Denial Capability Development</i>

Events	Start		End	
	Quarter	Year	Quarter	Year
INC 3 Full Network Rapid Prototype Decision	2	2028	2	2028
INC 3 Full Network Prototype Phase	3	2028	3	2033
INC 3 Full Network Early User Assessment 1	3	2029	3	2029
INC 3 Full Network Early User Assessment 2	3	2030	3	2030

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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 0603639A / <i>Tank and Medium Caliber Ammunition</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	-	49.609	91.323	116.027	-	116.027	106.947	71.785	53.947	54.486	Continuing	Continuing
CD8: <i>Long Range Precision Munition (LRPM)</i>	-	12.781	43.693	46.742	-	46.742	59.645	24.591	9.381	9.475	0.000	206.308
EC3: <i>Ammunition Logistics Prototyping</i>	-	1.772	1.892	1.935	-	1.935	1.936	1.956	1.977	1.997	0.000	13.465
FA5: <i>Assured Precision Weapons and Munitions</i>	-	35.056	45.738	48.096	-	48.096	41.680	42.119	42.589	43.014	Continuing	Continuing
FG1: <i>Cannon-Delivered Area Effects Munitions (C-DAEM)</i>	-	-	-	19.072	-	19.072	-	-	-	-	0.000	19.072
XT5: <i>30mm Anti-Personnel and Counter UAS</i>	-	-	-	0.182	-	0.182	3.686	3.119	-	-	0.000	6.987

Note

Project FG1 / Cannon-Delivered Area Effects Munitions (C-DAEM) is a new start within the Tank and Medium Caliber Ammunition program in FY 2025
 Project XT5 / 30mm Anti-Personnel and Counter UAS is a new start within the Tank and Medium Caliber Ammunition program in FY 2025

A. Mission Description and Budget Item Justification

A portion of this funding line is directly aligned to each Future Vertical Lift (FVL) and Assured Positioning, Navigation, & Timing (APNT) Army Modernization Priorities. The Tank and Medium Caliber Ammunition Program Element encompasses a comprehensive program to develop, rapidly transition to production, and field advanced weapons and munitions for small, medium and large caliber munitions, tank ammunition, mortar ammunition, cannon artillery ammunition, and close combat system items. These Projects will ensure continued battlefield overmatch and lethality of United States maneuver forces against the full range of modern battlefield threats. To achieve this, Tank and Medium Caliber Ammunition projects will identify and develop promising technologies through competitive development and streamlined acquisition procedures.

Project CD8 - Long Range Precision Munition (LRPM) is an Army Weapon that will provide leap ahead lethal capability in the penetration and dis-integration phases of Joint All Domain Operations (JADO). The ability to interoperate and coordinate with other weapon systems and munitions at long ranges and adapt to changing threats is a core concept of the Army Aviation Weapons, Sub-Systems, and Munitions Initial Capability Document validated in July 2018. Primary target set for LRPM is Integrated Air Defense Systems. LRPM lethal capabilities are aligned with the Launched Effects (LE) family of systems. LRPM will provide Army Aviation Forces with a precise long range munition system to rapidly respond in a combat environment to improve the lethality and stand-off of Warfighters and aviation platforms in an Anti-Access Area Denial (A2AD) and positioning, navigation, and timing (PNT) denied environment.

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	
<p>Project EC3 - Ammunition Logistics Prototyping: This Project supports the future force by improving the distribution, management, reliability and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers supporting the Design of Army 2040. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and autonomous friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This Project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter. Fiscal Year 2025 funding will be used to further mature munition health monitoring devices in accordance with the needs of the relevant PMs. Funding will be used to directly to support Contested Logistics, Long Range Precision Fire CFTs munition asset visibility and health monitoring requirements throughout the ammunition supply chain and resupply process. Specifically, the funding will be used to address improvements to the ammunition supply chain within the maneuver force.</p> <p>Project FA5 - The Assured Precision Weapons and Munitions (APWM): FA5 Project is focused on advanced risk mitigation, technology integration, prototyping, and product support to identify, evaluate, mature, test, and demonstrate various assured precision prototype technologies in Weapon and Munitions (W&M) components and subsystems within a complex System-of-Systems (SoS) environment. The APWM Project reinforces the National Defense Strategy's (NDS) major lines of effort through technology development and prototyping, which increases lethality and ensures future combat overmatch success of the Joint Force against peer/near-peer adversaries. This Project also aims to improve program performance and affordability for multiple W&M Programs of Record (PoRs) via Joint Lethality Positioning, Navigation and Timing (PNT), Navigation Warfare (NavWar), and Army M-Code Global Positioning System (GPS) coordinated efforts. The APWM Project directly supports the top Army Modernization Priorities via the Assured PNT (APNT) and Long Range Precision Fires (LRPF) imperatives in support of the NDS and multiple Public Law related Congressional imperatives. Funding will support engagement by W&M PNT experts in the development, evaluation, and technology delivery activities of the US Space Force's (USSF) M-Code GPS, Army's PNT related programs, and APNT/Space Cross Functional Team (CFT) programs in support of LRPF and Counter Anti-Access/Area Denial (A2/AD) missions. Funding will also enable component and subsystem architecture input essential for Precision W&M operating in a NavWar SoS environment, Army M-Code GPS technology integration and evaluation, planning and evaluating next generation M-Code GPS to validate capability for future Joint precision munitions, and maturation of alternative PNT and NavWar related technologies and solutions to enable informed APNT related PoR milestone and Army cross-functional modernization decisions.</p> <p>Project FG1 - The Cannon Delivered Area Effects Munitions (C-DAEM) Budget Activity Four (BA4) is a new start project in Fiscal Year 2025 (FY25). The XM1155 projectile, transitioning from Budget Activity Three (BA3) PE 0603464A / Long Range Precision Fires Advanced Technology Project BO8 Long Range Precision Fires Advanced Tech), will deliver lethality and range overmatch in 155mm artillery weapon systems at more than double the current range from legacy artillery cannons and will be compatible in future 155MM artillery systems in a Global Positioning System (GPS) degraded and denied environments. The XM1155 projectile, developed as part of an organic Long Range Precision Fires capability, will provide overmatching cannon artillery range capability at both Tactical and Operational Fires range by shaping the nature of the close fight through seeking moving and imprecisely located targets at extended ranges, will increase range capability of the current 39 caliber cannon fleet and will also be compatible with future 52 caliber and above artillery weapon systems. FY 2025 funding will support technology maturation and risk reduction of key system and subsystems, improvements in performance in difficult use cases, and integration of the tactical warhead and seeker culminating in a series of Design Verification Testing (DVT) to achieve Technology Readiness Level (TRL) six (6) maturity.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>
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Project XT5 - 30mm Anti-Personnel and Counter Unmanned Aerial Systems (UAS): Airburst capability is identified as a threshold Key System Attribute (KSA) in Apache Block 3 Capability Production Document (CPD) - approved 14 June 2017 and other cannon caliber Operational Needs Statements (ONS) and Capability Development Documents (CDD). The Anti-Personnel and Counter Unmanned Aerial Systems (UAS) munition provides increased lethality through airburst effects against personnel, small boats, and small Unmanned Aerial Systems (UAS) without requiring modification to the platform. Fiscal Year (FY) 2025 funds support developing performance specifications and contract preparation to begin development and testing.

B. Program Change Summary (\$ in Millions)	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	51.488	91.323	99.578	-	99.578
Current President's Budget	49.609	91.323	116.027	-	116.027
Total Adjustments	-1.879	0.000	16.449	-	16.449
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.879	-			
• Adjustments to Budget Years	-	-	16.449	-	16.449

Change Summary Explanation

Increase due to new start efforts for Cannon Delivered Area Effects Munitions (C-DAEM) and 30mm Anti Personnel and Counter UAS in FY25.

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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 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) CD8 / Long Range Precision Mmunition (LRPM)			
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
CD8: Long Range Precision Mmunition (LRPM)	-	12.781	43.693	46.742	-	46.742	59.645	24.591	9.381	9.475	0.000	206.308
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Long Range Precision Mmunition (LRPM) is an Army Weapon that will provide leap ahead lethal capability in the penetration and dis-integration phases of Joint All Domain Operations (JADO). The ability to interoperate and coordinate with other weapon systems and munitions at long ranges and adapt to changing threats is a core concept of the Army Aviation Weapons, Sub-Systems, and Munitions Initial Capability Document validated in July 2018. Primary target set for LRPM is Integrated Air Defense Systems. LRPM lethal capabilities are aligned with the Launched Effects (LE) family of systems. LRPM will provide Army Aviation Forces with a precise long range munition system to rapidly respond in a combat environment to improve the lethality and stand-off of Warfighters and aviation platforms in an Anti-Access Area Denial (A2AD) and positioning, navigation, and timing (PNT) denied environment.

FY 2025 dollars in the amount of \$49.648 million includes lethal munition prototyping, technology design and development, component testing, and technical evaluations with vendor(s) leading to a design review.

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

	FY 2023	FY 2024	FY 2025
Title: Long Range Precision Mmunition	12.781	43.693	46.742
Description: This line funds the demonstration, development, and validation of a munition system that will engage and render desired lethal effects on targets at ranges beyond line of sight. The lethal munition development effort includes demonstration and validation of precision guided munitions with the capability to complete the assigned mission in environments that could include cyber-attack, countermeasures, counter precision guided munition systems, and anti-access area denial environments. These efforts will include technical assessments, concept studies, performance of risk reduction efforts, technology maturation, engineering design, engineering / manufacturing development, test, demonstration of prototype hardware, platform integration, and document preparation for associated contract and acquisition efforts.			
FY 2024 Plans: Technology maturation and risk reduction efforts continue. Design Maturity, Modeling and Simulation maturation, and Prototype development will continue. Vendor(s) to provide deliverable(s) to include design and Modeling and Simulation. Continue LRPM program acquisition and contract documentation preparation and coordination. Complete acquisition activities & technical evaluations leading to an acquisition decision and contract award(s) to mature the LRPM design and modeling and simulation to determine system of systems technical feasibility.			
FY 2025 Plans:			

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) CD8 / <i>Long Range Precision Munition (LRPM)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Mature design and Modeling and Simulation and continue Prototype development. Vendor(s) deliverable(s) to include design, Modeling and Simulation, prototyping, technology studies, design and development, testing, and technical evaluations leading to a design review with vendor(s).			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Increase is due to increased system engineering and modeling and simulation activities and the continuation of vendor competition, material maturation, and development activities leading to a future design review.			
Accomplishments/Planned Programs Subtotals	12.781	43.693	46.742

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

N/A

Remarks

D. Acquisition Strategy

Acquisition pathway decision is projected to occur FY 2024 after approval of the A-CDD. Contract award projected for 4Q FY 2024 to begin technology design and development activities. Subsequent option award is projected for 2Q FY 2025 to continue design, development, and begin prototype and component-level testing.

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) CD8 / Long Range Precision Munition (LRPM)
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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			
Systems Engineering/ Program Management	Various	Various Performers : Various	-	4.446	Nov 2022	3.750	Nov 2023	4.758	Nov 2024	-		4.758	0.000	12.954	Continuing
Technical Evaluations	Various	Multiple Activities : Redstone Arsenal, Alabama	-	-		2.013	Nov 2023	-		-		-	0.000	2.013	Continuing
Subtotal			-	4.446		5.763		4.758		-		4.758	0.000	14.967	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			
LRPM Other Government Agency	MIPR	CCDC Redstone Arsenal, AL : Various	-	5.534	Nov 2022	2.724	Nov 2023	4.887	Nov 2024	-		4.887	0.000	13.145	Continuing
System Development Maturation, Prototypes, and Integration	C/TBD	Multiple : Multiple	-	-		31.865	Mar 2024	34.145	Jan 2025	-		34.145	0.000	66.010	Continuing
Engineering and Technical Support	Various	Various : Redstone Arsenal, Alabama	-	2.801	Jan 2023	3.341	Jan 2024	2.952	Jan 2025	-		2.952	0.000	9.094	Continuing
Subtotal			-	8.335		37.930		41.984		-		41.984	0.000	88.249	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		-	12.781	43.693	46.742	-	46.742	0.000	103.216	N/A

Remarks
 System Development Maturation, Prototypes, and Integration funding will obligate onto the Other Transaction Authority (OTA) agreement(s) to be awarded 4Q FY 2024. Additional funding will be obligated onto the contract in FY 2025.

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) CD8 / <i>Long Range Precision Munition (LRPM)</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				
Capability Demonstration	█																															
Acquisition and Contract Preparation	█																															
System Development, Maturation, Prototypes, and Integration					█																											
Contract Award FY 2024					▲ 1																											
Contract Award FY 2025									▲ 2																							
Design Review													▲ 3																			

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) CD8 / <i>Long Range Precision Munition (LRPM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Capability Demonstration	1	2022	1	2023
Acquisition and Contract Preparation	1	2022	2	2024
System Development, Maturation, Prototypes, and Integration	2	2024	1	2031
Contract Award FY 2024	4	2024	4	2024
Contract Award FY 2025	2	2025	2	2025
Design Review	2	2026	2	2026

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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 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) EC3 / Ammunition Logistics Prototyping			
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
EC3: Ammunition Logistics Prototyping	-	1.772	1.892	1.935	-	1.935	1.936	1.956	1.977	1.997	0.000	13.465
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the future force by improving the distribution, management, reliability, and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers supporting the Design of Army 2040. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and autonomous friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This Project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter. Fiscal Year (FY) 2025 funding will be used to further mature munition health monitoring devices in accordance with the needs of the relevant PMs. Funding will be used to directly to support Contested Logistics and Long Range Precision Fire (LRPF) Cross Functional Teams (CFT) munition asset visibility and health monitoring requirements throughout the ammunition supply chain and resupply process. Specifically, the funding will be used to address improvements to the ammunition supply chain within the maneuver force.

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

	FY 2023	FY 2024	FY 2025
Title: Munitions Health and Inventory Monitoring Systems	0.919	0.992	1.535
<p>Description: Performance and reliability of certain munitions can be degraded by the environmental exposure history they experience during their lifetime. This Project will develop simple to complex environmental health and inventory monitoring/tracking systems to improve reliability and asset visibility and enable effective Condition Based Management for Ammunition. All research and development initiatives will be supporting the Contested Logistics, LRPF, Next Generation Combat Vehicle (NGCV), and Solider Lethality (SL) CFTs and the Multi-Domain Operations (MDO) modernization objectives that consume, store, and transport/distribute munitions and munition components in the maneuver formations as part of the overall predictive logistics concept.</p> <p>FY 2024 Plans: Develop and mature prototype systems to monitor munition environmental exposure beginning as ammunition is issued from the Ammunition Storage Areas and handed off to the sustainment formations. Develop a system architecture that can efficiently collect environmental exposure to temperature, humidity, shock, and vibration while simultaneously correlating these parameters to ballistic performance. The first iteration of these prototypes will be supporting large caliber projectiles, associated propellant, fuzes, and any other ammunition components. As the packaging of long-range precision ammunition items for tactical transportation and distribution configurations evolve through modernization, surveillance reporting of environmental exposure</p>			

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>will become critical to ensure lethality and readiness. Integrate these prototype systems with other ammunition management technologies and leverage existing Systems of Record such as the Command Post Computing Environment, Joint Battle Command - Platform, Paladin Digital Fire Control System, and Advanced Field Artillery Tactical Data System.</p> <p>FY 2025 Plans: Develop and mature prototype munitions monitoring systems to track inventory within the maneuver formations to ensure ammunition posture is synchronized with the battlefield commander's intent. Key prototype attributes are precise ground truth of all ammunition issued from the Ammunition Storage Areas and handed off to the sustainment formations, monitor munition environmental exposure, and system architecture that maintains all relevant information within the associated data fabric. Information collected such as temperature, humidity, shock, and vibration will be used to adjust the ballistic kernel parameters to improve Control Entry Point (CEP) for any future fire mission. One or more Soldier touch points will be staged to evaluate early prototypes to assess maneuver performance improvements in support of projectiles, associated propellant, fuzes, and any other ammunition components. As the prototypes are evaluated, integration plans will be developed with other ammunition management technologies leveraging existing Systems of Record such as the Command Post Computing Environment, Joint Battle Command - Platform, Paladin Digital Fire Control System, and Advanced Field Artillery Tactical Data System.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to resourcing emerging requirements as determined by the Cross Functional Teams (CFTs).</p>			
<p>Title: Munitions Containerization Systems</p> <p>Description: For each family of munitions containers, optimize prototype container systems for automation compatibility, combat unit load quantity, sustainability/recyclability, explosives safety, environmental protection, load reconfiguration, unitization, and standardized interfaces. This will improve ammunition distribution efficiency while minimizing environmental and operational impacts.</p> <p>FY 2024 Plans: Develop and test series of prototype ammunition consolidators suitable for providing protection to class V items as they are transported by tactical wheeled vehicle organic to the sustainment formations and handed off to the ammo section within the Fires formations. All consolidators must be compliant with the environmental sensor prototype under concurrent development elsewhere within the JPEO A&A portfolio, and incorporate automation friendly features. Prototype consolidator concepts will supplement potential inner-packaging components and stress low cost, lightweight and interoperability with future manual and automated weapon and sustainment systems with ammunition items under development by PM CAS as the primary goal.</p> <p>FY 2025 Plans: Develop and mature a prototype ammunition consolidator selected through an early Soldier touch point suitable for providing protection to all field artillery ammunition items as they are transported by tactical wheeled vehicle organic to the Forward</p>	0.853	0.900	0.400

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Support Company and Ammunition Sections within the maneuver formations. The selected consolidator will be compliant with the emerging inventory/environmental sensor concepts under development elsewhere within the JPEO A&A portfolio and incorporate automation friendly features. Prototype consolidator concepts will supplement potential inner-packaging components and stress low cost, lightweight and interoperability with future manual and automated weapon and sustainment systems with ammunition items under development by PMs as the primary goal.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Decrease due to realigning funds to emerging requirements as determined by the Cross Functional Teams (CFTs).			
Accomplishments/Planned Programs Subtotals	1.772	1.892	1.935

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

N/A

Remarks

D. Acquisition Strategy

Fiscal Year (FY) 2023 funding will be used to further mature munition health monitoring devices in accordance with the needs of the relevant PMs. However, the preponderance of the funding will be used to directly to support Long Range Precision Fire (LRPF) munition health monitoring requirements throughout its resupply process. Specifically, the funding will be used to address munition health monitoring and packaging/preservation of munitions within the tactical movement of large caliber ammunition.

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) EC3 / Ammunition Logistics Prototyping
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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			
Advanced Munitions Health Monitoring System (CAT)	C/FFP	Cybernet : Ann Arbor, MI	-	0.267	Jan 2023	0.470	Jan 2024	0.265	Jan 2024	-		0.265	0.000	1.002	-
Advanced Munitions Health Monitoring System (PLS)	TBD	CR Tactical : Pittsburgh, PA	-	-		0.462	Jan 2024	0.270	Jan 2024	-		0.270	0.000	0.732	-
Tactical Munitions Health Monitoring System	C/FFP	Cybernet : Ann Arbor, MI	1.828	0.275	Jan 2022	-		-		-		-	0.000	2.103	-
Large Caliber Automation Friendly Packaging	TBD	TBD : TBD	-	0.433	Mar 2023	-		-		-		-	0.000	0.433	-
Lightweight Steel Container	TBD	SAVIT : Rockaway, NJ	-	-		0.300	Nov 2023	-		-		-	0.000	0.300	-
Advanced Munitions Inventory Tracking	TBD	TBD : TBD	-	-		-		0.700	Nov 2024	-		0.700	0.000	0.700	-
Subtotal			1.828	0.975		1.232		1.235		-		1.235	0.000	5.270	N/A

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			
DEVCOM Armaments Center	MIPR	Picatinny Arsenal : NJ	6.203	0.597	Nov 2021	0.660	Nov 2023	0.700	Nov 2023	-		0.700	0.000	8.160	-
Subtotal			6.203	0.597		0.660		0.700		-		0.700	0.000	8.160	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			
Test and Evaluation	MIPR	TBD : TBD	0.350	0.200	Mar 2023	-		-		-		-	0.000	0.550	-
Subtotal			0.350	0.200		-		-		-		-	0.000	0.550	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 0603639A / <i>Tank and Medium Caliber Ammunition</i>				Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>			
	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	8.381	1.772	1.892	1.935	-	1.935	0.000	13.980	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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</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
Tactical Munitions Health Monitoring System	[Redacted]				[Redacted]																							
	Tactical Munitions Health Monitoring System																											
Large Caliber Automation Friendly Packaging	[Redacted]				[Redacted]																							
	Large Caliber Automation Friendly Packaging																											
Advanced Munitions Health Monitoring System (CAT)	[Redacted]				[Redacted]				[Redacted]																			
					Advanced Munitions Health Monitoring System (CAT)																							
Advanced Munitions Health Monitoring System (PLS)	[Redacted]				[Redacted]				[Redacted]																			
					Advanced Munitions Health Monitoring System (PLS)																							
Lightweight Steel Container	[Redacted]				[Redacted]				[Redacted]																			
					Lightweight Steel Container																							
Advanced Munitions Inventory Tracking	[Redacted]				[Redacted]				[Redacted]				[Redacted]															
									Advanced Munitions Inventory Tracking																			

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Concept Development-Munitions Containerization-1A	1	2020	4	2021
Advanced Concept Development-Munitions Health Monitoring-3	3	2017	4	2020
Tactical Munitions Health Monitoring System	1	2022	4	2024
Large Caliber Automation Friendly Packaging	1	2023	4	2025
Advanced Munitions Health Monitoring System (CAT)	2	2024	2	2026
Advanced Munitions Health Monitoring System (PLS)	2	2024	2	2026
Lightweight Steel Container	1	2024	1	2026
Advanced Munitions Inventory Tracking	1	2025	4	2026

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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 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) FA5 / Assured Precision Weapons and Munitions			
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
FA5: Assured Precision Weapons and Munitions	-	35.056	45.738	48.096	-	48.096	41.680	42.119	42.589	43.014	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Assured Precision Weapons and Munitions (APWM) - FA5 Project is focused on advanced risk mitigation, technology integration, prototyping, and product support to identify, evaluate, mature, test, and demonstrate various assured precision prototype technologies in Weapon and Munitions (W&M) components and subsystems within a complex System-of-Systems (SoS) environment. The APWM Project reinforces the National Defense Strategy's (NDS) major lines of effort through technology development and prototyping, which increases lethality and ensures future combat overmatch success of the Joint Force against peer/near-peer adversaries. This Project also aims to improve program performance and affordability for multiple W&M Programs of Record (PoRs) via Joint Lethality Positioning, Navigation and Timing (PNT), Navigation Warfare (NavWar), and Army M-Code Global Positioning System (GPS) coordinated efforts. The APWM Project directly supports the top Army Modernization Priorities via the Assured PNT (APNT) and Long Range Precision Fires (LRPF) imperatives in support of the NDS and multiple Public Law related Congressional imperatives. Funding will support engagement by W&M PNT experts in the development, evaluation, and technology delivery activities of the US Space Force's (USSF) M-Code GPS, Army's PNT related programs, and APNT/Space Cross Functional Team (CFT) programs in support of LRPF and Counter Anti-Access/Area Denial (A2/AD) missions. Funding will also enable component and subsystem architecture input essential for Precision W&M operating in a NavWar SoS environment, Army M-Code GPS technology integration and evaluation, planning and evaluating next generation M-Code GPS to validate capability for future Joint precision munitions, and maturation of alternative PNT and NavWar related technologies and solutions to enable informed APNT related PoR milestone and Army cross-functional modernization decisions.

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

	FY 2023	FY 2024	FY 2025
Title: APWM Integrated Product Support - Joint Lethality PNT and Navigation Warfare (NavWar) SME Working Integrated Product Team (WIPT) & Program Management	3.744	3.848	4.089
Description: Provide APWM technical subject matter expertise and support to the Joint oversight board for APWM. Provide overall APWM Project Program Management support.			
FY 2024 Plans: Provides overall Project Program Management support for 643639A-FA5. The JL SMEs will continue to provide technical expertise and support to the Joint oversight board for Assured Precision Weapons and Munitions by coordinating with and supporting the development and technology delivery activities of the Joint Weapons and Munitions community, to include PNT modernization and NavWar related programs, participation in design reviews, evaluation and formal feedback on technology and systems requirements and performance, component and subsystem architecture input essential for precision weapons and munitions operating in a Joint SoS multi-domain environment. Specific support focus includes requirements and virtual 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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
for MGUE Increment 2, resilient and survivable PNT technology maturation, NavWar dependencies, and direct participation in new technology areas such as PGM Software Defined Receivers. FY 2025 Plans: Provides overall Project Program Management support for 643639A-FA5. The JL SMEs will continue to provide technical expertise and support to the Joint oversight board for APWM by coordinating with and supporting the development and technology delivery activities of the Joint W&M community, to include PNT modernization and NavWar related programs, participation in design reviews, evaluation and formal feedback on technology and systems requirements and performance, component and subsystem architecture input essential for precision W&M operating in a Joint SoS multi-domain environment. Specific support focus includes prototyping and evaluation planning for Military GPS User Equipment (MGUE) Increment 2 (Inc2), resilient and survivable PNT technology maturation and Joint Fires standardization, NavWar dependencies and Joint proposed NavWar prototyping initiatives, and direct participation in new technology areas, such as PGM Software Defined Receivers (SDRx). FY 2024 to FY 2025 Increase/Decrease Statement: Level of effort slightly increased from FY24 to FY25 due to the ongoing APNT/S CFT and USSFs MGUE program efforts, maturing NavWar initiatives, and increasing complexity of Multi-Domain Operations (MDOs) impacting collaborative efforts and increased stakeholder participation for the JL community.				
Title: Next Generation PNT Technologies Phase 1 Description: Continue prototyping APNT technologies to provide the next generation of APNT capability to W&Ms in a highly complex and fast paced battlefield. Will leverage prior Army Science & Technology (S&T), previous integrated demonstration events, information on threat advancement, and lessons learned to rapidly develop, integrate, prototype, and transition critical APNT technologies to W&Ms directly supporting LRPF and Air & Missile Defense initiatives.		2.268	-	-
Title: Assured PNT related Weapons & Munitions Prototyping - PGM Software-Defined Receiver (SDRx) Description: Develop a prototype "All In One" GPS, Global Navigation Satellite System (GNSS), Alternative Navigation (AltNav), Signals of Opportunity (SoO)) software defined radio frequency APNT receiver for a large portion of the PGM portfolio.		5.329	-	-
Title: Army APNT (incl M-Code) and NavWar Technology Integration and Evaluation Description: Provide technical assessment, coordination, and engineering support related to the development, prototyping, integration, and evaluation of USSF's MGUE technology deliverables across all Army W&Ms, including participation in design reviews, testing, evaluation, and formal feedback on technology, component-level, card-level, sub-system-level, and systems-level requirements and performance. Reduce risk, support, and inform M-Code GPS related Army cross-functional modernization decisions for W&M operating in a peer/near threat SoS environment, as well as identifying complementary PNT and NavWar related solutions when M-Code GPS is not solely sufficient to enable Combat Overmatch. Directly addresses PL 111-383 aka		12.420	11.902	13.357

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>FY11 National Defense Authorization Act (NDAA) Section 913: Jan 11 (M-Code Mandate), PL 115-232 aka FY19 NDAA Section 1609: Aug 18 (MGUE Inc2 must support Galileo and QZSS), DODI 4650.08: Dec 18 (DoD NavWar Compliance), MGUE Inc2 Precision Guided Munition (PGM) Technical Requirements Document (TRD): Oct 19, Alternative Navigation (AltNav) Directed Requirement (DR): Nov 19, FY21 NDAA Section 1611 (Resilient and Survivable PNT), NavWar Situational Awareness (SA) Army Capability Development Document (A-CDD) approved Mar 21, NavWar Electronic Attack (EA) A-CDD approved Sep 22).</p> <p>FY 2024 Plans: Continues to support design reviews, experimentation, prototyping, testing, evaluation, and risk reduction of Army M-Code Inc2, AltNav, and NavWar by in-house government activities and OTA/IDIQ Contract efforts. Maintains an Army APNT and NavWar Weapons and Munitions IPT working directly with the APNT/S CFT and multiple PEOs. Facilitate weapon and munition APNT and NavWar experimentation in PNTAX and Project Convergence type events to inform CONOPS and requirement generation processes.</p> <p>FY 2025 Plans: Continue to support design reviews, experimentation, prototyping, testing, evaluation, and risk reduction of Army M-Code Inc2, AltNav, and NavWar by in-house Government activities and Other Transaction Authority (OTA) / Indefinite Delivery/Indefinite Quantity (IDIQ) contract efforts. Maintains an Army APNT and NavWar W&Ms IPT working directly with the APNT/S CFT, multiple Program Executive Offices, and Army Capability Managers. Facilitate W&M APNT and NavWar experimentation in PNT Assessment (PNTAX) and Capstone type events to inform Concept of Operations (CONOPS) and requirement generation processes.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Level of effort required in FY25 is similar to FY24. Army APNT and NavWar Technology Integration Evaluation increases slightly due to anticipated updates in requirements documentation for APNT and NavWar.</p>				
<p>Title: MGUE Inc2 for JROC-directed PGM Lead Platform</p> <p>Description: Influence Next Gen MGUE development to ensure PGM needs and requirements are met with the USSF Next Gen MGUE. Evaluate the Next Gen MGUE using the DoD-selected representative Joint precision munition to verify and validate PGM needs and requirements are met by Next Gen MGUE. Directly addresses PL 111-383 aka FY11 NDAA Section 913: Jan 11 (M-Code Mandate), PL 115-232 aka FY19 NDAA Section 1609: Aug 18 (MGUE Inc2 must support Galileo and QZSS), DODI 4650.08: Dec 18 (DOD NavWar Compliance), MGUE Inc2 PGM TRD: Oct 19, AltNav DR: Nov 19, FY21 NDAA Section 1611 (Resilient and Survivable PNT).</p> <p>FY 2024 Plans:</p>		11.295	17.030	19.336

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Work directly with USSF and M-Code Inc2 GPS prime vendors to mature PGM specific design trade studies leading to a completed virtual prototype. Begin PGM M-Code Inc2 Circuit Card Assembly (CCA) designs with PGM specific software development reducing risk to accept USSF ASIC prototypes. Virtually prototype JROC-directed representative PGM Lead Platform design modifications to accept USSF M-Code Inc2 prototype technology for next generation ASIC verification and validation ensuring PGM PNT-related needs and requirements are met by MGUE Inc2.</p> <p>FY 2025 Plans: Work directly with USSF and M-Code Inc2 GPS prime vendors to prototype PGM firmware and software solutions for the Inc2 ASIC and ancillary supporting electronics. Begin PGM M-Code Inc2 Application Specific Integrated Circuit (ASIC) integration onto CCAs. Continue virtually prototyping Joint Requirements Oversight Council (JROC) -directed representative PGM Lead Platform design modifications to accept USSF M-Code Inc2 prototype technology for Next Gen ASIC verification and validation ensuring PGM PNT-related needs and requirements are met by MGUE Inc2. Begin detailed verification and validation planning with the Joint Fires stakeholder community and USSF.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increases in FY25 due to level of effort increasing to perform prototyping and develop evaluation plans across multiple levels of integration. Prototyping will be executed across the ASIC, CCA, guidance navigation and control unit, JROC-directed representative PGM Lead Platform, and supporting Fire Command and Control (C2) systems to reduce risk of accepting USSF M-Code Inc2 technology to verify and validate Joint Fires Requirements.</p>				
<p>Title: Next Generation NavWar Tech Phase 1</p> <p>Description: Continue prototyping NavWar technologies across W&Ms needed to continue to dominate the PNT battlespace. Will leverage prior Army and Joint Services S&T, previous integrated demonstration events, information on threat and adversary PNT advancement, and lessons learned to rapidly develop, integrate, prototype, and transition critical NavWar technologies. Prototyping will transition to new Fuze Setter functions, Munition Deployed NavWar upgrades, and hardening of APNT systems to counter new threats, and control adversaries PNT access.</p> <p>FY 2024 Plans: Continue prototyping NavWar attack, sense, and countermeasure technologies to preserve weapon and munition access to PNT, while dominating adversary access to PNT. Phase 1 technologies will advance data collect and use of NavWar situational awareness for Fires to enhance lethality and ensure effects on target(s) in complex threat environments.</p> <p>FY 2025 Plans:</p>		-	3.358	1.339

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Complete and evaluate NavWar attack, sense, countermeasure, and SA technologies through controlled experiments to inform component prototyping of integrated dual mode multi-mission payloads and associated Fires C2 application prototyping.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Next Gen NavWar Tech Phase 1 continues to mature and prototype NavWar technology from Fires SoS APNT related anti-spoof, NavWar and Next Gen PNT Technologies Phase 1, while transitioning new S&T technology capabilities from Combat Capabilities Development Command (CCDC) Armaments Center (AC), Aviation and Missile Center (AvMC), and Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR). Funding decrease due to transition of multiple mature technologies into physical component prototyping for Munition Deployed NavWar (MDN) Dual Mode Attack/Sense Phase 1 and virtual prototyping of Network Assisted Assured PNT (NA2) and NavWar SoS automation solutions.</p>				
<p>Title: PGM Software Defined Receiver (SDRx) Phase II</p> <p>Description: Use PGM SDRx Phase I results to complete a prototype "All In One " APNT (GPS, GNSS, AltNav, SoO), SDRx for a large SWAP PGMs that is ready to transition to Army Fires PoRs, directly addressing the FY21 NDAA Section 1611 Congressional mandate for resilient and survivable PNT.</p> <p>FY 2024 Plans: Use results of PGM SDRx Phase I prototyping to develop physical prototypes for use in experimentations and evaluations of technology capabilities. Formalize USSF security certification target to reduce risk of obtaining a security certified PGM SDRx capable of M-Code GPS using Commercial-off-the-Shelf (COTS) components.</p> <p>FY 2025 Plans: Complete PGM SDRx functional prototype to demonstrate intent of FY21 NDAA Section 1611 Congressional mandate for resilient and survivable PNT. Integrate physical PGM SDRx prototype into a representative large SWAP PGM to demonstrate critical "All in One" software defined navigation capabilities in a live fire event. Provide test reports to Fires PoRs to inform transition of PGM SDRx. Transition PGM SDRx prototype to Fires NavWar for prototyping expanded NavWar mission capability and future software upgrades to Fires PoRs adopting navigation software defined solutions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decreased from prior year due to transition of focus from physical and functional prototyping, to integration and demonstration of the PGM SDRx requiring less resources.</p>		-	9.600	7.400
<p>Title: Munition Deployed NavWar Dual Mode Attack/Sense Phase 1</p> <p>Description: Transition Next Gen NavWar technology to component prototyping of multi-mode NavWar active and passive common Rocket/Missile and Cannon Artillery Cargo payloads. Prototype solutions focus on active battlespace shaping and sensing for force multiplying effects. Initiative will provide high Technology Readiness Level (TRL) component solutions for</p>		-	-	1.375

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>

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

integrated multi-mission attack and sense payload designs supporting an array for Fires Multi-Domain Operations across the electronic warfare spectrum. Directly addresses NavWar SA A-CDD approved Mar 21, NavWar Electronic Attack (EA) A-CDD approved Sep 22.

FY 2025 Plans:

Physical component prototyping and operational like experimentation planning of Next Gen NavWar Technology to include Software Defined Radio and Radio Frequency Smoke attack and sense payloads.

FY 2024 to FY 2025 Increase/Decrease Statement:

Increase needed in FY25 to accept transition of mature technologies for physical component prototyping of common dual mode Attack/Sense common NavWar payloads across Rocket/Missile and Cannon Cargo Artillery.

Title: Network Assisted Assured PNT and NavWar Phase 1

Description: Prototype Virtual Fires SoS APNT and NavWar solutions to facilitate automation of Next Gen APNT Phase 1 and Next Gen NavWar Phase 1 technologies across the W&M Portfolio. Prototyping efforts will focus on enabling combat lethality overmatch in PNT challenged environments for Cannon and Rocket/Missile core missions. Continue to identify and define the future Fires SoS MDO interdependencies to enable a suite of NavWar operational capabilities and develop near, mid, and long-term MDO Fires and NavWar strategies to meet Army modernization imperatives. Directly addresses PL 111-383 aka FY11 NDAA Section 913: Jan 11 (M-Code Mandate), PL 115-232 aka FY19 NDAA Section 1609: Aug 18 (MGUE Inc2 must support Galileo and QZSS), DODI 4650.08: Dec 18 (DOD NavWar Compliance), MGUE Inc2 PGM TRD: Oct 19, AltNav DR: Nov 19, FY21 NDAA Section 1611 (Resilient and Survivable PNT).

FY 2025 Plans:

Initiate virtual prototyping across Fires SoS needed to automate use of Next Gen APNT Phase 1 and Next Gen NavWar Phase 1 technologies. Prototyping will focus on the following areas: 1. Hot start and efficient use of multi-source PNT solutions for W&Ms. 2. Automating the translation of NavWar SA to situational understanding to reduce cognitive burden on operators meeting speed of battle demands in complex MDOs. Work with PoRs to integrate and implement NavWar information to support NavWar situational understanding and Fires decision support tools. 3. Dissemination of Hot Start data needed for collaborative swarming Fires seeker applications to avoid over-kill and maximize efficiency. Continue to identify, design and architect future SoS Fires interdependencies for a more integrated NavWar operational functionality.

FY 2024 to FY 2025 Increase/Decrease Statement:

Funding increase needed in FY25 to transition Next Gen APNT Phase 1 and Next Gen NavWar Phase 1 technologies for virtual prototyping of SoS solutions needed to automate use of multi-source PNT, collaborative and efficient use of seekers in swarming

FY 2023	FY 2024	FY 2025
-	-	1.200

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
applications, and reducing cognitive burden of Fires Support coordinators in complex MDO environments to meet speed of battle demands.			
Accomplishments/Planned Programs Subtotals	35.056	45.738	48.096

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

N/A

Remarks

D. Acquisition Strategy

Acquisition Strategy: The APWM Project will utilize a combination of Other Transaction Authority (OTA) contract mechanisms such as the Defense Ordinance Technology Consortium (DOTC) OTA and In-House government development and engineering capabilities to obtain prototypes and demonstrate/evaluate the maturity and integration risk of the M-Code GPS on Precision W&M, as well as other alternative PNT and NavWar related capabilities and corresponding related prototype SoS solutions.

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) FA5 / Assured Precision Weapons and Munitions
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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			
Assured PNT related Munitions Integration Prototyping	MIPR	DoD Ordnance Technology Consortium (DOTC) - Various : Various	16.786	2.258	Dec 2022	-		-		-		-	0.000	19.044	-
Army APNT (incl M-Code) and NavWar Technology Integration and Evaluation	MIPR	Various : Various	19.822	9.900	Dec 2022	-		-		-		-	0.000	29.722	-
Weapon & Munitions Prototyping & Integration Risk Mitigation	MIPR	DoD Ordnance Technology Consortium (DOTC) - TBD; Various : Various	15.666	3.939	Dec 2022	-		-		-		-	0.000	19.605	-
MGUE Inc2 for JROC directed PGM Lead Platform Development	MIPR	DoD Ordnance Technology Consortium (DOTC) - Various : Various	-	8.689	Dec 2022	-		-		-		-	0.000	8.689	-
Fires APNT	Various	DoD Ordnance Technology Consortium (DOTC) - BAE, L3Harris, Raytheon, Northrop Grumman Mission Systems, General Dynamics Mission Systems; DEVCOM AC, CCDC Aviation and Missiles Center (AvMC): : Picatinny Arsenal NJ, Redstone Arsenal AL, Various	-	-		24.288	Dec 2023	25.308	Dec 2024	-		25.308	Continuing	Continuing	Continuing
Fires NavWar	Various	DoD Ordnance Technology Consortium (DOTC) - SRC, SAVIT TBD Competing,	-	-		4.532	Dec 2023	4.629	Dec 2024	-		4.629	Continuing	Continuing	Continuing

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) FA5 / Assured Precision Weapons and Munitions
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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			
		(Industry Partner Subs) CCDC Communication Electronics Research, Development and Engineering Center (C5ISR) : Aberdeen Proving Ground MD; Various													
Fires Systems of Systems APNT and NavWar	Various	DoD Ordnance Technology Consortium (DOTC) - IS4S TBD competing; Various (Industry Partner Subs) : Various	-	-		4.533	Dec 2023	4.629	Dec 2024	-		4.629	Continuing	Continuing	Continuing
Subtotal			52.274	24.786		33.353		34.566		-		34.566	Continuing	Continuing	N/A

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			
Program Management	Various	Joint Program Executive Office Armaments and Ammunition (JPEO A&A) : Picatinny Arsenal, NJ	5.847	1.278	Dec 2022	-		-		-		-	0.000	7.125	-
Assured Precision Weapons and Munitions IPT Support	MIPR	Various : Various	10.864	2.466	Dec 2022	-		-		-		-	0.000	13.330	-
Army APNT (incl M-Code) and NavWar Technology Integration and Evaluation	MIPR	Various : Various	6.700	2.520	Dec 2022	-		-		-		-	0.000	9.220	-

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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 / 4				PE 0603639A / Tank and Medium Caliber Ammunition				FA5 / Assured Precision Weapons and Munitions							
Support (\$ 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
Support. (Multiple PEO Sup															
Assured Technologies Engineering Support	MIPR	DEVCOM : Picatinny Arsenal, NJ	6.296	1.000	Dec 2022	-		-		-		-	0.000	7.296	-
Assured Technologies Engineering Support	MIPR	Communication Electronics Research, Development and Engineering Center (C5ISR) : Aberdeen Proving Ground, MD	2.071	0.200	Dec 2022	-		-		-		-	0.000	2.271	-
Assured Technologies Engineering Support	MIPR	Aviation and Missiles Center (AvMC) : Redstone Arsenal, AL	0.200	0.200	Dec 2022	-		-		-		-	0.000	0.400	-
MGUE Inc2 for JROC-directed PGM Lead Platform Support	MIPR	Combat Capability Development Command Armament Center (CCDC AC) : Picatinny Arsenal, NJ	4.071	2.606	Dec 2022	-		-		-		-	0.000	6.677	-
Program Management and Integrated Product Support	Various	DEVCOM AC; CCDC AvMC; Joint Lethality PNT and NAVWAR IPT Members: APNT/S CFT, PEO M&S, AFLCMC (Eglin AFB), USSF, NAVSEA, NAVAIR, West Point, and Various : Picatinny Arsenal NJ, Redstone Arsenal AL, Various	-	-		3.848	Dec 2023	4.089	Dec 2024	-		4.089	Continuing	Continuing	Continuing
Fires APNT	Various	DEVCOM AC; CCDC AvMC; CCDC C5ISR :	-	-		6.070	Dec 2023	6.372	Dec 2024	-		6.372	Continuing	Continuing	Continuing

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) FA5 / Assured Precision Weapons and Munitions
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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			
		Picatinny Arsenal NJ, Redstone Arsenal AL; Various													
Fires NavWar	Various	DEVCOM AC; CCDC AvMC; CCDC C5ISR : Picatinny Arsenal NJ, Redstone Arsenal AL; Various	-	-		1.334	Dec 2023	1.664	Dec 2024	-		1.664	Continuing	Continuing	Continuing
Fires Systems of Systems APNT and NavWar	Various	DEVCOM AC; CCDC AvMC; CCDC C5ISR : Picatinny Arsenal NJ, Redstone Arsenal AL; Various	-	-		1.133	Dec 2023	1.405	Dec 2024	-		1.405	Continuing	Continuing	Continuing
Subtotal			36.049	10.270		12.385		13.530		-		13.530	Continuing	Continuing	N/A

Remarks
Support consists of labor, travel and other non-labor costs in Fiscal Year (FY) 2022.

	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	88.323	35.056	45.738	48.096	-	48.096	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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</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				
Integrated Product Support - Joint Lethality PNT and Nav...	[Redacted]																															
Integrated Product Support - Program Management	[Redacted]																															
Fires APNT - Next Gen PNT Technologies Phase 1	[Redacted]				[Redacted]																											
Fires APNT - PGM Software Defined Receiver Phase 1	[Redacted]				[Redacted]																											
Fires APNT - MGUE Inc2 for JROC-directed PGM Lead Platform	[Redacted]																															
Fires APNT - PGM Software Defined Receiver Phase 2	[Redacted]				[Redacted]								[Redacted]																			
Fires APNT - Next Gen PNT Technologies Phase 2	[Redacted]				[Redacted]								[Redacted]																			
Fires APNT - Advanced multi-source PNT solutions for PW&...	[Redacted]				[Redacted]								[Redacted]																[Redacted]			
Fires APNT - Army APNT (incl M-Code) and NavWar Tech Int...	[Redacted]																															
Fires NavWar - Next Gen NavWar Technologies Phase 1	[Redacted]				[Redacted]								[Redacted]																			
Fires NavWar - MDN Dual Mode Attack/Sense Phase 1	[Redacted]				[Redacted]								[Redacted]																			
Fires NavWar - MDN Countermeasures	[Redacted]				[Redacted]								[Redacted]																			
Fires NavWar - MDN Dual Mode Attack/Sense Phase 2	[Redacted]				[Redacted]								[Redacted]																			

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</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
Fires NavWar - Multi-mode/Multi-mission MDN																												
Fires NavWar - MDN Multi-Spectral Countermeasures Phase 1																												
Fires NavWar - Army APNT (incl M-Code) and NavWar Tech I...																												
Fires SoS - Army APNT (incl M-Code) and NavWar Tech Intg...																												
Fires SoS - Network Assisted Assured PNT and NavWar Phase 1																												
Fires SoS - Network Assisted Assured PNT and NavWar Phase 2																												
Fires SoS - Network Assisted Assured PNT and NavWar for ...																												

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Integrated Product Support - Joint Lethality PNT and NavWar SME WIPT	1	2017	4	2033
Integrated Product Support - Program Management	1	2017	4	2033
Fires APNT - Next Gen PNT Technologies Phase 1	1	2022	4	2023
Fires APNT - PGM Software Defined Receiver Phase 1	1	2022	4	2023
Fires APNT - MGUE Inc2 for JROC-directed PGM Lead Platform	1	2022	4	2027
Fires APNT - PGM Software Defined Receiver Phase 2	1	2024	4	2025
Fires APNT - Next Gen PNT Technologies Phase 2	1	2027	4	2028
Fires APNT - Advanced multi-source PNT solutions for PW&M Phase 1	1	2029	4	2030
Fires APNT - Advanced multi-source PNT solutions for PW&M Phase 2	1	2031	4	2032
Fires APNT - Autonomous Integration of Multi-Source PNT for PW&M	1	2033	4	2033
Fires APNT - Army APNT (incl M-Code) and NavWar Tech Intg & Eval	1	2023	4	2033
Fires NavWar - Next Gen NavWar Technologies Phase 1	1	2024	4	2025
Fires NavWar - MDN Dual Mode Attack/Sense Phase 1	1	2025	4	2026
Fires NavWar - MDN Countermeasures	1	2026	4	2027
Fires NavWar - MDN Dual Mode Attack/Sense Phase 2	1	2027	4	2028
Fires NavWar - Multi-mode/Multi-mission MDN	1	2029	4	2030
Fires NavWar - MDN Multi-Spectral Countermeasures Phase 1	1	2029	4	2030
Fires NavWar - MDN Multi-Spectral Countermeasures Phase 2	1	2031	4	2032
Fires NavWar - Multi-Mode/Multi-Mission Munition Deployed Advanced NavWar	1	2031	4	2032
Fires NavWar - Integrated Passive and Active MDN	1	2033	4	2033
Fires NavWar - Army APNT (incl M-Code) and NavWar Tech Intg and Eval	1	2023	4	2033
Fires SoS - Army APNT (incl M-Code) and NavWar Tech Intg and Eval	1	2022	4	2033

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FA5 / <i>Assured Precision Weapons and Munitions</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Fires SoS - Network Assisted Assured PNT and NavWar Phase 1	1	2025	4	2026
Fires SoS - Network Assisted Assured PNT and NavWar Phase 2	1	2027	4	2028
Fires SoS - Network Assisted Assured PNT and NavWar for MDO Phase 1	1	2029	4	2030
Fires SoS - Network Assisted Assured PNT and NavWar for MDO Phase 2	1	2031	4	2032
Fires SoS - Automation of NavWar MDO across Fires SoS	1	2033	4	2033

Note
 Notes:
 Positioning, Navigation and Timing (PNT)
 Subject Matter Expert (SME)
 Working Integrated Product Team (WIPT)
 Network Assisted (NA)
 Assured Positioning, Navigation and Timing (APNT)

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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 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) FG1 / Cannon-Delivered Area Effects Munitions (C-DAEM)			
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
FG1: Cannon-Delivered Area Effects Munitions (C-DAEM)	-	-	-	19.072	-	19.072	-	-	-	-	0.000	19.072
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Cannon-Delivered Area Effects Munitions (C-DAEM) is a new start within the Tank and Medium Caliber Ammunition program in FY 2025.

A. Mission Description and Budget Item Justification

The Cannon Delivered Area Effects Munitions (C-DAEM) Budget Activity Four (BA4) is a new start project in Fiscal Year 2025 (FY25). The XM1155 projectile, transitioning from Budget Activity Three (BA3) PE 0603464A / Long Range Precision Fires Advanced Technology Project BO8 Long Range Precision Fires Advanced Tech), will deliver lethality and range overmatch in 155mm artillery weapon systems at more than double the current range from legacy artillery cannons and will be compatible in future 155MM artillery systems in a Global Positioning System (GPS) degraded and denied environments. The XM1155 projectile, developed as part of an organic Long Range Precision Fires capability, will provide overmatching cannon artillery range capability at both Tactical and Operational Fires range by shaping the nature of the close fight through seeking moving and imprecisely located targets at extended ranges, will increase range capability of the current 39 caliber cannon fleet and will also be compatible with future 52 caliber and above artillery weapon systems. FY 2025 funding will support technology maturation and risk reduction of key system and subsystems, improvements in performance in difficult use cases, and integration of the tactical warhead and seeker culminating in a series of Design Verification Testing (DVT) to achieve Technology Readiness Level (TRL) six (6) maturity.

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

	FY 2023	FY 2024	FY 2025
Title: C-DAEM Extended Range	-	-	19.072
Description: C-DAEM Extended Range will deliver lethality and range overmatch in 155mm artillery weapon systems seeking moving and imprecisely located targets at extended ranges.			
FY 2025 Plans: Conduct System and subsystem DVT testing including guided flight testing at multiple levels of maturity and integration leading to a system level capabilities demonstration at TRL 6 in Fiscal Year 2026 (FY26).			
FY 2024 to FY 2025 Increase/Decrease Statement: The Cannon Delivered Area Effects Munitions (C-DAEM) Budget Activity Four (BA4) is a new start project in Fiscal Year 2025 (FY25).			
Accomplishments/Planned Programs Subtotals	-	-	19.072

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FG1 / <i>Cannon-Delivered Area Effects Munitions (C-DAEM)</i>

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

N/A

Remarks

D. Acquisition Strategy

The XM1155 development program will utilize an existing Other Transaction Authority (OTA) contracting vehicle to execute design, development, and qualification efforts. Currently three contractors have candidate technical solutions which are completing demonstration activities leading to a Technology Readiness Level (TRL) six (6). This contracting vehicle will allow a down select between the technical candidates and ensure completion of the demonstration of the candidate technical solution in Fiscal Year 2026 (FY26).

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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 / 4				PE 0603639A / Tank and Medium Caliber Ammunition				FG1 / Cannon-Delivered Area Effects Munitions (C-DAEM)							
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
OTA - Extended Range Technology Maturation and Risk Reduction (TMRR)	MIPR	Other Transaction Authority (OTA) Contract : Picatinny Arsenal, NJ	-	-		-		16.000	Mar 2025	-		16.000	0.000	16.000	-
Subtotal			-	-		-		16.000		-		16.000	0.000	16.000	N/A
Support (\$ 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
Engineering Support	MIPR	Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ	-	-		-		2.500	Oct 2024	-		2.500	0.000	2.500	-
Subtotal			-	-		-		2.500		-		2.500	0.000	2.500	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
Extended Range Testing	MIPR	Army Test & Evaluation Command (ATEC) : Yuma, AZ	-	-		-		0.572	Sep 2025	-		0.572	0.000	0.572	-
Subtotal			-	-		-		0.572		-		0.572	0.000	0.572	N/A
Project Cost Totals			-	-		-		19.072		-		19.072	0.000	19.072	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 0603639A / <i>Tank and Medium Caliber Ammunition</i>			Project (Number/Name) FG1 / <i>Cannon-Delivered Area Effects Munitions (C-DAEM)</i>				
	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	

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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FG1 / <i>Cannon-Delivered Area Effects Munitions (C-DAEM)</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
C-DAEM ER Development TMRR Phase																												
ER Development DOTC Contract									DOTC Contract																			
ER Preliminary Design Review (PDR)													1 PDR															
ER Competitive Demonstration													Demo															

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) FG1 / <i>Cannon-Delivered Area Effects Munitions (C-DAEM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
C-DAEM ER Development TMRR Phase	1	2025	4	2026
ER Development DOTC Contract	1	2025	4	2026
ER Preliminary Design Review (PDR)	1	2026	1	2026
ER Competitive Demonstration	3	2026	4	2026

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) XT5 / 30mm Anti-Personnel and Counter UAS
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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
XT5: 30mm Anti-Personnel and Counter UAS	-	-	-	0.182	-	0.182	3.686	3.119	-	-	0.000	6.987
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

30mm Anti-Personnel and Counter UAS is a new start within the Tank and Medium Caliber Ammunition program in FY 2025.

A. Mission Description and Budget Item Justification

Airburst capability is identified as a threshold Key System Attribute (KSA) in Apache Block 3 Capability Production Document (CPD) - Approved 14 June 2017 and other cannon caliber Operational Needs Statements (ONS) and Capability Development Documents (CDD). The Anti-Personnel and Counter Unmanned Aerial Systems (UAS) munition provides increased lethality through airburst effects against personnel, small boats, and small Unmanned Aerial Systems (UAS) without requiring modification to the platform. Fiscal Year (FY) 2025 funds support developing performance specifications and contract preparation to begin development and testing.

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

	FY 2023	FY 2024	FY 2025
Title: Anti-Personnel and Counter UAS	-	-	0.182
Description: Develop, demonstrate, and qualify the High Explosive Proximity munition for anti-personnel and counter UAS missions.			
FY 2025 Plans: Develop performance specifications, statement of work, and prepare contract vehicle for FY 2026 development award.			
FY 2024 to FY 2025 Increase/Decrease Statement: Program is a new start in FY 2025.			
Accomplishments/Planned Programs Subtotals	-	-	0.182

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

N/A

Remarks

D. Acquisition Strategy

Proposals will be requested from Industry to develop High Explosive Proximity (HEP) tactical cartridges that will meet Army Performance Specifications for anti-personnel and Counter UAS. The Government will award an Other Transaction Agreement (OTA) contract to support development and testing for the fielding of the HEP ammunition, with an option to award low-rate manufacturing.

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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 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) XT5 / 30mm Anti-Personnel and Counter UAS

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								
Performance Specification Development and Contract Prepa...									[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Contract Award																	P Spec Dev and Contract Prep				1 Contract Award															
Engineering Development																					[Redacted]				[Redacted]				[Redacted]				[Redacted]			
Safety Confirmation Testing																									[Redacted]				[Redacted]				[Redacted]			
Urgent Materiel Release (UMR)																													2 UMR				[Redacted]			
Low-Rate Initial Production																																	[Redacted]			

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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 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) XT5 / <i>30mm Anti-Personnel and Counter UAS</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Performance Specification Development and Contract Preparation	1	2025	1	2026
Contract Award	2	2026	2	2026
Engineering Development	2	2026	4	2027
Safety Confirmation Testing	2	2027	4	2027
Urgent Materiel Release (UMR)	1	2028	1	2028
Low-Rate Initial Production	1	2028	4	2028

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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 0603645A / <i>Armored System Modernization - Adv Dev</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	-	133.300	43.026	23.235	-	23.235	23.222	23.450	23.711	23.948	0.000	293.892
<i>EV7: Combat Vehicle Prototyping</i>	-	133.300	43.026	23.235	-	23.235	23.222	23.450	23.711	23.948	0.000	293.892

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Next Generation Combat Vehicle (NGCV) Army Modernization Priority. Armored System Modernization Advanced Development provides maturation of emerging Science and Technology (S&T) and industry technologies for potential integration onto ground combat vehicles. The purpose of this Program Element's (PE) funding is to demonstrate new capabilities to meet current and future military needs and to determine integration potential across the Army portfolio of ground combat vehicles by testing and evaluating a variety of technologies.

In addition to other efforts, this funding line includes \$67.1 million to support the development of control stations that are necessary for the Army Robotic Combat Vehicle (RCV) program (CF4/CF5). The projected total cost of the RCV MTA Rapid Prototyping program is \$497.8 million (then-year dollars) RDT&E from FY 2022 to FY 2027, which includes the aforementioned \$67.1 million. The remainder of the RCV MTA Rapid Prototyping program is fully funded across the Future Years Defense Program with other funding lines (CF4/CF5)

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	135.122	43.026	23.188	-	23.188
Current President's Budget	133.300	43.026	23.235	-	23.235
Total Adjustments	-1.822	0.000	0.047	-	0.047
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.822	-			
• Adjustments to Budget Years	-	-	0.047	-	0.047

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: *EV7: Combat Vehicle Prototyping*

Congressional Add: *Program Increase - Advanced Combat Engine*

Congressional Add: *Program Increase - Abrams Modernization*

	FY 2023	FY 2024
	13.030	-
	67.200	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603645A / <i>Armored System Modernization - Adv Dev</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *Program Increase - Next Generation Auxiliary Power Unit*

	FY 2023	FY 2024
Congressional Add Subtotals for Project: EV7	5.000	-
Congressional Add Subtotals for Project: EV7	85.230	-
Congressional Add Totals for all Projects	85.230	-

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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 0603645A / <i>Armored System Modernization - Adv Dev</i>				Project (Number/Name) EV7 / <i>Combat Vehicle Prototyping</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
<i>EV7: Combat Vehicle Prototyping</i>	-	133.300	43.026	23.235	-	23.235	23.222	23.450	23.711	23.948	0.000	293.892
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Armored System Modernization Advanced Development will continue the maturation of emerging ground combat vehicle capabilities to provide a bridge from S&T investment to application on a vehicle platform, informing requirements through User Evaluations, identification of capability gaps and reduction of integration risks. Maturing emerging technologies like those in Project Convergence will enable ground combat platforms to meet the Army's strategy of fielding key Modernization efforts.

The funding will support virtual and physical concept development, trade studies, technical and operational analyses to assess future concepts and designs. This would also include the support for survivability, lethality and other soldier defined system requirements. In addition, this funding will provide program management, expertise and a business process for the maturation and transition of emerging Science and Technology systems, system integration labs, technology demonstration efforts risk reduction, maturation, testing and assessment, and develop and integrate systems for Ground Combat Systems (GCS) platforms.

In addition to other efforts, this funding line includes \$67.1 million to support the development of control stations that are necessary for the Army Robotic Combat Vehicle (RCV) program (CF4/CF5). The projected total cost of the RCV MTA Rapid Prototyping program is \$497.8 million (then-year dollars) RDT&E from FY 2022 to FY 2027, which includes the aforementioned \$67.1 million. The remainder of the RCV MTA Rapid Prototyping program is fully funded across the Future Years Defense Program with other funding lines (CF4/CF5)

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

	FY 2023	FY 2024	FY 2025
Title: Government Engineering & Program Management	5.416	5.762	3.000
Description: This effort will support Program Management Office (PMO) support that will cover the costs of government and direct support contractor labor, travel, training, supplies, equipment and facilities to manage the experimental prototyping projects.			
FY 2024 Plans: This funding will support Government oversight and project management of planned efforts which will cover government salaries, contractor labor, travel, training, supplies, equipment and facilities costs.			
FY 2025 Plans: This funding will support Government oversight and project management of planned efforts which will cover government salaries, contractor labor, travel, training, supplies, equipment and facilities costs.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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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 0603645A / <i>Armored System Modernization - Adv Dev</i>	Project (Number/Name) EV7 / <i>Combat Vehicle Prototyping</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
The decrease is due to reduced project management oversight requirements.				
<p>Title: Developmental Engineering</p> <p>Description: Efforts will include the continued development and maturation of advanced technology concepts for ground combat vehicles and related support equipment.</p> <p>FY 2024 Plans: This funding will further refine Advanced Combat Powertrain (ACP) maturation, which is comprised of the Advanced Combat Engine (ACE) and the Advanced Combat Transmission (ACT), to support production by FY24. A potential transition partner for this effort is the Optionally Manned Fighting Vehicle (OMFV), but could be applied to other combat vehicle platforms. Other Developmental Engineering efforts include but are not limited to MUM-T Protected Comms, Advanced Combat Vehicle Concepts, Combat Vehicle Light-weighting, Combat Optimization for Robotic Systems, Autonomy, Integration, and Reliability (CORSAIR) (formerly named Project Origin), and other combat vehicle technology advancement efforts. These advanced development efforts will support performance analysis, trade space analysis, capabilities assessments, and hardware demonstrations to support the emerging technologies to support the Army's Modernization Strategy.</p> <p>FY 2025 Plans: This funding will further refine Advanced Combat Powertrain (ACP) maturation, which is comprised of the Advanced Combat Engine (ACE) and the Advanced Combat Transmission (ACT). A potential transition partner for this effort is the Optionally Manned Fighting Vehicle (OMFV) but could be applied to other combat vehicle platforms. Other Developmental Engineering efforts include but are not limited to MUM-T Protected Comms, Advanced Combat Vehicle Concepts, Combat Vehicle Light-weighting, Combat Optimization for Robotic Systems, Autonomy, Integration, and Reliability (CORSAIR) (formerly named Project Origin), small-scale, system-of-systems demonstration and other combat vehicle technology advancement efforts. These advanced development efforts will support performance analysis, trade space analysis, capabilities assessments, and hardware demonstrations to support the emerging technologies to support the Army's Modernization Strategy. Additionally, supports the maturation of the GCS Common Infrastructure Architecture (GCIA), Ground Vehicle Architecture Integration Laboratory (GVAIL), data architecture and the continued refinement and maturation of open architecture standards.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease is due to completion of multiple projects in FY24 and other activities moving to prototype builds and test and evaluation in FY25.</p>		29.978	9.977	5.697
<p>Title: Test & Evaluation</p> <p>Description: Test and Evaluation (T&E) activities include contractor and government testing of prototype vehicles and technologies as well as user evaluations. Testing will be conducted using United States Army test facilities.</p>		6.710	12.900	14.538

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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 0603645A / <i>Armored System Modernization - Adv Dev</i>	Project (Number/Name) EV7 / <i>Combat Vehicle Prototyping</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i> T&E efforts include but are not limited to: Combat Optimization for Robotic Systems, Autonomy, Integration, and Reliability (CORSAIR) (formerly named Project Origin) soldier assessment efforts, Advanced Combat Powertrain Maturation, Combat Vehicle Light-weighting, Tank Modernization, MUM-T Protected Comms, Aided Target Recognition (AiTR), and other emerging combat vehicle technology advancements. To assist in determining future requirements while evaluating maturation level and aid in determination of bridging S&T efforts to vehicle platforms.</p> <p><i>FY 2025 Plans:</i> T&E efforts include but are not limited to: Combat Optimization for Robotic Systems, Autonomy, Integration, and Reliability (CORSAIR) (formerly named Project Origin) soldier assessment efforts, Advanced Combat Powertrain Maturation, Combat Vehicle Light-weighting, Tank Modernization, MUM-T Protected Comms, Aided Target Recognition (AiTR), small-scale, system-of-system demonstrations and other emerging combat vehicle technology advancements to assist in determining future requirements while evaluating maturation level and aid in determination of bridging S&T efforts to vehicle platforms.</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The increase is due to additional test activities for the Advanced Combat Vehicle Concepts efforts, and other activities.</p>				
<p><i>Title:</i> Experimental Prototyping</p> <p><i>Description:</i> Experimental prototyping allows for maturation of emerging S&T and industry technologies to inform requirements, identify mitigations for capability gaps and reduce technology integration and program risks for emerging technologies. The funding will support prototyping for Advanced Combat Powertrain, Advanced Combat Vehicle Concepts and Studies, Advanced Lightweight Track, Combat Optimization for Robotic Systems, Autonomy, Integration, and Reliability (CORSAIR) (formerly named Project Origin) soldier assessment efforts and Other Technology Advancements.</p> <p><i>FY 2024 Plans:</i> This funding will support prototype design, builds, validation/verification, and maintenance for MUM-T Protected Comms, Combat Optimization for Robotic Systems, Autonomy, Integration, and Reliability (CORSAIR) Soldier Operational Experiment (SOE) (formerly named Project Origin), and Other Technology Advancement efforts.</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The decrease is due to completion of multiple projects in FY24 and the Advanced Combat Vehicle Concepts effort, and other activities moving to test and evaluation in FY25.</p>		5.966	14.387	-
Accomplishments/Planned Programs Subtotals		48.070	43.026	23.235

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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 0603645A / <i>Armored System Modernization - Adv Dev</i>	Project (Number/Name) EV7 / <i>Combat Vehicle Prototyping</i>

	FY 2023	FY 2024
Congressional Add: Program Increase - Advanced Combat Engine <i>FY 2023 Accomplishments:</i> This effort improves engine subsystem designs, optimizes performance, and funds engine units for vehicle demonstration.	13.030	-
Congressional Add: Program Increase - Abrams Modernization <i>FY 2023 Accomplishments:</i> The Congressional Add reflects an increase for Abrams Modernization efforts to include, but not limited to: Unmanned Turret, Autoloader and Automated Ammunition Handling System, Hydro-Pneumatic suspension, Integration APS, and Hybrid Electric Drive.	67.200	-
Congressional Add: Program Increase - Next Generation Auxiliary Power Unit <i>FY 2023 Accomplishments:</i> The Congressional Add of \$5M reflects an increase to evaluate integration of Hydro-Pneumatic Suspension Units onto the Abrams chassis.	5.000	-
Congressional Adds Subtotals	85.230	-

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

N/A

Remarks

D. Acquisition Strategy

These level of efforts provide the focused investment for the development and demonstration of technology and prototyping for future combat vehicles in the battlefield. The intent of this funding is to mature the next generation of technology which will enable demonstration of capabilities developed in the S&T portfolio to meet emerging military needs across the current Army portfolio of ground vehicles.

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping
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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			
Experimental Prototyping	Various	Various : Various	60.067	5.966	Jun 2023	14.387	Jun 2024	-		-		-	Continuing	Continuing	Continuing
Developmental Engineering	Various	Competing / GVSC / Various : Various	76.657	29.978	Apr 2023	9.977	Jan 2024	5.697	Jan 2025	-		5.697	0.000	122.309	-
Program Increase - Advanced Combat Engine	Various	Cummins Power Generation : Various	4.000	13.030	Apr 2023	-		-		-		-	0.000	17.030	-
Program Increase - Next Generation Auxiliary Power Unit	Various	Various : Various	-	5.000	Apr 2023	-		-		-		-	0.000	5.000	-
Program Increase - Abrams Modernization	TBD	General Dynamics / GVSC : TBD	-	67.200	Jun 2023	-		-		-		-	0.000	67.200	-
Subtotal			140.724	121.174		24.364		5.697		-		5.697	Continuing	Continuing	N/A

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			
Program Management	Various	PM/Program Executive Office/ GVSC : Warren, MI	63.957	5.416	Jan 2023	5.762	Jan 2024	3.000	Jan 2025	-		3.000	Continuing	Continuing	Continuing
Subtotal			63.957	5.416		5.762		3.000		-		3.000	Continuing	Continuing	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			
Modeling & Simulation	MIPR	Various : Various	15.769	-		-		-		-		-	Continuing	Continuing	Continuing
Test & Evaluation	Various	SAIC / GVSC / Various : Various	59.189	6.710	Jun 2023	12.900		14.538	Jun 2025	-		14.538	Continuing	Continuing	-
Subtotal			74.958	6.710		12.900		14.538		-		14.538	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 0603645A / Armored System Modernization - Adv Dev				Project (Number/Name) EV7 / Combat Vehicle Prototyping			
	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	279.639	133.300		43.026		23.235	-	23.235	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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping

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
MET-D Phase 2 Project Finish	1																											
<small>MET-D Phase 2 Project Finish</small>																												
XM913 Weapon Improvements and TDP Development																												
<small>XM913 Weapon Improvements and TDP Development</small>																												
XM913 Environmental Testing																												
<small>XM913 Environmental Testing</small>																												
Bradley Hybrid Electric Vehicle ATC Test																												
<small>Bradley Hybrid Electric Vehicle ATC Test</small>																												
Bradley Hybrid Electric Vehicle Transition Decision																												
<small>Bradley Hybrid Electric Vehicle Transition Decision</small>																												
Advanced Combat Vehicle Concepts and Studies																												
<small>Advanced Combat Vehicle Concepts and Studies</small>																												
Advanced Lightweight Track (ALWT) Development																												
<small>Advanced Lightweight Track (ALWT) Development</small>																												
Advanced Lightweight Track (ALWT) Validation Testing																												
<small>Advanced Lightweight Track (ALWT) Validation Testing</small>																												
SPHS Lightweighting Prototype Development																												
<small>SPHS Lightweighting Prototype Development</small>																												
SPHS Lightweighting Testing																												
<small>SPHS Lightweighting Testing</small>																												
High Voltage Power Controller (HVPC) Testing																												
<small>HVPC Testing</small>																												
High Voltage Power Controller (HVPC) 2nd Source Development																												
<small>HVPC 2nd Source Development</small>																												
High Voltage Power Controller 2nd Source Prototype Build																												
<small>HVPC 2nd Source Prototype Build</small>																												

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping

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
High Voltage Power Controller 2nd Source Test			■																									
High Voltage Power Controller 2nd Source Transition Decision								▲																				
Advanced Combat Powertrain Production Design Mechanical ...		■	■	■																								
Advanced Combat Powertrain Refinement						■	■	■	■	■	■	■																
Advanced Combat Powertrain Design Validation Plan	■	■																										
Advanced Combat Powertrain Design CAD		■	■																									
Advanced Combat Powertrain Field Test						■	■	■	■	■	■	■																
Abrams Lightweight Running Gear Casting Prototype			■	■																								
Abrams Lightweight Running Gear Lab Prototype							■	■																				
Abrams Lightweight Running Gear Vehicle Prototype Set											■	■																
MUM-T Manned Control Vehicles (MCV) Development	■	■																										
MUM-T Manned Control Vehicles (MCV) Prototypes	■	■	■																									
MUM-T Manned Control Vehicles (MCV) Test	■	■	■	■	■	■	■	■	■	■	■	■																

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping

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
MUM-T- Protected Comms (PCM) C5ISR Modular Open Suite of...																												
MUM-T - Protected Comms (PCM) CMOSS Prototypes Build																												
MUM-T - Protected Comms (PCM) CMOSS Prototypes Test																												
Stryker Energy Attenuating (EA) Seat Hardware Evaluation																												
Stryker Energy Attenuating (EA) Seat Transition Decision																												
AMERCA-M Prototype Build																												
AMERCA-M Design																												
AMERCA-M Build Complete																												
AMERCA-M Dynamometer Testing																												
AMERCA-M Test Site T&E																												
Tank Modernization Test																												
Soft Kill System Advancements - Countermeasure Development																												
Soft Kill System Advancements - CountermeasureTechniqu...																												

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping

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
Soft Kill System Advancements - Countermeasure Transiti...	2																											
Optionally Manned Tank (OMT) Development/Design/Modeling																												
Optionally Manned Tank (OMT) Build																												
Optionally Manned Tank (OMT) Soldier Touch Point																												
Optionally Manned Tank (OMT) Experiment																												
AiTR Phase III 3GF Test & Evaluation																												
Data Architecture Library																												
Data Architecture Model																												
CORSAIR Soldier Experiments																												
Congressional ADD Abrams Modernization																												
Congressional ADD Auxiliary Power Unit																												
Vehicle Excursion 4 – PIF Prototype Design																												
Vehicle Excursion 4 – PIF Prototype Build																												

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping	

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
Vehicle Excursion 4 – Operationally-relevant Soldier Tou...																												
Vehicle Excursion 4 – Government-owned Level II TDP																												

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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 0603645A / <i>Armored System Modernization - Adv Dev</i>	Project (Number/Name) EV7 / <i>Combat Vehicle Prototyping</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MET-D Phase 2 Build	1	2021	2	2021
MET-D Phase 2 Testing	4	2021	3	2022
MET-D Phase 2 Soldier Operational Evaluation (SOE)	4	2022	4	2022
MET-D Phase 2 Project Finish	1	2023	1	2023
XM913 Weapon Improvements and TDP Development	1	2021	3	2023
XM913 Subscale Muzzle Brake Erosion Test (30mm)	2	2022	3	2022
XM913 Environmental Testing	1	2023	3	2023
Bradley Hybrid Electric Vehicle (BHEV) Development	3	2020	3	2022
Bradley Hybrid Electric Vehicle Prototype Build/Integration	4	2021	4	2022
Bradley Hybrid Electric Vehicle ATC Test	4	2022	2	2023
Bradley Hybrid Electric Vehicle Transition Decision	2	2023	2	2023
Advanced Combat Vehicle Concepts and Studies	2	2021	3	2023
Advanced Lightweight Track (ALwT) Development	4	2021	1	2023
Advanced Lightweight Track (ALwT) Validation Testing	2	2023	4	2023
SPHS Lightweighting Prototype Development	2	2022	2	2023
SPHS Lightweighting Testing	3	2022	3	2023
High Voltage Power Controller (HVPC) Prototype	2	2021	3	2022
High Voltage Power Controller (HVPC) Testing	3	2022	3	2023
High Voltage Power Controller (HVPC) 2nd Source Development	1	2023	4	2023
High Voltage Power Controller 2nd Source Prototype Build	2	2023	3	2023
High Voltage Power Controller 2nd Source Test	3	2023	4	2023
High Voltage Power Controller 2nd Source Transition Decision	4	2024	4	2024

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping
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Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Combat Powertrain Production Design Mechanical Verification	1	2021	1	2024
Advanced Combat Powertrain Refinement	1	2024	1	2026
Advanced Combat Powertrain Design Refinement Build	2	2022	4	2022
Advanced Combat Powertrain Field Test Support and FACAR Review	3	2022	4	2022
Advanced Combat Powertrain Design Validation Plan	4	2022	2	2023
Advanced Combat Powertrain Design CAD	2	2023	3	2023
Advanced Combat Powertrain Field Test	1	2024	1	2026
Abrams Lightweight Running Gear Casting Prototype	4	2023	2	2024
Abrams Lightweight Running Gear Lab Prototype	3	2024	1	2025
Abrams Lightweight Running Gear Vehicle Prototype Set	1	2025	4	2025
MUM-T Manned Control Vehicles (MCV) Development	2	2022	3	2023
MUM-T Manned Control Vehicles (MCV) Prototypes	3	2022	4	2023
MUM-T Manned Control Vehicles (MCV) Test	4	2022	2	2025
MUM-T- Protected Comms (PCM) C5ISR Modular Open Suite of Standards (CMOSS) Dev	3	2023	2	2024
MUM-T - Protected Comms (PCM) CMOSS Prototypes Build	1	2024	1	2025
MUM-T - Protected Comms (PCM) CMOSS Prototypes Test	1	2025	3	2026
Stryker Energy Attenuating (EA) Seat Development	3	2022	4	2022
Stryker Energy Attenuating (EA) Seat Hardware Evaluation	4	2022	3	2023
Stryker Energy Attenuating (EA) Seat Transition Decision	1	2024	1	2024
AMERCA-M Prototype Build	4	2022	1	2023
AMERCA-M Design	3	2022	1	2023
AMERCA-M Track and Suspension CDR	3	2022	3	2022
AMERCA-M Powertrain CDR	3	2022	3	2022
AMERCA-M Build Complete	4	2023	4	2023
AMERCA-M Dynamometer Testing	1	2023	2	2023

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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 0603645A / Armored System Modernization - Adv Dev	Project (Number/Name) EV7 / Combat Vehicle Prototyping
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Events	Start		End	
	Quarter	Year	Quarter	Year
AMERCA-M Test Site T&E	3	2023	4	2023
Tank Modernization Design	1	2021	2	2022
Tank Modernization Build	2	2022	4	2022
Tank Modernization Test	1	2023	2	2025
Soft Kill System Advancements - Countermeasure Development	4	2022	1	2023
Soft Kill System Advancements - Countermeasure Prototype Build	4	2021	2	2022
Soft Kill System Advancements - Countermeasure Test	3	2022	3	2022
Soft Kill System Advancements - Countermeasure Techniques Test	3	2022	1	2023
Soft Kill System Advancements - Countermeasure Transition Decision	1	2023	1	2023
Optionally Manned Tank (OMT) Development/Design/Modeling	4	2021	3	2023
Optionally Manned Tank (OMT) Build	2	2022	2	2023
Optionally Manned Tank (OMT) Soldier Touch Point	2	2023	2	2023
Optionally Manned Tank (OMT) Experiment	3	2023	3	2023
AiTR Phase II SW & Algorithm Improvements	4	2020	2	2021
AiTR Phase II Test	1	2021	2	2022
AiTR Phase II Data Collection	2	2022	2	2022
AiTR Phase II Algorithm Improvement	2	2022	2	2022
AiTR Phase II Test 2	3	2022	4	2022
AiTR Phase III 3GF Test & Evaluation	1	2023	2	2024
Data Architecture Library	3	2022	1	2023
Data Architecture Model	4	2022	1	2023
CORSAIR Soldier Experiments	3	2022	4	2024
Congressional ADD Abrams Modernization	3	2023	4	2024
Congressional ADD Auxiliary Power Unit	3	2023	4	2024
Vehicle Excursion 4 - PIF Prototype Design	1	2025	2	2025

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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 0603645A / <i>Armored System Modernization - Adv Dev</i>	Project (Number/Name) EV7 / <i>Combat Vehicle Prototyping</i>

Events	Start		End	
	Quarter	Year	Quarter	Year
Vehicle Excursion 4 - PIF Prototype Build	2	2025	3	2025
Vehicle Excursion 4 - Operationally-relevant Soldier Touch Point	3	2025	4	2025
Vehicle Excursion 4 - Government-owned Level II TDP	4	2025	2	2026

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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 0603747A / <i>Soldier Support and Survivability</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	-	4.030	3.550	4.059	-	4.059	4.065	4.108	4.154	4.196	0.000	28.162
610: <i>Food Adv Development</i>	-	4.030	3.550	4.059	-	4.059	4.065	4.108	4.154	4.196	0.000	28.162

A. Mission Description and Budget Item Justification

This Program Element (PE) supports component development and prototyping for organizational equipment, improved individual clothing and equipment that enhance Soldier battlefield effectiveness, survivability, and sustainment. This PE also supports the component development and prototyping of joint service food and combat feeding equipment designed to reduce logistics burden.

B. Program Change Summary (\$ in Millions)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	4.060	3.550	4.154	-	4.154
Current President's Budget	4.030	3.550	4.059	-	4.059
Total Adjustments	-0.030	0.000	-0.095	-	-0.095
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.001	-			
• SBIR/STTR Transfer	-0.031	-			
• Adjustments to Budget Years	-	-	-0.095	-	-0.095

Change Summary Explanation

Slight reduction in cost resulting from planned lifecycle transition of efforts in Joint Service Combat Ration Advanced Development.

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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 0603747A / <i>Soldier Support and Survivability</i>				Project (Number/Name) 610 / <i>Food Adv Development</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
610: <i>Food Adv Development</i>	-	4.030	3.550	4.059	-	4.059	4.065	4.108	4.154	4.196	0.000	28.162
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for the advanced component development and prototyping of Joint Service combat ration components/platforms and field feeding equipment designed to improve warfighter performance and reduce the logistics burden of subsistence support. Efforts funded in this Project support all four Services, the Special Operations Command, and the Defense Logistics Agency. The Army serves as the Executive Agent for this Department of Defense (DoD) program, with oversight and coordination provided by the DoD Combat Feeding Research and Engineering Board as required by DoD Directive (DoDD) 3235.02E. Centralized execution of the DoD Combat Feeding Research and Engineering Program (CFREP) with Joint Service review and approval eliminates unnecessary duplication of efforts across the Services and maximizes use of common materiel solutions. Prototypes validated within this effort transition to Army Program Element 0604713A (Combat Feeding, Clothing and Equipment) / Project 548 (Mil Subsistence Sys) for System Development and Demonstration.

Work in this Project is performed by the United States Army Futures Command (AFC), U.S. Army Combat Capabilities Development Command (DEVCOM) Soldier Center (SC), Natick, MA.

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

	FY 2023	FY 2024	FY 2025
Title: Joint Service Combat Ration Advanced Development	2.176	2.661	2.098
Description: This effort matures and integrates combat ration technologies and prototypes that enable warfighter maneuver, readiness and effectiveness during highly mobile, dispersed operations. Technologies are transitioned from RDTE Budget Activity 3 projects to provide individual and group combat rations and components with improved capabilities including improved warfighter physical and cognitive performance through optimized nutrition and a reduced logistics burden through weight and cube reduction.			
FY 2024 Plans: Will perform advanced component development of calorically dense meal replacement bars, for insertion into the Meal Ready-to-Eat (MRE) and Close Combat Assault Ration (CCAR) platforms, in support of operations where resupply is limited; will perform small scale producibility studies and quality assurance testing of emerging manufacturing processes; Will perform evaluations of packaging configurations in support of reduced field feeding logistics, and supporting waste reduction efforts in operational settings; will maintain menu modernization enhancements across operational ration platform, to support the current demographic shifts, meeting emerging Warfighter preferences, improving Warfighter acceptance, and increasing nutritional intake.			
FY 2025 Plans:			

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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 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Will validate and integrate S&T innovations and Commercial Off The Shelf Non-Developmental Item (COTS/NDI) candidate items into operational ration platforms; Will identify alternate products for discontinued commercial products in the Modular Operational Ration Enhancement (MORE) Performance Pack; will perform MORE component testing to support muscle recovery; will conduct accelerated storage to verify shelf life, and evaluate Warfighter acceptability; will perform Developmental Test and Evaluation (DT&E) to establish baseline menus to meet religious menu requirements in arctic environments.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease due to planned lifecycle transition of efforts to Army Program Element 0604713A (Combat Feeding, Clothing and Equipment) / Project 548 (Mil Subsistence Sys) for Operational Test and Evaluation (OT&E).</p>			
<p>Title: Joint Service Field Feeding Equipment and Menu Development</p> <p>Description: This effort matures and integrates field feeding equipment technologies and prototypes in support of the Navy, Air Force, and Marine Corps that reduce the logistics burden, improve efficiency, and decrease operation and support costs as directed by the DoD CFREB. This effort also conducts test and evaluation (T&E) on Navy Standard Core Menu components and preparation techniques to enhance efficiency through standardization across the fleet and reduce labor requirements.</p> <p>FY 2024 Plans: Will conduct developmental T&E for insertion of refrigeration system prototypes in support of USAF Basic Expeditionary Airfield Resources (BEAR) energy conservation goals, will transition prototypes to Program Element 0604713A/Project 548 - Combat Feeding, Clothing and Equipment, for Operational Test & Evaluation (OT&E).; Will facilitate transition of Contingency Menus developed under the Navy Standard Core Menu (NSCM) to the Navy and support galley-based Limited User Evaluations.</p> <p>FY 2025 Plans: Will conduct DT&E to modernize fleet-wide foodservice operations aboard submarines, by optimizing refrigeration/storage, modernizing foodservice equipment assets, and reducing Sailor workload; Will initiate prototype fabrication of modular, scalable field feeding platforms in support of USMC Expeditionary Advance Base Operations (EABO), addressing the needs of platoon through battalion field feeding requirements; will deliver standardized Food Service Management (FSM) ready menu items in support of Navy Standard Core Menu (NSCM).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in funding to support efforts to modernize fleet-wide foodservice operations and initiation of prototypes for modular, scalable field feeding platforms.</p>	1.854	0.889	1.961
Accomplishments/Planned Programs Subtotals	4.030	3.550	4.059

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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 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• 548: <i>Mil Subsistence Sys</i>	1.509	2.223	1.583	-	1.583	1.585	1.601	1.620	1.636	0.000	11.757

Remarks

D. Acquisition Strategy

Validated prototypes will transition to System Development and Demonstration for operational test and evaluation.

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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 / 4				PE 0603747A / Soldier Support and Survivability				610 / Food Adv 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	
Combat Feeding Program Management	Allot	DEVCOM Soldier Center, Natick, MA : Natick, MA	8.431	0.456	Oct 2022	0.495	Oct 2023	0.560	Oct 2024	-		0.560	Continuing	Continuing	Continuing	
Subtotal			8.431	0.456		0.495		0.560		-		0.560	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	
Joint Service Rations and Combat Feeding Equipment	Various	Various : Various	46.431	3.176	Oct 2022	2.442	Oct 2023	2.861	Oct 2024	-		2.861	Continuing	Continuing	Continuing	
Subtotal			46.431	3.176		2.442		2.861		-		2.861	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	
Joint Service Rations and Combat Feeding Equipment	Allot	DEVCOM Soldier Center, Natick, MA : Natick, MA	1.862	0.398	Oct 2022	0.613	Oct 2023	0.638	Oct 2024	-		0.638	Continuing	Continuing	Continuing	
Subtotal			1.862	0.398		0.613		0.638		-		0.638	Continuing	Continuing	N/A	
Project Cost Totals			56.724	4.030		3.550		4.059		-		4.059	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 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</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
Evaluate individual and group ration enhancements and tr...																												
Conduct in-house T&E of optimized CCAR and transition to...																												
Provide USN w/CPI, evaluations and menu development to s...																												
Conduct in-house T&E of energy conservation technologies...																												
Conduct in-house T&E of EFK upgrades for USMC																												
Conduct T&E of food service equipment systems for USAF JAC																												
Conduct DT&E of field feeding equipment for Navy Bakery ...																												
Conduct in-house T&E of Modular Operational Ration Enhan...																												
Conduct developmental testing of field feeding equipment...																												
Conduct development of system prototypes for scalable fe...																												

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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 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate individual and group ration enhancements and transition to SDD for OT&E	1	2017	4	2029
Conduct in-house T&E of OPRATS with improved lipid quality & transition to TDPs	1	2022	4	2022
Conduct in-house T&E of EGR and transition to SDD for OT&E	1	2020	4	2022
Conduct I-H T&E of non-destructive sampling technologies for food contamination	1	2021	4	2022
Conduct in-house T&E of optimized CCAR and transition to SDD for OT&E	1	2024	4	2026
Provide USN w/CPI, evaluations and menu development to support NSCM upgrades	1	2017	4	2029
ID and evaluate advanced galley/scullery equipment for the USN	1	2017	4	2021
Conduct T&E of Galley/Scullery equipment and transition to SDD for OT&E	1	2017	4	2021
Conduct in-house T&E of JIMKE intuitive equipment and transition to SDD for OT&E	2	2019	4	2020
Conduct T&E on rapidly deployable refrigeration prototype	1	2020	4	2020
Conduct in-house T&E of mobile feeding galley and transition to SDD for OT&E	1	2019	1	2020
Award contract to fabricate IRefS prototype and conduct in-house T&E	1	2019	4	2020
Conduct in-house T&E of energy conservation technologies for BEAR Kitchens	1	2023	4	2024
Conduct in-house T&E of EFK upgrades for USMC	1	2022	4	2024
Conduct in-house T&E of expeditionary kitchen systems for shore-based Navy units	1	2020	4	2021
Conduct T&E of food service equipment systems for USAF JACKS	1	2023	4	2023
Conduct DT&E of field feeding equipment for Navy Bakery Upgrades, Transition for OT&E	1	2023	4	2023
Conduct in-house T&E of Modular Operational Ration Enhancement, Transition for OT&E	1	2025	4	2027
Conduct developmental testing of field feeding equipment for Submarine Based Upgrades, Transition for OT&E	1	2025	4	2025

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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 0603747A / <i>Soldier Support and Survivability</i>	Project (Number/Name) 610 / <i>Food Adv Development</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Conduct development of system prototypes for scalable feeding platforms, in support of USMC EABO;	1	2025	4	2026

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</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	-	72.364	65.567	90.265	-	90.265	63.649	48.625	53.954	49.333	Continuing	Continuing
907: <i>Tactical Exploitation Of National Capabilities</i>	-	14.158	17.719	52.997	-	52.997	54.500	39.136	34.490	29.675	Continuing	Continuing
BX9: <i>Tactical Intel Targeting Access Node Adv Develop</i>	-	22.767	20.872	17.856	-	17.856	7.227	7.480	17.433	17.606	Continuing	Continuing
CC5: <i>Low Earth Orbit (LEO) / Intel Surv Recon (ISR)</i>	-	35.439	26.976	19.412	-	19.412	1.922	2.009	2.031	2.052	Continuing	Continuing

Note

All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

Tactical Exploitation of National Capabilities (TENCAP) exploits national intelligence capabilities to pace evolving threats in support of operations during conflict and competition. TENCAP systems and technologies provide deep sensing to support commanders' situational understanding (patterns of life, threat intentions, etc.), indications & warnings (detection of enemy mobilization and hostile activity), and intelligence support to targeting (order of battle, electronic target folders, target detection, Battle Damage Assessment, etc.). TENCAP systems and technologies support Theater-level fires and effects. TENCAP systems enable integrated Signals Intelligence (SIGINT) / Geospatial Intelligence (GEOINT) / Electronic Warfare (EW) / and Cyberspace operations. TENCAP supports Army modernization priorities including Long Range Precision Fires, Assured Position Navigation and Timing/Space (APNT/S), Future Vertical Lift (FVL), and Air Missile Defense (AMD). In summary, TENCAP is a key enabler to defeating peer competitor Anti-Access / Area-Denial (A2/AD) strategies.

Tactical Exploitation of National Capabilities (TENCAP) accomplishes the Army's Tactical Electronic Surveillance System Advance Development by leveraging National Intelligence Community (IC) capabilities through cross-agency engineering to evaluate, enhance, prototype, and transition Intelligence, Surveillance and Reconnaissance (ISR) technologies/capabilities from the IC into Army systems and architectures. This Program Element includes three projects:

- 1) TENCAP Core project (907).
- 2) Tactical Intelligence Targeting Access Node (TITAN) (space) advanced development project (BX9).
- 3) Low Earth Orbit ISR (LEO ISR) development project (CC5).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	72.314	65.567	38.537	-	38.537
Current President's Budget	72.364	65.567	90.265	-	90.265
Total Adjustments	0.050	0.000	51.728	-	51.728
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.050	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	51.728	-	51.728

Change Summary Explanation

Increased funding due to DoD ISR Kill Chain Program Decision Memorandum direction to integrate US Space Force Space-based ISR capability and for High Altitude Platform development (HAP)/Deep Sensing (HAP /DS).

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities</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
<i>907: Tactical Exploitation Of National Capabilities</i>	-	14.158	17.719	52.997	-	52.997	54.500	39.136	34.490	29.675	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

TENCAP exploits national capabilities to pace evolving threats in support of operations during conflict and competition. TENCAP systems and technologies provide deep sensing to support commanders' situational understanding (patterns of life, threat intentions, etc.), indications & warnings (detection of enemy mobilization and hostile activity), and intelligence support to targeting (order of battle, electronic target folders, target detection, Battle Damage Assessment, etc.). TENCAP systems and technologies support Theater-level fires and effects, TENCAP systems enable integrated Signals Intelligence (SIGINT) / Electronic Warfare (EW) / and Cyberspace operations. TENCAP supports Army modernization priorities including Long Range Precision Fires, Assured Position Navigation and Timing/Space (APNT/S), and Future Vertical Lift (FVL). In summary, TENCAP is a key enabler to defeating peer competitor Anti-Access / Area-Denial (A2/AD) strategies.

The Tactical Exploitation of National Capabilities (TENCAP) office serves as the Army's centralized lead to perform National Intelligence cross-agency engineering to evaluate, enhance, prototype, and transition Intelligence, Surveillance and Reconnaissance (ISR) technologies/capabilities from the National Intelligence Community (IC) into Army systems and architectures.

TENCAP programs perform two vital functions for the Army's Warfighters: (1) ensures assured access to current and future National and Commercial sensors and supporting tactical architectures; and (2) exploits and influences new developments that focus on improving the Analysis and Tasking, Collection, Processing, Exploitation, Dissemination (TCPED) of intelligence data.

FY2025 Base funding in the amount of \$52.997 million enables systems engineering and collaborative development and prototyping on multiple National Intelligence Community (IC) advanced software and prototype developments that leverage upcoming National IC investments for Army use. This collaborative environment ensures continuous Army interoperability with National IC assets and architectures, exploits advances in commercial imagery and signal technologies, and develops prototypes that directly support the Army Warfighter. In FY25, TENCAP will begin integrating Space Force's new Space-Based ISR into the Tactical Intelligence Targeting Access Node (TITAN) Program of Record.

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

	FY 2023	FY 2024	FY 2025
Title: TENCAP Cross-agency Core Engineering activities	10.578	11.862	11.802
Description: Funds cross-agency core engineering activities using organic and matrix engineering subject matter experts (SMEs). By utilizing these SMEs, TENCAP is able to collaborate, develop and exploit emerging multi-intelligence based			

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
technologies to satisfy/accelerate Army Intelligence, Surveillance, Reconnaissance (ISR), Mission Command and Force Protection requirements.				
<p>FY 2024 Plans: Incorporate Army requirements into the earliest, most cost-effective stages of National developments; prototype capabilities to ensure Army access to sensors and multi-intelligence based capabilities; monitor National Agencies' emerging technologies and systems; exploit advances in national and commercial overhead capabilities.</p> <p>FY 2025 Plans: Incorporate Army requirements into the earliest, most cost-effective stages of National developments; prototype capabilities to ensure Army access to sensors and multi-intelligence based capabilities; monitor National Agencies' and US Space Force (USSF) emerging technologies and systems; exploit advances in national and commercial overhead capabilities.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding change is consistent with the planned lifecycle of this effort.</p>				
<p>Title: Integrate US Space Force Space-based ISR capability.</p> <p>Description: Funds the Army to integrate a classified US Space Force Capability into Army tactical ground stations in order to meet the objectives of the DoD ISR Kill Chain Program Decision Memorandum.</p> <p>FY 2025 Plans: In collaboration with USSF and classified mission partners, study and develop the architecture, prototype the software and prepare for hardware acquisition to demonstrate integration of a classified USSF Space-based ISR Capability into Army tactical ground stations.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to DoD ISR Kill Chain Program Decision Memorandum direction to integrate US Space Force Space-based ISR capability with \$10M increase in FY25.</p>		-	-	10.000
<p>Title: Air Vigilance - Advanced Development</p> <p>Description: Enhanced intelligence, force protection, and indications and warning capabilities under Army TENCAP program to pace the proliferation and rapid advances in threat and technology.</p> <p>FY 2024 Plans:</p>		2.500	4.768	30.106

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Exploit National investments and advances in Signal Intelligence (SIGINT) to ensure the Army's ability to identify and counter the rapidly evolving threat. Integrate advanced signals software into other Army prototype systems. FY 2025 Plans: Exploit National investments and advances in Signal Intelligence (SIGINT) to ensure the Army's ability to identify and counter the rapidly evolving threat. Integrate advanced signals software into other Army prototype systems. FY23-24 increase of \$2.100M for integration into other Army SIGINT programs and architecture and \$.168M as inflation increase for total of \$2.268M. FY 2024 to FY 2025 Increase/Decrease Statement: FY25 \$25.388 increase will integrate advanced signals software development into other Classified Army prototype systems.			
Title: TENCAP Radio Frequency Exploitation (TRFE) Description: Prototype capability software that informs, influences and enhances Multi-Discipline sensor systems within PEO IEW&S such as Air Vigilance (AV), to pace the threat by targeting modern digital communications systems employed by near-peer nation state militaries. Assists with Joint All-Domain Operations Radio Frequency (RF) Characterization for modern communication environments with the intent to synchronize Signal Intelligence (SIGINT), Electronic Warfare, and Cyber operations. Utilizes commercial industry components and architectures to minimize hardware costs, risk and maximizes scalability/modularity. FY 2024 Plans: FY24 funds will leverage National investments and advances in Signal Intelligence (SIGINT), Electronic Warfare and Cyber capabilities for use and advancement of Army Warfighter capabilities in a variety of form factors and pace the threat. FY 2025 Plans: FY25 funds will leverage National investments and advances in Signal Intelligence (SIGINT), Electronic Warfare and Cyber capabilities for use and advancement of Army and Joint Warfighter capabilities in a variety of form factors and pace the threat.	1.080	1.089	1.089
Accomplishments/Planned Programs Subtotals	14.158	17.719	52.997

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>
• 0605766A: <i>National Capabilities Integration (MIP)</i>	16.790	15.129	16.565	-	16.565	16.960	17.139	17.333	17.507	0.000	117.423

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>			<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• OMA - 122021: <i>Contractor Logistics Support and Other Weapon Support</i>	11.401	11.640	11.998	-	11.998	11.731	11.862	11.998	-	Continuing	Continuing

Remarks

FY25 Base OMA funding provides support to Army TENCAP capabilities and programs.

D. Acquisition Strategy

The Army Tactical Exploitation of National Capabilities (TENCAP) Core mission is Congressionally mandated. The Secretary of the Army chartered this organization to leverage National Intelligence Community (IC) capabilities for use by the tactical Army. TENCAP subject matter experts, in conjunction with Intelligence Community partners, conduct engineering, prototyping, testing and demonstrations of the Army's ability to receive and exploit next-generation National and commercial space-based intelligence, surveillance and reconnaissance (ISR) data through Army Intelligence collection systems.

End state: This is an ongoing requirement to ensure that the Army's ability to exploit National and Commercial space-based ISR, to close the deep-sensing gap in Multi-Domain operations, and to enable rapid targeting of threats.

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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 / 4				PE 0603766A / Tactical Electronic Surveillance System - Adv Dev				907 / Tactical Exploitation Of National Capabilities								
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	
TENCAP Intelligence Engineers (SETA)	C/CPPF	Intrepid : Alexandria, VA	31.846	1.500	Jan 2023	1.500	Feb 2024	1.758	Feb 2025	-		1.758	0.000	36.604	Continuing	
TENCAP Intelligence Engineers(Matrix Gov)	MIPR	Army Geospatial Cener (AGC) : Alexandria, VA	13.557	1.300	Oct 2022	1.600	Jan 2024	2.142	Jan 2025	-		2.142	0.000	18.599	-	
Subtotal			45.403	2.800		3.100		3.900		-		3.900	0.000	55.203	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	
TENCAP core mission activities	Various	Multiple : Multiple	41.681	5.544	Feb 2023	2.616	Jan 2024	5.161	Feb 2025	-		5.161	0.000	55.002	Continuing	
Air Vigilance advanced software development	MIPR	Classified : MIPR	26.751	1.800	Jan 2023	4.768	Feb 2024	30.106	Feb 2025	-		30.106	0.000	63.425	Continuing	
TENCAP Engineering (Contractor)	C/TBD	TBD : TBD	-	-		2.500	Feb 2024	1.342	Feb 2025	-		1.342	0.000	3.842	-	
TENCAP Radio Frequency Exploitation (TRFE)	MIPR	Classified : Classified	11.181	0.850	Jan 2023	1.089	Feb 2024	1.089	Feb 2025	-		1.089	0.000	14.209	-	
Space Datalink	FFRDC	MITRE : Boston, MA	-	-		0.125		0.204	Dec 2024	-		0.204	0.000	0.329	-	
Integrate USSF ISR Capability	MIPR	Classified : Classified	-	-		-		8.011	Mar 2025	-		8.011	0.000	8.011	-	
Subtotal			79.613	8.194		11.098		45.913		-		45.913	0.000	144.818	N/A	
Support (\$ 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	
TENCAP Prgm Mgmt-Dir Gov,travel,etc.	Allot	Army TENCAP : Multiple Locations	24.700	1.739	Oct 2022	1.707	Jan 2024	1.028	Jan 2025	-		1.028	0.000	29.174	Continuing	

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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 0603766A / Tactical Electronic Surveillance System - Adv Dev					Project (Number/Name) 907 / Tactical Exploitation Of National Capabilities						
Support (\$ 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
TENCAP Secured Facilities and IT support	MIPR	Army Geospatial Center (AGC) : Alexandria, VA	5.302	1.025	Nov 2022	1.210	Feb 2024	1.256	Feb 2025	-		1.256	0.000	8.793	Continuing
Subtotal			30.002	2.764		2.917		2.284		-		2.284	0.000	37.967	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
TENCAP Lab Tests, Exercises, Simulations	MIPR	Multiple : Multiple	3.431	0.400	Jan 2023	0.604	Dec 2023	0.900	Feb 2025	-		0.900	0.000	5.335	Continuing
Subtotal			3.431	0.400		0.604		0.900		-		0.900	0.000	5.335	N/A
Project Cost Totals			158.449	14.158		17.719		52.997		-		52.997	0.000	243.323	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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities</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
Core TENCAP Cross-Agency Advanced Development and Engi	Development with Nat Intel Community																											
TGOSG - annual - guides FY26-30 POM	1																											
TGOSG) - annual - guides FY27-31 POM					2																							
TGOSG) - annual - guides FY28-32 POM									3																			
TGOSG - annual - guides FY29-33 POM													4															
TGOSG - annual - guides FY30-34 POM																	5											
TGOSG - annual - guides FY31-35 POM																					6							
TGOSG - annual - guides FY32-36 POM																									7			
Air Vigilance Advanced Development/System prototype efforts																												
TRFE development and prototyping efforts																												
USSF Space-Based ISR Capability Integration																												
USSF Space-Based ISR Capability Demonstration																												

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) 907 / <i>Tactical Exploitation Of National Capabilities</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Core TENCAP Cross-Agency Advanced Development and Engineering	1	2018	4	2029
TGOSG - annual - guides FY23-27 POM	2	2021	2	2021
TGOSG - annual - guides FY24-28 POM	4	2021	4	2021
TGOSG - annual - guides FY25-29 POM	4	2022	4	2022
TGOSG - annual - guides FY26-30 POM	4	2023	4	2023
TGOSG) - annual - guides FY27-31 POM	4	2024	4	2024
TGOSG) - annual - guides FY28-32 POM	4	2025	4	2025
TGOSG - annual - guides FY29-33 POM	4	2026	4	2026
TGOSG - annual - guides FY30-34 POM	4	2027	4	2027
TGOSG - annual - guides FY31-35 POM	4	2028	4	2028
TGOSG - annual - guides FY32-36 POM	4	2029	4	2029
Air Vigilance Advanced Development/System prototype efforts	3	2013	4	2029
TRFE development and prototyping efforts	1	2018	4	2029
MDSS (realigned to PE 0604036A, Proj BY9 in FY22)	1	2021	4	2021
LEO ISR (realigned to Proj CC5 in FY22)	1	2021	4	2021
USSF Space-Based ISR Capability Integration	1	2025	4	2026
USSF Space-Based ISR Capability Demonstration	3	2026	4	2026

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>				Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</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
BX9: <i>Tactical Intel Targeting Access Node Adv Develop</i>	-	22.767	20.872	17.856	-	17.856	7.227	7.480	17.433	17.606	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

This project funds development and prototyping of space-to-ground station capabilities to provide timely assured access to National and Commercial Space-Based Intelligence, Surveillance, and Reconnaissance (ISR) sensor data supporting commanders' situational understanding (patterns of life, threat intentions, etc.), indications & warnings (detection of enemy mobilization and hostile activity), and intelligence support to targeting (order of battle, electronic target folders, target detection, Battle Damage Assessment, etc.).

Funding for TITAN Advance Development funding will also prototype software analytic capabilities to increase the speed, precision and accuracy of the intelligence cycle through Automated/Assisted Sensor-to-Shooter (S2S) workflows. These capabilities will be integrated into the TITAN Ground Station Program of Record (POR).

FY2025 base funding in the amount of \$17.856 million enables the TENCAP program to dedicate appropriate engineering support to improve the TITAN Surrogates, TITAN Pre-Prototypes, and Space Ground Component Kits (SGCK) and ensure they continues to leverage legacy and emergent National Reconnaissance (NRO) Overhead Systems (NOS) and Commercial sensors in collaboration with required systems to receive required products through planned IC architectural changes over time. The SGCK is a component of the TITAN POR that provides TITAN access to space capabilities. The SGCK consists of a mission critical small form- factor antenna, specialized software, Automated Target Recognition tools, and enhanced interoperability with the fires architecture to support the Army's Long Range Precision Fires (LRPF) priority. The SGCK, originally developed by TENCAP, was integrated into the TITAN POR in FY23 and provides, rapid availability of National Reconnaissance Office (NRO) Overhead Systems (NOS) Geospatial Intelligence (GEOINT) and Signal Intelligence (SIGINT) data from Theater, National and Commercial sources. The TITAN Surrogates and TITAN Pre-Prototypes are systems that provide risk reduction and lessons learned to improve the TITAN POR.

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

	FY 2023	FY 2024	FY 2025
Title: Tactical Intelligence Targeting Access Node (TITAN) Adv Development Prototype System	22.767	20.872	9.689
Description: Development and delivery of Space Ground Component Kits (SGCKs) to TITAN Program of Record, integration of new sensor and analytic capabilities into TITAN Pre-Prototypes and SGCKs.			
FY 2024 Plans: Improve TITAN Surrogates, TITAN (space) Pre-Prototypes, and Space Ground Component Kits (SGCK) through Pre-Planned Program Improvements (P3I) to ensure they continue to leverage legacy and emergent NOS and Commercial sensors in			

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>collaboration with required systems to receive required products through planned IC architectural changes over time. This will be accomplished by integrating planned Commercial and IC space-based sensors. Also, funding will be used to sustain TITAN Surrogates, TITAN (space) Pre-prototypes 1 and 2 delivered to units for experimentation, and SGCKs 1 and 2.</p> <p>FY 2025 Plans: Improve TITAN (space) Pre-Prototypes, TITAN Variant, and Space Ground Component Kits (SGCK) through Pre-Planned Program Improvements (P3I) to ensure they continue to leverage legacy and emergent NOS and Commercial sensors in collaboration with required systems to receive required products through planned IC architectural changes over time. This will be accomplished by integrating planned Commercial and IC space-based sensors.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY24 to FY25 (\$3.052M) is due to development and delivery of TITAN Pre-Prototypes 1, 2, and Variant to the Multi-Domain Task Forces. Decrease (\$8.167M) moved to TITAN Pre-Prototypes (TPP) Sustainment and Engineering Support, Exercises and Demonstrations accomplishment. Increase of \$.036M due to economic assumptions.</p>			
<p>Title: TITAN Pre-Prototypes (TPP) Sustainment and Engineering Support, Exercises and Demonstrations</p> <p>Description: Operations and sustainment of existing TITAN Pre-Prototypes and TITAN Variant to meet exercise and demonstration requirements.</p> <p>FY 2025 Plans: Sustainment and engineering support to TPP 1 & 2 and the TITAN variant delivered to the Multi-Domain Task Force (MDTF) units for experimentation and demonstration. This will enable continued learning for the TITAN PoR through exercise participation, soldier touchpoints, Soldier Informed Development (SID) and maturation of prototype.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY24 to FY25 for \$8.167M moved from TITAN Adv Development and Prototyping accomplishment.</p>	-	-	8.167
Accomplishments/Planned Programs Subtotals	22.767	20.872	17.856

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>
• 0605766A: <i>National Capabilities Integration (MIP)</i>	16.790	15.129	16.565	-	16.565	16.960	17.139	17.333	17.507	0.000	117.423

Remarks
BX9 development activities are conducted in concert with integration funded in PE 0605766A BV3.

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</i>

D. Acquisition Strategy

The TITAN (space) Pre-Prototype requirement was validated by the TENCAP General Officer Steering Group (TGOSG). In order to maximize agility and innovation in acquisition, TENCAP worked with the Defense Innovation Unit (DIU) to establish an Other Transaction Authority (OTA) agreement to develop the TITAN (space) Pre-Prototype and follow-on SGCK capabilities. The TITAN (space) Pre-Prototype provides a modernized, deployable, ground station capable of rapidly and semi-autonomously tasking, receiving, processing, exploiting, fusing, and disseminating space-based sensor data to provide networked situational awareness and direct tactical support to Army commanders at echelon. The TITAN (space) Pre-Prototype continues to reduce Sensor-to-Shooter (S2S) latency to allow timely intelligence support to the commander. The TITAN (space) Pre-Prototype uses an agile acquisition strategy and will continue to maximize non-proprietary / modular open system architectures (MOSA), to enable easy upgrade of software/ firmware, analytics/algorithms, and ingest additional data streams as commercial vendors and national data become available. This OTA was preceded by Soldier touchpoints to inform this acquisition, and Soldier engagement is planned throughout the development and demonstration of the TITAN (space) Pre-Prototype. The capabilities successfully demonstrated in the TITAN (space) Pre-Prototype are used to develop the SGCK that is integrated into the TITAN POR and will be improved and updated as required to ensure continued effectivity throughout planned National Overhead System Architecture changes. The capabilities and interfaces will be improved and updated as required to ensure continued effectivity throughout planned National Overhead System Architecture changes.

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</i>
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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			
TITAN Engineering Services	MIPR	Army Geospatial Center (AGC) : Alexandria, VA	1.501	1.500	Jan 2023	1.369	Jan 2024	1.733	Jan 2025	-		1.733	0.000	6.103	-
Subtotal			1.501	1.500		1.369		1.733		-		1.733	0.000	6.103	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			
TITAN (space) Pre-Prototype Development	C/CPFF	Northrup Grumman : Aurora, CA	15.504	18.102	Nov 2022	11.334	Feb 2024	7.758	Feb 2025	-		7.758	0.000	52.698	-
Subtotal			15.504	18.102		11.334		7.758		-		7.758	0.000	52.698	N/A

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			
TITAN (space) Pre-Prototype Operations and Support, Exercises and Demonstrations	MIPR	Army TENCAP : Alexandria, VA	2.001	2.150	Oct 2022	7.242	Feb 2024	8.167	Feb 2025	-		8.167	0.000	19.560	-
Subtotal			2.001	2.150		7.242		8.167		-		8.167	0.000	19.560	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			
TITAN (space) Pre-Prototype Test and Exercises	MIPR	Multiple : Miltiple	1.001	1.015	Jan 2023	0.927	Jan 2024	0.198	Feb 2025	-		0.198	0.000	3.141	-
Subtotal			1.001	1.015		0.927		0.198		-		0.198	0.000	3.141	N/A

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</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
National Overhead Systems (NOS) Integration	[Blue bar spanning all quarters from FY 2023 to FY 2029]																											
Risk Reduction w/Legacy Ground Systems	[Blue bar spanning all quarters from FY 2023 to FY 2027]																											
TITAN (space) Pre-Prototype 2 Delivery	▲1																											
TITAN Pre-Prototype Demonstrations and Assessment	[Blue bar spanning all quarters from FY 2023 to FY 2028]																											
Contract Award					▲7																							
Continued advancement for Space capabilities via exercises	[Blue bar spanning all quarters from FY 2023 to FY 2027]																											
Project Convergence 22 (Use TPP 1)	▲2																											
SCGK Delivery	[Blue bar]																											
Defender Pacific 23			▲3																									
Northern Edge 23				▲4																								
Dynamic Front 23					▲5																							
Project Convergence 24					▲6																							
Dynamic Front 24							▲9																					

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</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				
Defender Pacific 24					8																											
Northern Edge 24					10																											
Sensor to Shooter (S2S) Exercise																																
Yama Sakura 89 (S2S Exercise)					11																											
Project Convergence 25 (Technology Demonstration Exercise)					12																											
Dynamic Front 25 (S2S Exercise)					13																											
Defender Pacific 25 (S2S Exercise)					14																											
Northern Edge 25 (S2S Exercise)					15																											
Balikatan 25 (S2S Exercise)					16																											

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
National Overhead Systems (NOS) Integration	1	2021	4	2029
Risk Reduction w/Legacy Ground Systems	1	2020	4	2027
TITAN (space) Pre-Production Development	4	2020	4	2022
TITAN (space) Pre-Prototype 1 Delivery	4	2022	4	2022
TITAN (space) Pre-Prototype 2 Delivery	1	2023	1	2023
TITAN Pre-Prototype Demonstrations and Assessment	4	2022	1	2028
Contract Award	2	2024	2	2024
Continued advancement for Space capabilities via exercises	1	2022	4	2027
Defender Pacific 22	3	2022	3	2022
Northern Edge 22	3	2022	3	2022
Dynamic Front 22	4	2022	4	2022
Project Convergence 22 (Use TPP 1)	1	2023	1	2023
SCGK Delivery	2	2023	1	2024
Defender Pacific 23	3	2023	3	2023
Northern Edge 23	4	2023	4	2023
Dynamic Front 23	1	2024	1	2024
Project Convergence 24	1	2024	1	2024
Dynamic Front 24	4	2024	4	2024
Defender Pacific 24	2	2024	2	2024
Northern Edge 24	4	2024	4	2024
Sensor to Shooter (S2S) Exercise	1	2025	1	2030
Yama Sakura 89 (S2S Exercise)	1	2025	1	2025

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) BX9 / <i>Tactical Intel Targeting Access Node Adv Develop</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Project Convergence 25 (Technology Demonstration Exercise)	1	2025	1	2025
Dynamic Front 25 (S2S Exercise)	1	2025	1	2025
Defender Pacific 25 (S2S Exercise)	2	2025	2	2025
Northern Edge 25 (S2S Exercise)	4	2025	4	2025
Balikatan 25 (S2S Exercise)	4	2025	4	2025

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>				Project (Number/Name) CC5 / <i>Low Earth Orbit (LEO) / Intel Surv Recon (ISR)</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
CC5: <i>Low Earth Orbit (LEO) / Intel Surv Recon (ISR)</i>	-	35.439	26.976	19.412	-	19.412	1.922	2.009	2.031	2.052	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

Low Earth Orbit (LEO) Intelligence, Surveillance and Reconnaissance (ISR) directly supports the Army Assured Position Navigation and Timing/Space (APNT/S) and Long Range Precision Fires (LRPF) modernization priorities.

The LEO ISR effort will provide prototyping, development, and experimentation of High Altitude and Tactical Space Layer (TSL) sensors (including electro optical, synthetic aperture radar, radio frequency, and hyperspectral) and space-based Alternative Positioning, Navigation, and Timing (ALTPNT) systems, which are designed to provide wide-area, responsive, all domain sensing and alternative signal sources required for beyond-line-of-sight (BLOS) targeting and force maneuver. The BLOS sensing will significantly reduce Sensor-to-Shooter (S2S) timelines and reliance on current, at-risk signal sources. Follow-on, persistent, prototype, tactical sensor and alternative signal capabilities will be integrated with the Army Tactical Intelligence Targeting Access Node (TITAN) ground station and theater gateways. The prototype sensor capabilities will provide direct tasking, assured access, and freedom of maneuver directly supporting live-fire, S2S demonstrations and assessments.

FY2025 Base funding in the amount of \$19.412 million provides prototyping, experimentation, and risk reduction activities to space-based sensor and ALTPNT prototype systems, supporting wide-area, responsive, and deep-area sensing and force maneuver. It will enable ground stations to dynamically task, receive and disseminate data to directly support live-fire S2S demonstrations and assessments.

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

	FY 2023	FY 2024	FY 2025
Title: CC5 / Low Earth Orbit (LEO) Intel Surv Recon (ISR)	35.439	26.976	19.412
Description: The LEO ISR effort provides prototyping, development and experimentation of Tactical Space Layer (TSL) prototype sensors (including electro-optical, synthetic aperture radar, and radio frequency). These sensors are designed to provide wide-area, responsive, all domain sensing required for beyond-line-of-sight (BLOS) targeting and force maneuver, and will significantly reduce Sensor-to-Shooter (S2S) timelines. Follow-on persistent prototype tactical sensor capabilities will be integrated with the Army TITAN ground station and theater gateways, which will provide direct tasking and assured access directly supporting live-fire S2S demonstrations and assessments.			
FY 2024 Plans:			

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) CC5 / <i>Low Earth Orbit (LEO) / Intel Surv Recon (ISR)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Funding provides for follow-on development, experimentation and support of prototype High Altitude and Tactical Space Layer sensor test beds (electro optical, synthetic aperture radar, radio frequency, and hyperspectral) and space-based Alternative Positioning, Navigation, and Timing (ALTPNT) systems, which will be integrated with the Army TITAN ground station and theater gateways to provide direct tasking and assured access directly supporting live-fire S2S demonstrations and assessments and Project Convergence events.</p> <p>FY 2025 Plans: FY2025 Base funding in the amount of \$19.412 million provides prototyping, experimentation, and risk reduction activities to space-based sensor and ALTPNT prototype systems, supporting wide-area, responsive, and all domain sensing and force maneuver. It will enable ground stations to dynamically task, receive and disseminate data to directly support live-fire S2S demonstrations and assessments.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease of \$7.603 due to completion of Tactical Space Layer sensor prototyping. FY25 increase \$.039M due to economic assumptions.</p>			
Accomplishments/Planned Programs Subtotals	35.439	26.976	19.412

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>
• 0604035A: <i>Low Earth Orbit (LEO) Satellite Capability</i>	34.213	38.851	21.935	-	21.935	17.350	17.522	17.775	21.082	Continuing	Continuing

Remarks
Development by Project CC5 "LEO ISR" are in conjunction and complement efforts funded by Project BX7 "LEO Satellite Capability." ref. PE 0604035A.BX7

D. Acquisition Strategy
The LEO ISR effort supports work with the Intelligence Community (IC), our Mission Partner, and the Space Development Agency on the prototyping, development, experimentation and support of High Altitude and Tactical Space Layer (TSL) prototype sensors (including electro optical, synthetic aperture radar, radio frequency, and hyperspectral), and Alternative Positioning, Navigation, and Timing (ALTPNT) systems. These sensors are designed to provide wide-area, responsive, all domain sensing required for BLOS targeting and force maneuver, significantly reducing S2S timelines. Follow-on, persistent, prototype tactical sensor capabilities (FY 2024-2025) will be integrated with the Army TITAN ground station and theater gateways, which will provide direct tasking, assured access, and freedom of maneuver directly supporting live-fire S2S demonstrations and assessments. Existing Mission Partner contracts and Aviation & Missile Technology Consortium (AMTC) Other Transaction Authority (OTAs) will be used for prototype development, engineering services and test and evaluation support.

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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 / 4				PE 0603766A / Tactical Electronic Surveillance System - Adv Dev				CC5 / Low Earth Orbit (LEO) / Intel Surveillance Recon (ISR)							
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
LEO Prototype Development and Engineering Services Support	C/CPFF	A-PNT /S : Multiple Locations	5.000	4.000	Jun 2023	3.000	Jun 2024	2.500	Jun 2025	-		2.500	0.000	14.500	-
Subtotal			5.000	4.000		3.000		2.500		-		2.500	0.000	14.500	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
LEO Development (Classified)	MIPR	TBD : TBD	58.598	26.939	Jan 2023	20.576	Jan 2024	14.612	Jan 2025	-		14.612	0.000	120.725	-
Subtotal			58.598	26.939		20.576		14.612		-		14.612	0.000	120.725	N/A
Support (\$ 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
LEO Program MGMT	Various	APNT CFT/S : Huntsville, AL	3.500	2.500	Jun 2023	1.900	Jun 2024	1.000	Jun 2025	-		1.000	0.000	8.900	-
Subtotal			3.500	2.500		1.900		1.000		-		1.000	0.000	8.900	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
LEO Prototype Tests and Evaluations	Various	Multiple : Multiple	8.000	2.000	Jan 2023	1.500	Jan 2024	1.300	Jan 2025	-		1.300	0.000	12.800	-
Subtotal			8.000	2.000		1.500		1.300		-		1.300	0.000	12.800	N/A

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) CC5 / <i>Low Earth Orbit (LEO) / Intel Sur Recon (ISR)</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
CC5 / Low Earth Orbit (LEO) / Intel Sur Recon (ISR)	prototyping, development, and experimentation																											

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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 0603766A / <i>Tactical Electronic Surveillance System - Adv Dev</i>	Project (Number/Name) CC5 / <i>Low Earth Orbit (LEO) / Intel Sur Recon (ISR)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Sensor-to-Shooter Campaign of Learning	1	2022	4	2022
CC5 / Low Earth Orbit (LEO) / Intel Sur Recon (ISR)	1	2022	4	2029

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

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603774A / Night Vision Systems Advanced Development
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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	-	96.819	73.675	64.113	-	64.113	50.097	14.919	76.718	51.468	Continuing	Continuing
BQ5: Visual Augmentation System Advanced Development	-	68.153	67.935	58.592	-	58.592	44.459	9.222	70.958	45.650	Continuing	Continuing
VT7: Soldier Maneuver Sensors - Adv Dev	-	26.696	3.729	3.507	-	3.507	3.622	3.660	3.700	3.737	Continuing	Continuing
VT8: SOLDIER PRECISION TARGETING DEVICES - ADV DEV	-	1.970	2.011	2.014	-	2.014	2.016	2.037	2.060	2.081	Continuing	Continuing

A. Mission Description and Budget Item Justification

A portion of this funding line is directly aligned to the Army Soldier Lethality Modernization Priority in support of situational awareness for the Close Combat Soldier. This Program Element focuses on efforts to evaluate and integrate technologies and representative prototype systems that facilitate the development of Soldier-borne sensor devices transitioning from the laboratory to operational use. Efforts focus on proving out commonality across as broad a spectrum of users as possible to provide enhanced Soldier products, giving them superiority on the battlefield.

Project BQ5 (Visual Augmentation System-Advanced Development) This project evaluates and integrates technologies and representative prototype systems transitioning from the Science and Technology (S&T) stage. It focuses on developing the next generation augmented vision and situational awareness system that provides the Soldier with the ability to fight, rehearse, train and win during multi-domain operations. Funded efforts will accelerate the development of components, terrain shared coordinate data and processing, algorithms including machine learning/artificial intelligence and demonstrations in support of the next generation augmented vision and situational awareness system. Efforts will provide rapid decision making and passive targeting capabilities with the integration of external video and data sources such as weapon sights, air and ground vehicles and other data sources enabled by tactical cloud package and advanced network services. This project will provide data driven analytics to optimize unit performance and enhance lethality and to enable Synthetic Training Environment (STE) squad capability to perform live mixed reality training and rehearsing. This project includes costs for efforts associated with movement of information and high-level processing, integration, and interface of products with the Soldiers' head, body, weapon, and platforms. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy. This project supports the Soldier Lethality Cross Functional Team.

The total cost of the Integrated Visual Augmentation 1.2 Rapid Prototyping Middle Tier of Acquisition effort is \$314.0 million RDT&E from FY22 to FY25. The remainder of the IVAS 1.2 Rapid Prototyping MTA is fully funded across the Future Years Defense Program.

Project VT7 (Soldier Maneuver Sensors-Advanced Development) project enables development of emerging capabilities for the maneuver force, that are envisioned by the Soldier Lethality Cross Functional Team, the Maneuver Center of Excellence (MCoE), the Maneuver Capabilities Development Integration Directorate (MCDID), the Science and Technology (S&T) community, industry partners or the acquisition workforce that may provide the Soldier or Squad increased capability to "fight, win and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603774A / <i>Night Vision Systems Advanced Development</i>
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survive, day and night, in a multi- domain environment now and tomorrow". This project also allows pursuit of technology breakthroughs that challenge current technical solutions and have the potential for providing increased Soldier performance. This effort focuses on capabilities that enable modernization of Soldier sensor and laser devices, including digital features and enhanced solutions including maneuver capabilities to detect, recognize and identify targets, and to provide target acquisition and handoff but not limited to capabilities to mitigate threats. The integration of higher performing multi-spectral sensors with smart processing will provide adjusted weapon sight reticles and leverage network connectivity for improved situational awareness/understanding. Additional project capabilities include advanced optical components and assemblies and techniques for signature management, resiliency across the electromagnetic spectrum, and integration of a modular design structure for target acquisition applications including support for wireless data transfer, passive range determination, technologies for working in a global positioning system (GPS) contested environment, advanced GPS replacement technologies and mitigation of manned and unmanned threat sensor systems. This project supports efforts to evaluate and integrate technologies and representative prototype systems including Micro Electronics Modules (MEMS) technology with improved size, weight and power for development of modernized Soldier sensor capabilities transitioning from the S&T stage to operational use. This project includes costs for efforts associated with development, certification, verification and validation of interface products into the Adaptive Squad Architecture (ASA). This project also includes development of tools and emulators of ASA components. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

Project VT8 (Soldier Precision Targeting Devices - Advanced Development) enables development of emerging technologies for the Fires community, that are envisioned by the Fires Center of Excellence (FCoE), the Fires Capabilities Development and Integration Directorate (FCDID), the Science and Technology (S&T) community, industry partners and the acquisition workforce that provide the Fire Support Soldier increased capability and reduced weight to improve operational effectiveness. This project focuses on developing component technologies and representative prototype systems for Soldier portable precision targeting devices to continue improvements to system performance while reducing size, weight, and power required by those systems. The effort will consider emerging Micro-Electronic Modules (MEMs) technologies for improved efficiency and performance. Efforts will improve the Soldier's ability to precisely locate and laser designate targets across a broader range of operating environments, including all weather conditions and in GPS-contested environments using active and passive methods and technologies. Component technology development will precede integration into specific systems and will include improved Precision Azimuth and Vertical Angle Measurement (PAVAM) devices; solid-state, improved lasers for range finding/designation/markings; novel passive target acquisition methods; electro-optical sensors such as infrared, near-infrared, ultra-violet, and visible spectrum imagers; sensor and data fusion; laser designator spot detection and imaging; integration of advanced power management technologies, and GPS M-Code receivers. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603774A / <i>Night Vision Systems Advanced Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	97.478	73.675	34.683	-	34.683
Current President's Budget	96.819	73.675	64.113	-	64.113
Total Adjustments	-0.659	0.000	29.430	-	29.430
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	-			
• SBIR/STTR Transfer	-0.658	-			
• Adjustments to Budget Years	-	-	29.430	-	29.430

Change Summary Explanation

The funding increase reflects the realignment of resources from PE 0604710A / Night Vision Systems, Project BQ6/ Visual Augmentation System Engineering Development (6.5) to support IVAS modernization cycle within the Night Vision Systems 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 0603774A / <i>Night Vision Systems Advanced Development</i>				Project (Number/Name) BQ5 / <i>Visual Augmentation System Advanced Development</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
BQ5: <i>Visual Augmentation System Advanced Development</i>	-	68.153	67.935	58.592	-	58.592	44.459	9.222	70.958	45.650	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project evaluates and integrates technologies and representative prototype systems transitioning from the Science and Technology (S&T) stage. It focuses on developing the next generation augmented vision and situational awareness system that provides the Soldier with the ability to fight, rehearse, train and win during multi-domain operations. Funded efforts will accelerate the development of components, terrain shared coordinate data and processing, algorithms including machine learning/artificial intelligence and demonstrations in support of the next generation augmented vision and situational awareness system. Efforts will provide rapid decision making and passive targeting capabilities with the integration of external video and data sources such as weapon sights, air and ground vehicles and other data sources enabled by tactical cloud package and advanced network services. This project will provide data driven analytics to optimize unit performance and enhance lethality and to enable Synthetic Training Environment (STE) squad capability to perform live mixed reality training and rehearsing. This project includes costs for efforts associated with movement of information and high-level processing, integration, and interface of products with the Soldiers' head, body, weapon, and platforms. Funding in this project aligns with the Army's priorities in support of the National Defense Strategy. This project supports the Soldier Lethality Cross Functional Team.

The total cost of the Integrated Visual Augmentation 1.2 Rapid Prototyping Middle Tier of Acquisition effort is \$314.0 million RDT&E from FY22 to FY25. The remainder of the IVAS 1.2 Rapid Prototyping MTA is fully funded across the Future Years Defense Program.

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

	FY 2023	FY 2024	FY 2025
Title: Heads Up Display (HUD)	68.153	67.935	58.592
Description: Integrated Visual Augmentation System (IVAS) HUD provides a multiple generation single platform for Soldier to fight, rehearse, and train in day and night that provides increased lethality, mobility, and situational awareness necessary to achieve overmatch against our current and future adversaries.			
FY 2024 Plans: Improve HUD design by integrating improved sensors and updating hardware components and software into IVAS 1.2. Improve thermal and low light sensors, develop AI data integration, improve IVAS extensibility, improve form factor, and reliability, reduce weight and develop applications.			
FY 2025 Plans:			

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) BQ5 / <i>Visual Augmentation System Advanced Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Continue improvements to HUD design by integrating improved sensors and updating hardware components and software into IVAS. Improve thermal and low light sensors, develop Artificial Intelligence (AI) data integration, improve IVAS extensibility, improve form factor, improve reliability, reduce weight, and develop applications.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2025 decrease in funding reflects improved components transitioning to system level integration and test.			
Accomplishments/Planned Programs Subtotals	68.153	67.935	58.592

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
• K36402: <i>IVAS/Heads Up Display</i>	-	89.451	255.491	-	255.491	-	-	-	-	Continuing	Continuing
• BQ6: <i>Visual Augmentation System Eng Dev</i>	66.782	7.973	39.183	-	39.183	45.371	81.675	21.066	47.396	Continuing	Continuing

Remarks

D. Acquisition Strategy

This project utilizes competitively awarded contracts using best value source selection procedures.

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) BQ5 / <i>Visual Augmentation System Advanced Development</i>
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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			
Program Management	MIPR	Various : Various	2.758	3.249	Nov 2023	5.349	Nov 2023	1.346	Nov 2024	-		1.346	Continuing	Continuing	Continuing
Subtotal			2.758	3.249		5.349		1.346		-		1.346	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			
Heads Up Display (HUD)	C/FFP	Microsoft : Redmond, WA	233.274	62.794	Sep 2023	44.598	Mar 2024	-		-		-	0.000	340.666	-
Heads Up Display (HUD)	TBD	To Be Determined : To Be Determined	9.577	-		13.658	Mar 2024	53.046	Mar 2025	-		53.046	Continuing	Continuing	Continuing
Vehicle Integration	MIPR	Various : Huntsville, AL	-	2.110	Nov 2023	0.540	Mar 2024	0.540	Mar 2025	-		0.540	Continuing	Continuing	Continuing
Subtotal			242.851	64.904		58.796		53.586		-		53.586	Continuing	Continuing	N/A

Remarks
 The decrease between FY 2024 and FY 2025 in Heads Up Display Microsoft is because we are not using FY 2025 6.4 funds towards the 1.2 effort. The increase between FY 2024 and FY2025 in Heads Up Display TBD is because FY 2025 starts development of IVAS Next and other component maturation leading towards IVAS Next.

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			
Systems, Test and Evaluation	TBD	Various : Various	1.657	-		3.790	Mar 2024	3.660	Mar 2025	-		3.660	0.000	9.107	-
Subtotal			1.657	-		3.790		3.660		-		3.660	0.000	9.107	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			247.266	68.153	67.935	58.592	-	58.592	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 0603774A / <i>Night Vision Systems Advanced Development</i>			Project (Number/Name) BQ5 / <i>Visual Augmentation System Advanced Development</i>				
	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
Some cost categories include multiple efforts, so award date is the last scheduled award date.

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) BQ5 / <i>Visual Augmentation System Advanced Development</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
1.2 Tech Insertion	[Redacted]				[Redacted]																							
HUD and System Improvements/Extensibility	[Redacted]				[Redacted]				Development				[Redacted]				[Redacted]				[Redacted]							
Platform Integration	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) BQ5 / <i>Visual Augmentation System Advanced Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
1.2 Tech Insertion	1	2023	2	2024
HUD and System Improvements/Extensibility	1	2025	4	2029
Platform Integration	2	2023	4	2029

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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 0603774A / <i>Night Vision Systems Advanced Development</i>				Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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
VT7: <i>Soldier Maneuver Sensors - Adv Dev</i>	-	26.696	3.729	3.507	-	3.507	3.622	3.660	3.700	3.737	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables development of emerging capabilities for the maneuver force, that are envisioned by the Soldier Lethality Cross Functional Team, the Maneuver Center of Excellence (MCoE), the Maneuver Capabilities Development Integration Directorate (MCDID), the Science and Technology (S&T) community, industry partners or the acquisition workforce that may provide the Soldier or Squad increased capability to "fight, win and survive, day and night, in a multi-domain environment now and tomorrow". This project also allows pursuit of technology breakthroughs that challenge current technical solutions and have the potential for providing increased Soldier performance. This effort focuses on capabilities that enable modernization of Soldier sensor and laser devices, including digital features and enhanced solutions including maneuver capabilities to detect, recognize and identify targets, and to provide target acquisition and handoff but not limited to capabilities to mitigate threats. The integration of higher performing multi-spectral sensors with smart processing will provide adjusted weapon sight reticles and leverage network connectivity for improved situational awareness/understanding. Additional project capabilities include advanced optical components and assemblies and techniques for signature management, resiliency across the electromagnetic spectrum, and integration of a modular design structure for target acquisition applications including support for wireless data transfer, passive range determination, technologies for working in a global positioning system (GPS) contested environment, advanced GPS replacement technologies and mitigation of manned and unmanned threat sensor systems. This project supports efforts to evaluate and integrate technologies and representative prototype systems including Micro Electronics Modules (MEMS) technology with improved size, weight and power for development of modernized Soldier sensor capabilities transitioning from the S&T stage to operational use. This project includes costs for efforts associated with development, certification, verification and validation of interface products into the Adaptive Squad Architecture (ASA). This project also includes development of tools and emulators of ASA components. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

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

Title: Soldier Enhanced Sensing Capabilities	FY 2023	FY 2024	FY 2025
Description: Soldier Enhanced Sensing Capabilities provides the next generation vision capabilities for day and night that will reduce the Soldier's burden and allow hands free operation. Soldier Enhanced Sensing Capabilities will provide automatic adjustment of imagery and matched sensor fields of view. This effort will further enhance day/night Rapid Target Acquisition (RTA) capabilities by ensuring goggle connectivity to weapon sights, and improved situational capabilities by enabling day/night data display on the Soldier Warrior End User Device/Computer (EUD) and Soldier Borne Sensor systems. The goggle interface will be compatible with Integrated Visual Augmentation System (IVAS) displays. This effort considers methods for obtaining range estimates without the use of active laser devices and extends the ability to send/receive data to the EUD to support advanced EUD applications by processing of sensor video, integrating it with external data sources, and producing advanced processed imagery with overlay data display. This effort will review and consider improved antenna designs and placement to maximize	26.696	3.729	3.507

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>efficiencies of wireless communications. This effort will further work to reduce size, weight and power of sensor and laser components including consideration of MEMS technology and considers IVAS successes to explore integrated digital, low profile, conformal day/night displays. This effort considers alternatives to potentially replace or augmenting the aging fleet of fielded night vision devices with a digital Near-Infrared (NIR) device, a peripheral overlay device, a bi-focal lens vision device, an adjustable objective lens, a wide field of view device and/or a white phosphor night vision device.</p> <p>FY 2024 Plans: Continue development and integration of Augmented Reality (AR), Artificial Intelligence (AI) and Machine Learning (ML) as they relate to Soldier Maneuver platforms. Integrate and analyze benefits versus size, weight and power impacts of emerging RTI technologies that immerse the individual Soldier in the Digital Battlefield.</p> <p>FY 2025 Plans: Continue development and integration of Augmented Reality (AR), Artificial Intelligence (AI) and Machine Learning (ML) as they relate to Soldier Maneuver platforms. Integrate and analyze benefits versus size, weight and power impacts of emerging RTI technologies that immerse the individual Soldier in the Digital Battlefield.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in FY2024 to FY2025 is due to reduced efforts in low power/low light technology development.</p>			
Accomplishments/Planned Programs Subtotals	26.696	3.729	3.507

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
• L67: <i>Soldier Night Vision Devices</i>	2.881	6.061	12.140	-	12.140	5.585	5.644	5.706	5.763	Continuing	Continuing
• K22002: <i>FWS-INDIVIDUAL</i>	156.649	129.807	144.152	-	144.152	93.710	92.622	92.062	92.976	0.000	801.978
• K22003: <i>FWS-CREW SERVED</i>	23.831	42.649	50.044	-	50.044	-	-	45.791	46.249	Continuing	Continuing
• K22004: <i>FWS-SNIPER</i>	18.668	13.178	13.156	-	13.156	12.885	13.149	13.371	13.505	Continuing	Continuing
• B53800: <i>Laser Target Locator Systems</i>	34.229	21.539	21.660	-	21.660	2.755	2.780	21.439	21.654	Continuing	Continuing
• K35110: <i>Small Tactical Optical Rifle Mounted MLRF</i>	11.357	15.484	10.864	-	10.864	2.166	1.562	11.078	11.188	Continuing	Continuing
• K36402: <i>IVAS/Heads Up Display</i>	-	89.451	255.491	-	255.491	-	-	-	-	Continuing	Continuing
• BQ5: <i>Visual Augmentation System Advanced Development</i>	68.153	67.935	58.592	-	58.592	44.459	9.222	70.958	45.650	Continuing	Continuing

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>			<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• BQ6: <i>Visual Augmentation System Eng Dev</i>	66.782	7.973	39.183	-	39.183	45.371	81.675	21.066	47.396	Continuing	Continuing
• K36400: <i>Helmet Mounted Enhanced Vision Devices</i>	358.140	30.153	100.292	-	100.292	-	-	-	-	0.000	488.585

Remarks

D. Acquisition Strategy

The various developmental programs in this project continue to exercise competitively awarded contracts using best value source selection procedures.

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</i>
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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			
Program Management	MIPR	Various : Various	1.698	0.713	Apr 2023	0.360	Dec 2023	0.381	Dec 2024	-		0.381	Continuing	Continuing	-
Subtotal			1.698	0.713		0.360		0.381		-		0.381	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			
Soldier Enhanced Sensing Capabilities	MIPR	Various : Various	10.354	25.508	Aug 2023	3.214	Jan 2023	2.966	Jan 2025	-		2.966	Continuing	Continuing	-
Subtotal			10.354	25.508		3.214		2.966		-		2.966	Continuing	Continuing	N/A

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			
Matrix Support	MIPR	C5ISR (RTI) : FT BELVOIR, VA	2.013	0.475	Jul 2023	0.155	Dec 2023	0.160	Dec 2024	-		0.160	Continuing	Continuing	-
Subtotal			2.013	0.475		0.155		0.160		-		0.160	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	14.065	26.696	3.729	3.507	-	3.507	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 0603774A / <i>Night Vision Systems Advanced Development</i>		Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</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
Soldier Enhanced Sensing Capabilities																												
	Development																											

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT7 / <i>Soldier Maneuver Sensors - Adv Dev</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Soldier Enhanced Sensing Capabilities	1	2019	4	2029

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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 0603774A / <i>Night Vision Systems Advanced Development</i>				Project (Number/Name) VT8 / <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</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
VT8: <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</i>	-	1.970	2.011	2.014	-	2.014	2.016	2.037	2.060	2.081	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables development of emerging technologies for the Fires community, that are envisioned by the Fires Center of Excellence (FCoE), the Fires Capabilities Development and Integration Directorate (FCDID), the Science and Technology (S&T) community, industry partners and the acquisition workforce that provide the Fire Support Soldier increased capability and reduced weight to improve operational effectiveness. This project focuses on developing component technologies and representative prototype systems for Soldier portable precision targeting devices to continue improvements to system performance while reducing size, weight, and power required by those systems. The effort will consider emerging Micro-Electronic Modules (MEMs) technologies for improved efficiency and performance. Efforts will improve the Soldier's ability to precisely locate and laser designate targets across a broader range of operating environments, including all weather conditions and in GPS-contested environments using active and passive methods and technologies. Component technology development will precede integration into specific systems and will include improved Precision Azimuth and Vertical Angle Measurement (PAVAM) devices; solid-state, improved lasers for range finding/designation/marketing; novel passive target acquisition methods; electro-optical sensors such as infrared, near-infrared, ultra-violet, and visible spectrum imagers; sensor and data fusion; laser designator spot detection and imaging; integration of advanced power management technologies, and GPS military-code (M-Code) receivers. Funding in this project aligns with Army's priorities in support of the National Defense Strategy.

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

	FY 2023	FY 2024	FY 2025
Title: Precision Pointing and Navigation Component Development	1.970	2.011	2.014
Description: This project supports development of advanced components and prototype systems for Soldier-borne precision targeting devices. Dismounted Soldiers will have the capability to rapidly acquire, accurately locate, positively identify, and precisely designate targets and battlefield threats 24/7, across a broader range of operating environments such as in all weather conditions, in GPS-contested conditions using active and passive methodologies and technologies.			
FY 2024 Plans: FY 2024 resources will continue the development and initiate testing of component technologies and mature sub-system integration for PAVAM devices to achieve reduced size, weight and power. These resources will also continue to develop technologies that allow precision targeting systems to operate in GPS-contested environments.			
FY 2025 Plans:			

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT8 / <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 resources will continue the development and initiate testing of component technologies and mature sub-system integration for PAVAM devices to achieve reduced size, weight and power. These resources will also continue to develop technologies that allow precision targeting systems to operate in GPS-contested environments.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.			
Accomplishments/Planned Programs Subtotals	1.970	2.011	2.014

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
• L79: <i>Joint Effects Targeting Systems (JETS)</i>	11.401	24.165	20.013	-	20.013	6.499	5.912	5.977	6.037	0.000	80.004
• K32101: <i>JOINT EFFECTS TARGETING SYSTEM (JETS)</i>	2.576	8.932	9.345	-	9.345	69.134	69.802	69.867	70.560	0.000	300.216

Remarks

D. Acquisition Strategy

The various developmental programs in this project continue to exercise competitively awarded contracts using best value source selection procedures.

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT8 / <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</i>
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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			
Program Management	MIPR	Various : Various	0.356	0.191	May 2023	0.244	Dec 2023	0.251	Dec 2024	-		0.251	Continuing	Continuing	-
Subtotal			0.356	0.191		0.244		0.251		-		0.251	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			
Precision Pointing and Navigation	C/FFP	Various : Various	5.327	1.436	Sep 2023	1.491	Jan 2024	1.483	Mar 2025	-		1.483	Continuing	Continuing	-
Subtotal			5.327	1.436		1.491		1.483		-		1.483	Continuing	Continuing	N/A

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			
Matrix Support	MIPR	C5ISR (RTI) : Ft. Belvoir, VA 22060	0.136	0.042	Apr 2023	0.026	Dec 2023	0.030	Dec 2024	-		0.030	Continuing	Continuing	-
Science and Engineering Support	SS/CPFF	Johns Hopkins University : Laurel, MD	0.700	0.250	Sep 2023	0.250	Jan 2024	0.250	Jan 2025	-		0.250	Continuing	Continuing	-
Subtotal			0.836	0.292		0.276		0.280		-		0.280	Continuing	Continuing	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			
Government Testing	MIPR	Various : Various	-	0.051	May 2023	-		-		-		-	0.000	0.051	-
Subtotal			-	0.051		-		-		-		-	0.000	0.051	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 0603774A / <i>Night Vision Systems Advanced Development</i>				Project (Number/Name) VT8 / <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</i>				
	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	6.519	1.970	2.011		2.014	-	2.014	Continuing	Continuing	N/A	

Remarks
 Cost elements may contain multiple awards. In such cases, the latest award date is listed.

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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 0603774A / <i>Night Vision Systems Advanced Development</i>		Project (Number/Name) VT8 / <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</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
Precision Pointing and Navigation Development																												

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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 0603774A / <i>Night Vision Systems Advanced Development</i>	Project (Number/Name) VT8 / <i>SOLDIER PRECISION TARGETING DEVICES - ADV DEV</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Precision Pointing and Navigation Development	3	2020	4	2030

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

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603779A / Environmental Quality Technology - Dem/Val
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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	-	75.614	31.720	34.091	-	34.091	24.272	23.859	24.118	24.345	0.000	238.019
035: National Defense Cntr For Enviro Excellence	-	6.423	6.204	7.787	-	7.787	7.859	7.927	8.004	8.069	0.000	52.273
DH6: Installation Resilience	-	-	3.013	3.023	-	3.023	2.017	2.019	2.021	2.041	0.000	14.134
E21: Environmental Quality Technology Dem/Val	-	69.191	22.503	23.281	-	23.281	14.396	13.913	14.093	14.235	0.000	171.612

A. Mission Description and Budget Item Justification

There is broad potential application for environmental quality technology (EQT) to be applied to multiple Army weapon systems and installations. However, technology must be demonstrated and validated (total ownership cost and performance data identified) before potential users will consider exploiting it. This Program Element (PE) includes Projects focused on validating the general military utility or cost reduction potential of technology when applied to different types of infrastructure, military equipment or techniques. It may include validations and proof-of-principle demonstrations in field exercises to evaluate upgrades or provide new operational capabilities. The validation of technologies will be in as realistic an operating environment as possible to assess performance or cost reduction potential. EQT demonstration/validation is systemic and applicable across Department of Army sites and installation problems (e.g. unexploded ordnance detection and discrimination). This PE supports the Army's top modernization priorities by addressing potential obsolescence of legacy materials and current and emerging impacts on human health and the environment. All work is endorsed by potential users and supported by a state-of-the-art assessment to determine when the technology can transition to the user for implementation.

B. Program Change Summary (\$ in Millions)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	76.749	31.720	26.880	-	26.880
Current President's Budget	75.614	31.720	34.091	-	34.091
Total Adjustments	-1.135	0.000	7.211	-	7.211
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.135	-			
• Adjustments to Budget Years	-	-	7.211	-	7.211

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: E21: *Environmental Quality Technology Dem/Val*

- Congressional Add: *Program Increase - Wire-Arc Additive Manufacturing (DEVCOM)*
- Congressional Add: *Program Increase - Friction Stir Additive Manufacturing (DEVCOM)*
- Congressional Add: *Program increase - Biopolymers for military infrastructure*
- Congressional Add: *Program increase - Underwater cut and capture*

Congressional Add Subtotals for Project: E21

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	20.000	-
	15.000	-
	3.000	-
	7.500	-
Congressional Add Subtotals for Project: E21	45.500	-
Congressional Add Totals for all Projects	45.500	-

Change Summary Explanation

Funding increased in projects 035 / National Defense Cntr For Enviro Excellence and E21 / Environmental Quality Technology Dem/Val for environmental technology demonstration and validation of solutions.

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</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
035: <i>National Defense Cntr For Enviro Excellence</i>	-	6.423	6.204	7.787	-	7.787	7.859	7.927	8.004	8.069	0.000	52.273
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The National Defense Center for Environmental Excellence (NDCEE) was established by Congress in 1990 with a directive to "serve as a national leadership organization to address high priority environmental problems for the Department of Defense (DoD), other government organizations, and the industrial community." In May 2008, the Program was re-designated from the National Defense Center for Environmental Excellence to the National Defense Center for Energy and Environment to ensure that the Center's mission recognizes and addresses the strategic interdependence of energy and environmental technology requirements within an overall sustainability framework in support of our installations, weapons systems and war fighters. This name change also directly supports the DoD's proactive implementation of Executive Order 13423, "Strengthening Federal Environmental, Energy and Transportation Management." The NDCEE Program has evolved into a national resource for demonstrating, validating and transitioning innovative Environmental, Safety & Occupational Health and Energy (ESOHE) technologies. This Program is managed by the Army on behalf of the Assistant Secretary of Defense for Sustainment.

The United States (U.S.) Army's broadly encompassing and growing mobile, personal and stationary technological requirements include: infrastructure, alternative and synthetic energy, training lands, emerging contaminants, transportation, systems integration, personnel well-being, and others. Further, to train as we fight, validated ESOHE technologies need to be available and implemented at Army installations. The NDCEE will continue to demonstrate, validate, and transfer these technologies supporting our integrated environment, energy, safety, occupational health and energy objectives to enable mission, readiness, innovation, lethality and modernization to ensure our Soldiers maintain a technological advantage over our adversaries.

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

	FY 2023	FY 2024	FY 2025
Title: Conduct demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.	5.116	4.640	6.506
Description: NDCEE supports the demonstration and validation of mature (BA4) environment, safety, occupational health, and energy technologies that support the mission requirements. The objective is to invest in innovative technologies that support military mission/readiness, employ a high degree of technical fidelity, have a high potential for transition success, and align with modernization goals.			
FY 2024 Plans:			

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Will fund the NDCEE program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, reporting, and technology transfer. Includes contracting office support for contract closeouts, travel to conduct program management oversight, and program coordination and education to DoD stakeholders.</p> <p>FY 2025 Plans: Will fund the NDCEE program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, reporting, and technology transfer. Includes contracting office support for contract closeouts, travel to conduct program management oversight, and program coordination and education to DoD stakeholders.</p> <p>Will continue to focus on emerging chemicals, climate change, and Per- and Polyfluoroalkyl Substances (PFAS) alternatives.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to the Army addressing emerging chemicals, climate change, PFAS alternatives, and waste to energy for burn pits.</p>				
<p>Title: NDCEE Government program management during contract negotiations and during project formulation, execution, and technology transfer.</p> <p>Description: Funds the NDCEE Government program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, and technology transition.</p> <p>FY 2024 Plans: Will fund the NDCEE program management during comprehensive NDCEE lifecycle, including project cultivation and identification, screening, selection, execution, reporting, and technology transfer. Includes contracting office support for contract closeouts, travel to conduct program management oversight, and program coordination and education to DoD stakeholders.</p> <p>FY 2025 Plans: Will continue to focus on emerging chemicals, climate change, and PFAS alternatives.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease funding reflect planned lifecycle for this effort for conducting demonstration/validation of environmentally acceptable technologies that enhance military readiness and reduce production, operating, and/or disposal costs.</p>		1.307	1.564	1.281
Accomplishments/Planned Programs Subtotals		6.423	6.204	7.787
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>

D. Acquisition Strategy

The NDCEE is a national asset focused on DoD applications that include technology transfer to appropriate DoD transition partners. The management strategy for the NDCEE ensures that all projects have a potential multi-service benefit and have a high potential for transition success. At the strategic level, the NDCEE Executive Advisory Board (EAB) is chaired by the DoD NDCEE Lead Agent on behalf of the Assistant Secretary of Defense for Sustainment and is representative of the services and DoD. The EAB and the Program Director are supported by the NDCEE Technical Advisory Group (TAG) to help ensure that NDCEE investments are maximized across DoD and the Services. At the tactical level, the three Focus Groups (environment, safety/occupational health, and energy) cultivate and recommend priority projects to the TAG and Project Selection Committee for funding. Transition Partners ensure that NDCEE's investments are carried forward in the next phases of the Research Development Test and Evaluation process, as identified in each funded project's Technology Transition Agreement.

NDCEE projects enable readiness for the Services under increasingly complex and demanding scenarios. The interdependency of national security with energy supply and costs, water supply and costs, environmental resiliency, and human health and safety are clear and NDCEE projects provide forward-looking solutions to these challenges. Failure to further fund and validate promising technologies that are at the mature or Commercial-off-the-Shelf stage, would result in lost modernization opportunities and validation before they go into a military environment. These initiatives need to be carried forward into an operational/realistic testing environment so that they can support mission readiness and training when ultimately fielded to the Services.

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</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
NDCEE Management and Operations (Enduring)																												
NDCEE Env, Safety, Occ Health, and Energy Technology Dem...																												

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) 035 / <i>National Defense Cntr For Enviro Excellence</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NDCEE Management and Operations (Enduring)	1	2019	4	2024
NDCEE Env, Safety, Occ Health, and Energy Technology Dem/Val (Enduring)	1	2019	4	2024

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) DH6 / <i>Installation Resilience</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
DH6: <i>Installation Resilience</i>	-	-	3.013	3.023	-	3.023	2.017	2.019	2.021	2.041	0.000	14.134
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project demonstrates and validates technologies to advance resiliency across Army installations, improving operations management, increasing efficient energy practices, and enhancing Army infrastructure. This Project demonstrates systems and tools which aim to better inform installation manager decisions on operational planning, management of facilities, and associated infrastructure components. This research will integrate developing technologies to provide the Army with new capabilities, decreased cost, and enhanced operations for resilient installations. This effort will streamline operations of critical infrastructure components and optimize developing systems to support Army objectives and provide actionable information to the user community.

The cited work is consistent with the Army Installations Strategy and the Army Climate Strategy.

Work in this Project is performed by the United States Army Engineer Research and Development Center.

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

	FY 2023	FY 2024	FY 2025
Title: Installation Composting for Land Resilience	-	3.013	3.023
Description: This effort will evaluate current compost operations for Best Management Practices and demonstrate efficacy for Army installations to operate compost systems to reduce Army cost associated with disposal of solid waste, enabling installations to have a set of tools and procedures unique to their environment.			
FY 2024 Plans: Will validate best management practices from current on-post compost operations and create standard operating procedures for other installations to follow; will begin validation of degradation of two compostable materials.			
FY 2025 Plans: Will begin demonstration of composting operations at 3 installations; will conduct climate resilience assessments for 12 sites to inform development of climate change guidance for Integrated Solid Waste Management (ISWM).			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase is an economic adjustment.			
Accomplishments/Planned Programs Subtotals	-	3.013	3.023

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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 0603779A / Environmental Quality Technology - Dem/Val	Project (Number/Name) DH6 / Installation Resilience

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

N/A

Remarks

D. Acquisition Strategy

N/A

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) DH6 / <i>Installation Resilience</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
Installation Composting for Land Resilience Demonstratio...																												

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) DH6 / <i>Installation Resilience</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Installation Composting for Land Resilience Demonstration and Validation	1	2024	4	2029

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>				Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</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
E21: <i>Environmental Quality Technology Dem/Val</i>	-	69.191	22.503	23.281	-	23.281	14.396	13.913	14.093	14.235	0.000	171.612
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports Advanced Component Development and Prototypes of innovative environmental quality technologies that modernize materials and processes required for current and future operational sustainment and warfighter training capabilities. The Project showcases technologies that increase life safety, reduce Soldier and worker human health risks, enhance readiness and enable mission capabilities of the current and future force with a focus on eliminating the high priority issues associated with global warming, hexavalent chromium, cadmium and airborne lead through material substitution. The Project expedites technology transition from the laboratory to operational use by demonstrating modern materials and processes to fulfill or surpass the performance requirements outlined in Material Specifications, Depot Maintenance Work Requirements, Technical Manuals, Drawings and other technical data. Forward-looking materials and processes demonstrated under this project support the Cross Functional Teams and the Army's top modernization priorities by addressing potential obsolescence of legacy materials and current and emerging impacts on human health and the environment. Modernized materials and processes have the additional benefit of reducing the impacts due to climate change, future regulatory compliance and cleanup requirements while simultaneously increasing performance and standardization across the Army, resulting in significantly reduced life cycle costs incurred by acquisition, industrial base and installation end users.

Work in this Project is performed by the United States Army Futures Command (AFC), U.S. Army Combat Capabilities Development Command (DEVCOM) and U.S. Army Corps of Engineers (USACE).

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

	FY 2023	FY 2024	FY 2025
Title: Environmental quality technology demonstration and validation: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems (DEVCOM)	2.360	1.445	1.972
Description: Increase operational readiness and reduce Soldier and worker human health risks by reducing or eliminating the use of cancer-causing hexavalent chromium, cadmium and associated toxic materials used in surface finishing processes for the current and future force. These Safer Alternatives for Readiness (SAFR) technologies will be used to provide superior corrosion and wear protection for components used on Future Vertical Lift and Next Generation Combat Vehicles and enable increased performance/extended barrel life for Long Range Precision Fire systems.			
FY 2024 Plans: Will demonstrate hybrid/wire arc additive manufacturing processes for manufacturing of large parts; will demonstrate hexavalent chromium-free post treatment sealers for zinc, zinc nickel, and aluminum anodize.			
FY 2025 Plans:			

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Will mature hexavalent chromium-free wear resistant plating processes; will demonstrate hexavalent chromium and cadmium-free electrical connectors.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase reflects planned lifecycle of this effort.</p>				
<p>Title: Environmental quality technology demonstration and validation: Airborne Lead Reduction from Army Weapon Systems (DEVCOM)</p> <p>Description: Sustain Soldier training readiness, maintain/restore training capability at ranges closed due to dangerous levels of lead exposure and increase life safety and protection of human health on Army installations by reducing or eliminating the use of toxic lead compounds - which are known to cause damage to central nervous, cardiovascular and immune systems with long-term effects for children, as well as potential developmental impacts, including IQ loss, behavioral issues and hearing loss - in rocket and missile propellants and primary explosives (primers/detonators/initiators) for the current and future force. These Safer Alternatives for Readiness (SAFR) will provide a domestic, readily available source for lead-free primary explosives used in all Long Range Precision Fires and Soldier Lethality systems.</p> <p>FY 2024 Plans: Will demonstrate alternatives to lead thiocyanate and antimony sulfide in primers; will support automated pilot scale production of lead-free primer/detonator formulations.</p> <p>FY 2025 Plans: Will demonstrate lead-free fuzes in end items; will demonstrate fully remote, automated loading processes for lead-free detonators.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase is an economic adjustment.</p>		3.815	2.591	3.473
<p>Title: Environmental quality technology demonstration and validation: Low Global Warming Potential (LGWP) Alternatives to Ozone Depleting Substances (ODS) (DEVCOM)</p> <p>Description: Evaluate low GWP ODS alternatives being developed by industry to assess their toxicity and flammability hazards and verify their acceptability in military unique refrigeration and fire suppression applications. These Safer Alternatives for Readiness (SAFR) technologies will support all Future Vertical Lift and Next Generation Combat Vehicle systems.</p> <p>FY 2024 Plans:</p>		0.459	0.156	0.210

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Will demonstrate secondary loop system to safely incorporate HFO-1234yf as an alternative low GWP refrigerant into mobile air conditioning units away from crew-occupied spaces; will demonstrate alternative, low/no GWP refrigerants for use in next generation refrigeration units for Multi-Temperature Refrigerated Container Systems (MTRCS).</p> <p>FY 2025 Plans: Will transition alternative, low/no GWP refrigerants for use in Multi-Temperature Refrigerated Container Systems (MTRCS).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase is an economic adjustment.</p>				
<p>Title: Engineered Technologies for Risk Mitigation and Management of Perfluorooctane Sulfonate and Perfluorooctanoic Acid (PFOS/PFOA) on Army Installations (USACE)</p> <p>Description: Demonstrate and validate technologies such as 3D printed composite structures and advanced materials for remediation and monitoring of Per- and Polyfluoroalkyl Substances (PFAS), novel methods for PFAS destruction, rapid risk -based classification and characterization computational models, and monitoring and extraction technologies including PFAS sensors.</p> <p>FY 2024 Plans: Will down select and validate emerging technologies demonstrated in prior year to be efficient and scalable for removal of PFOS/ PFOA contamination, technologies may include Thermal Desorption, Soil Washing (Multiple Technologies). Validation of selected PFOS/PFOA removal technologies across a variety of matrices comparing removal efficiency, cost balance, regulatory guidelines and limits of detection.</p> <p>FY 2025 Plans: Will demonstrate and validate treatment technologies to address PFAS-impacted soils and treatment matrices, comparing removal efficiency, cost balance, regulatory guidelines, and limits of detection. Will demonstrate risk analysis and decision making tools for the site specific selection of real time PFAS assessment/monitoring and the application specific selection of destructive technologies addressing Aqueous Film Forming Foam (AFFF) stockpiles and concentrated waste streams.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase reflects planned milestones for the validation of technologies at Army installations.</p>		3.370	2.607	3.817
<p>Title: Carbon Sequestration Toolkit for DoD Lands (USACE)</p> <p>Description: Demonstrate and validate a comprehensive secure web-based toolkit for maximized carbon storage and management across the DOD landscape.</p> <p>FY 2024 Plans:</p>		5.144	3.106	1.815

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Will evaluate model accuracy and precision by incorporating higher temporal and spatial resolution imagery and improved terrain and soil analytics.</p> <p>FY 2025 Plans: Will integrate model improvements such as higher resolution and improved terrain and soil analytics; will conduct sensitivity and error analysis on models to improve accuracy of carbon baseline.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease reflects planned lifecycle of this effort.</p>				
<p>Title: Standards for Additive Construction: Requirements, Assessment and Documentation (USACE)</p> <p>Description: Validate unified facility criteria and standards for additive construction of DoD infrastructure to meet structural, serviceability and resiliency requirements and evaluate the additive construction technology and materials for carbon reduction impacts.</p> <p>FY 2024 Plans: Will test and evaluate Additive Construction methodologies and guidance for climate zones by characterizing material and fossil fuel usage, life-cycle assessments, and embodied energy/GHG emissions.</p> <p>FY 2025 Plans: Will complete lifecycle assessment of additive construction vs traditional methods, including greenhouse gases. Will submit Unified Facilities Criteria and Unified Facilities Guide Specification for Additive Construction.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease reflects planned lifecycle of this effort.</p>		2.405	5.632	0.757
<p>Title: Mitigation of GHG Emissions for DOD Construction Materials and Infrastructure (USACE)</p> <p>Description: Demonstrate and validate sustainable and cost-effective DoD construction materials with 50% reduction in greenhouse gas emissions.</p> <p>FY 2024 Plans: Will initiate and develop innovative partnerships to transfer industry technology on reduced life-cycle embodied energy, carbon capture, and carbon sequestration to meet the needs of DoD applications.</p> <p>FY 2025 Plans: Will demonstrate and validate the use of advanced sustainable building materials, including concretes, bio-based materials, and asphalts to evaluate the reduction of embodied construction emissions by greater than 50% for life cycle durability and</p>		6.138	5.436	6.049

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
environmental in military construction (MILCON). Will demonstrate and validate Life Cycle Assessment (LCA) technologies to evaluate the environmental impacts of Green House Gas (GHG) emission for whole building construction and sustainable concrete materials. FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase is an economic adjustment.				
Title: Expeditionary Island Power (DEMO) Description: This effort demonstrates advanced operational energy storage technology that is interoperable with current and future Army, Joint and partner energy generation systems that support installations and contingency locations, streamlines the energy infrastructure, increases renewable energy, reduces fuel and logistics demand, and optimizes operational energy storage. FY 2024 Plans: Will demonstrate a secondary distribution center with microgrid at Ft Leonard Wood with the Army Prime Power School. FY 2025 Plans: Will demonstrate and validate energy storage and management technologies for a fleet modernization of the Deployable Power Generation Distribution System (DPGDS). Will demonstrate the secondary distribution center at the Engineer Research and Development Center's Contingency Basing Integration Training and Evaluation Center (CBITEC) at Fort Leonard Wood, MO with the Army Prime Power School. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease funding reflect planned lifecycle for this effort.		-	1.530	1.503
Title: Efficient Buildings (Construction Scale Additive Manufacturing) (MOTCO) FY 2025 Plans: Will demonstrate additional construction scale additive construction methods on several select facilities. Will use findings on past energy assessments to improve existing facilities. FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase reflects planned initiation of this effort.		-	-	2.004
Title: VEQT Transition Program (OAA IE&E) FY 2025 Plans: Will ensure mature and new technologies that have been successfully demonstrated and validated can be transitioned to multiple Army Installations to improve Soldier quality of life and to meet demands for multi-domain operations. Environmental technologies		-	-	1.681

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
help balance readiness demands of competition, crisis, and conflict while also creating opportunities to modernize and support the Army's force posture. This effort enables rapid transition of technologies to the field to ensure the Army maintains its competitive edge against our adversaries and supports all Environmental Safety and Occupational Health high priority requirements to protect the Army enterprise. FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	23.691	22.503	23.281

	FY 2023	FY 2024
Congressional Add: Program Increase - Wire-Arc Additive Manufacturing (DEVCOM) <i>FY 2023 Accomplishments:</i> Congressional Interest Item	20.000	-
Congressional Add: Program Increase - Friction Stir Additive Manufacturing (DEVCOM) <i>FY 2023 Accomplishments:</i> Congressional Interest Item	15.000	-
Congressional Add: Program increase - Biopolymers for military infrastructure <i>FY 2023 Accomplishments:</i> Congressional Interest Item funding for soil strengthening technologies in uncontrolled environments.	3.000	-
Congressional Add: Program increase - Underwater cut and capture <i>FY 2023 Accomplishments:</i> Congressional Interest Item funding for high-pressure waterjet cut and capture technology.	7.500	-
Congressional Adds Subtotals	45.500	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2025</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>
• 06l: <i>Environmental Quality Technology Support</i>	0.473	0.307	0.330	-	0.330	-	-	-	-	0.000	1.110

Remarks

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>

D. Acquisition Strategy

The project ultimately transitions successfully demonstrated environmental quality technologies to Army acquisition, industrial base and installation end users. All technology efforts address environmental requirements identified by the Army acquisition, industrial base and installation user communities. Efforts approved by senior Army environmental leadership receive Advanced Component Development and Prototype funding to fully demonstrate and validate the technology for transition to end users for follow on implementation.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army			Date: March 2024
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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
Toxic Metals Reduction Demonstration/Validation	█				█				█																			
Airborne Lead Reduction Demonstration/Validation	█				█				█																			
Low Global Warming Potential Dem/Val	█				█				█																			
Carbon Sequestration Toolkit for DoD Lands	█				█				█				█				█											
Standards for Additive Construction: Requirements, Asses...	█				█				█				█				█											
Mitigation of GHG Emissions for DOD Construction Materia...	█				█				█				█				█											
Efficient Buildings (Construction Scale Additive Manufac...	█				█				█				█															
Expeditionary Island Power (DEMO)	█				█				█				█				█				█							
Engineered Technologies for Risk Mitigation and Manageme...	█				█				█				█				█				█							

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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 0603779A / <i>Environmental Quality Technology - Dem/Val</i>	Project (Number/Name) E21 / <i>Environmental Quality Technology Dem/Val</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Toxic Metals Reduction Demonstration/Validation	1	2015	4	2025
Airborne Lead Reduction Demonstration/Validation	1	2015	4	2025
Insensitive Munitions (IM) Wastewater Treatment	1	2019	4	2022
Fate and Risk Evaluation System for Contaminants	1	2020	4	2021
Environmental Toolkit for Expeditionary Operations	1	2020	4	2022
Low Global Warming Potential Dem/Val	1	2019	4	2025
Carbon Sequestration Toolkit for DoD Lands	1	2023	4	2027
Standards for Additive Construction: Requirements, Assessment and Documentation	1	2023	4	2027
Mitigation of GHG Emissions for DOD Construction Materials and Infrastructure	1	2023	4	2027
Efficient Buildings (Construction Scale Additive Manufacturing) (MOTCO)	1	2024	4	2025
Expeditionary Island Power (DEMO)	1	2024	4	2029
Engineered Technologies for Risk Mitigation and Management of Perfluorooctane Sulfonate and Perfluorooctanoic Acid (PFOS/PFOA) on Army Installations (USACE)	1	2022	4	2029

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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 0603790A / NATO Research and Development
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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	-	3.666	4.143	4.184	-	4.184	5.044	5.125	4.368	4.413	0.000	30.943
691: <i>NATO Rsch & Devel</i>	-	3.666	4.143	4.184	-	4.184	5.044	5.125	4.368	4.413	0.000	30.943

A. Mission Description and Budget Item Justification

This Project implements the provisions of Title 10 United States (U.S.) Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the U.S. and our cooperative partners, including the North Atlantic Treaty Organization (NATO), U.S. major non-NATO allies and Friendly Foreign countries through technology sharing and joint equipment development, thereby reducing U.S. acquisition costs. Cooperative efforts also improve multinational force compatibility with potential coalition partners through the development and use of similar equipment and improved interfaces. The Project focuses specifically on international cooperative technology demonstration, validation, and interoperability of Army weapon and command, control, communications and information (C3I) systems, including the NATO Defense Against Terrorism initiatives. Activities are implemented through international agreements with foreign partners that define scope, cost and work sharing arrangements, management, contracting, security, data protection and third-party transfers. Funds are used to pay for only the U.S. work share that occurs within the U.S. at U.S. Government and U.S. contractor facilities.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	3.805	4.143	4.176	-	4.176
Current President's Budget	3.666	4.143	4.184	-	4.184
Total Adjustments	-0.139	0.000	0.008	-	0.008
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.139	-			
• Adjustments to Budget Years	-	-	0.008	-	0.008

Change Summary Explanation

Increased funding due to revised economic assumptions.

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel
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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
691: NATO Rsch & Devel	-	3.666	4.143	4.184	-	4.184	5.044	5.125	4.368	4.413	0.000	30.943
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project implements the provisions of Title 10 United States (U.S.) Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the U.S. and our cooperative partners, including the North Atlantic Treaty Organization (NATO), U.S. major non-NATO allies and Friendly Foreign countries through technology sharing and joint equipment development, thereby reducing U.S. acquisition costs. Cooperative efforts also improve multinational force compatibility with potential coalition partners through the development and use of similar equipment and improved interfaces. The Project focuses specifically on international cooperative technology demonstration, validation, and interoperability of Army weapon and command, control, communications and information (C3I) systems, including the NATO Defense Against Terrorism initiatives. Activities are implemented through international agreements with foreign partners that define scope, cost and work sharing arrangements, management, contracting, security, data protection and third-party transfers. Funds are used to pay for only the U.S. work share that occurs within the U.S. at U.S. Government and U.S. contractor facilities.

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

	FY 2023	FY 2024	FY 2025
Title: Armaments Cooperation Enterprise Support	2.695	2.966	2.999
Description: Armaments Cooperation Enterprise Support/ International Online (IOL) Development and Implementation NATO/ International Cooperative R&D (AR 70-41) and International Acquisition (AR 70-1, AR 70-3). The goal of this activity is to expand worldwide allied standardization and interoperability through cooperative Research and Development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. The execution AR 70-41 responsibilities requires DASA (DE&C) to conduct engagement with key strategy foreign partners in all regions of the world through the SNR(A) program, international agreement negotiations, and other bilateral and multilateral forums involving DASA (DE&C) personnel. This program will fund the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate internationally, such as the NATO Army Armaments Group (NAAG), Defense Against Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding.			
FY 2024 Plans: Supports 9 Contractor Manpower Equivalent (CMEs) with Armaments Cooperation Support with munitions, weapons, aviation and armaments.			
FY 2025 Plans:			

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Supports 9 CMEs with Armaments Cooperation Support with munitions, weapons, aviation and armaments.				
FY 2024 to FY 2025 Increase/Decrease Statement: FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.				
Title: Communications Interoperability, and Electronics Technologies		0.273	0.299	0.301
Description: The goal of this activity is to develop technologies that enable interoperability among partner countries' command, control, communications, sensors, and information systems. Efforts include development of a single solution standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO. Such standards include common doctrine, technical and procedural specifications to make better use of existing information, shared data, leveraged national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. Includes efforts from areas formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, Joint Tactical Radio (JTRS), Combat Identification, and Multilateral Interoperability Program.				
FY 2024 Plans: Include efforts from areas formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification, and Multilateral Interoperability Program.				
FY 2025 Plans: Include efforts from areas formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification, and Multilateral Interoperability Program.				
FY 2024 to FY 2025 Increase/Decrease Statement: FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.				
Title: Senior National Representatives (Army) (SNR-(A))		0.028	0.031	0.031
Description: Senior National Representatives (Army) (SNR-(A)) Projects (Partners: France, Germany, United Kingdom and Italy): Supports harmonization of programs at various levels: exchanging information, identifying knowledge gaps and conducting feasibility studies to further promote cooperative development; standardizing, fielding and road-mapping various processes; distributing the workload among the different nations. Technology Demonstrations hosted by the U.S. reps to Land Group 6, NATO Army Armaments Group (NAAG), will provide an opportunity to observe and demonstrate the current and future capability of participating NATO nations with a view to assisting future operational and materiel interoperability. Army support of NAAG studies, analysis and technology demonstrations.				
FY 2024 Plans:				

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Funds will be used to pursue cooperative initiatives that were postponed, cancelled or not pursued due to funding reductions in previous years such as forums and engagement with long-standing foreign partners to identify interoperability gaps and develop necessary standardization programs.</p> <p>FY 2025 Plans: Funds will be used to pursue cooperative initiatives that were postponed, cancelled or not pursued due to funding reductions in previous years such as forums and engagement with long-standing foreign partners to identify interoperability gaps and develop necessary standardization programs.</p>				
<p>Title: Weapons and Munitions Technologies</p> <p>Description: The goal of this activity is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for Army weapons systems and associated munitions. Areas of cooperation include fuzing and warhead systems, guidance systems, counter improvised explosive device neutralization, directed energy, and fire control systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p>FY 2024 Plans: The nations will be able to receive and provide mutual fire support (i.e. cannon and rocket fire) in combined operations more rapidly and with minimal errors.</p> <p>FY 2025 Plans: The nations will be able to receive and provide mutual fire support (i.e. cannon and rocket fire) in combined operations more rapidly and with minimal errors.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.</p>		0.219	0.240	0.242
<p>Title: Ground Systems Technologies</p> <p>Description: The goal of this activity is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve survivability, weapons, ground platforms (manned and unmanned), and mobility and counter-mobility to provide soldiers with unmatched offensive and defensive capabilities in weapons and military vehicles. Areas of cooperation include ground systems design, propulsion, structures, robotics, alternative fuels and lubricants, systems integration, electronics, and power management. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p>		0.120	0.185	0.186

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i> Funding will be used to fund the continuation of cooperative projects in armored vehicle underbody blast protection and unmanned ground vehicles such as Hybrid Electric Project Agreement between U.S. and Japan.</p> <p><i>FY 2025 Plans:</i> Funding will be used to fund the continuation of cooperative projects in armored vehicle underbody blast protection and unmanned ground vehicles such as Hybrid Electric Project Agreement between U.S. and Japan.</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.</p>			
<p><i>Title:</i> Aviation Systems Technologies</p> <p><i>Description:</i> The goal of this activity is to cooperate with partner countries to increase interoperability and develop jointly improved aerodynamics, aeromechanics, avionics, weapons and sensor integration, propulsion, and aviation autonomy technologies that improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for vertical lift aviation systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.</p> <p><i>FY 2024 Plans:</i> Funding will be used to pursue cooperative projects (i.e., the development of advance rotorcraft technologies and improve systems that aid pilots and aircrew in degraded visual environments).</p> <p><i>FY 2025 Plans:</i> Funding will be used to pursue cooperative projects (i.e., the development of advance rotorcraft technologies and improve systems that aid pilots and aircrew in degraded visual environments).</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.</p>	0.331	0.422	0.425
Accomplishments/Planned Programs Subtotals	3.666	4.143	4.184

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel

D. Acquisition Strategy

Acquisition Strategy:
The goal of this program is to expand worldwide allied standardization interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the of the U.S. Army.
All projects are test or technical demonstrations to feed into potential new requirements in support of Army Transformation to the Future Force or as product improvements to the Current Force.

List of the programs curenly in place:
Communications, Interoperability, and Electronics Technologies
The goal of this project is to develop technologies that enable interoperability among partner countries' command, control, communications, sensors, and information systems. Efforts under this project include development of a single solution standard avoiding development of multiple unique solutions and leverage existing interoperability standards developed by NATO. Such standards include common doctrine, technical and procedural specifications to make better use of existing information, shared data, leverage national operating picture capabilities and enable the development of interoperability of data, databases, applications, security domains and national networks architectures. Includes projects formerly titled Multi-National Network Enabled Capabilities, Low Level Air Defense Interoperability, JTRS, Combat Identification, and Multilateral Interoperability Program.

Aviation Systems Technologies
The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly improved aerodynamics, aeromechanics, avionics, weapons and sensor integration, propulsion, and aviation autonomy technologies that improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for vertical lift aviation systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.

Ground Systems Technologies
The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve survivability, weapons, ground platforms (manned and unmanned), and mobility and counter-mobility to provide soldiers with unmatched offensive and defensive capabilities in weapons and military vehicles. Areas of cooperation include ground systems design, propulsion, structures, robotics, alternative fuels and lubricants, systems integration, electronics, and power management. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.

Weapons and Munitions Technologies
The goal of this project is to cooperate with partner countries to increase interoperability and develop jointly technologies to improve range, payloads, speed, survivability and lethality to maintain U.S. technical superiority and combat overmatch for Army weapons systems and associated munitions. Areas of cooperation include fuzing and warhead systems, guidance systems, counter improvised explosive device neutralization, directed energy, and fire control systems. Such cooperative development will be done under the auspices of international agreements established among the participating countries for the purposes of improving defense capabilities of the U.S. and partner countries.

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel

Armaments Cooperation Enterprise Support
The goal of this program is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per SECDEF guidance and especially in support of the U.S. Army. This program will fund the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate internationally, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), Defense Against Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This program will also include: the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U. S. Army is Executive Agent for this NATO bill); the Technical Cooperation Program, and Army armaments cooperation working groups with many nations.

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Development
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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			
Armaments Cooperation Enterprise Support	C/FFP	LSS/GDIT : Fairfax, VA	15.876	2.695		2.966		2.999		-		2.999	Continuing	Continuing	Continuing
Communications, Interoperability, and Electronics Technologies	MIPR	Joint Tactical Radio (JTRS), JTNC, COALWNW, SPAWAR, CERDEC, ARDEC W1DF : San Diego, CA, Red Stone Arsenal	2.368	0.273		0.299		0.301		-		0.301	Continuing	Continuing	Continuing
Aviation Systems Technologies	MIPR	RDECOM/AMRDEC : Red Stone Arsenal	2.384	0.331		0.422		0.425		-		0.425	Continuing	Continuing	Continuing
Ground Systems Technology	MIPR	TARDEC : Various	0.692	0.120		0.185		0.186		-		0.186	Continuing	Continuing	Continuing
Weapons and Munitions	Various	CECOM, ARDEC, AMMO, PEO C3T : Aberdeen Proving Ground, Various	3.155	0.219		0.240		0.242		-		0.242	Continuing	Continuing	Continuing
SNR(A)	C/TBD	ARL, HQDA, JCGISR: Army : Various	2.346	0.028		0.031		0.031		-		0.031	Continuing	Continuing	Continuing
Subtotal			26.821	3.666		4.143		4.184		-		4.184	Continuing	Continuing	N/A
Project Cost Totals			26.821	3.666		4.143		4.184		-		4.184	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 0603790A / NATO Research and Development				Project (Number/Name) 691 / NATO Rsch & Devel					

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
N/A	[REDACTED]																											

	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
N/A																												

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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 0603790A / NATO Research and Development	Project (Number/Name) 691 / NATO Rsch & Devel

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
N/A	1	2017	4	2017

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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 0603801A / <i>Aviation - Adv Dev</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	0.000	1,113.295	1,502.160	6.591	0.000	6.591	0.000	0.000	0.000	0.000	0.000	2,622.046
B47: <i>Future Vertical Lift</i>	-	202.522	1,027.608	-	-	-	-	-	-	-	0.000	1,230.130
CK7: <i>FARA Ecosystem</i>	-	18.346	29.151	-	-	-	-	-	-	-	0.000	47.497
CS7: <i>FLRAA MTA</i>	-	462.255	16.536	6.591	-	6.591	-	-	-	-	0.000	485.382
F12: <i>Future Attack Reconnaissance Aircraft</i>	-	430.172	428.865	-	-	-	-	-	-	-	0.000	859.037

A. Mission Description and Budget Item Justification

This funding line directly aligns to the Future Vertical Lift (FVL) Army modernization priority. Future Vertical Lift (FVL) is an initiative to develop a family of vertical lift aircraft for the United States Armed Forces. The Department of Defense (DOD) established FVL to focus vertical lift capabilities and technology development as well as retain long-term industrial base capabilities. The Deputy Secretary of Defense issued the FVL Strategic Plan in 2012 to outline a joint approach for the next generation vertical lift aircraft for all military services. The Strategic Plan provided a foundation for replacing the current fleet with advanced capability by shaping the development of vertical lift aircraft for the next 25 to 40 years. In Fiscal Year (FY) 2017, the Army identified FVL as one of the Army's six modernization priorities, and established the FVL Cross Functional Team (CFT). The FVL objectives are increased vertical lift maneuverability, range, speed, payload, survivability, and reliability while reducing the logistics footprint. This capability will provide critical vertical lift aviation capability in multi-domain operations to the joint warfighter and maneuver force.

The Future Long Range Assault Aircraft (FLRAA) program pursues FVL Capability Set 3 (CS3) and provides Combatant Commanders with deterrence, power projection, and tactical capabilities at operational and strategic distances. The Army competitively awarded the weapon system development contract in December 2022, using a hybrid acquisition approach. The contract award initiates the Rapid Prototyping effort to execute a preliminary design and development of FLRAA Virtual Prototypes, using Middle Tier of Acquisition (MTA) authorities.

The total estimated cost of the FLRAA Middle Tier of Acquisition effort is \$600 million RDT&E from FY21 to FY25. The remainder of the FLRAA program is fully funded across the Future Years Defense Program.

The Future Attack Reconnaissance Aircraft (FARA) Capability Set 1 (CS1) was intended to restore reconnaissance dominance by mitigating enemy long-range capabilities by creating lethal effects from outside enemy sensor/weapons range and allowing joint force commanders to maneuver from relative sanctuary. The Army has discontinued the FARA effort beyond FY 2024.

Both FLRAA and FARA variants integrate advanced technologies, using a modular open systems approach, and design configurations with appropriate trades to ensure affordability.

This resourcing funds both FLRAA and FARA.

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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 0603801A / <i>Aviation - Adv Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	1,157.472	1,502.160	1,729.307	-	1,729.307
Current President's Budget	1,113.295	1,502.160	6.591	-	6.591
Total Adjustments	-44.177	0.000	-1,722.716	-	-1,722.716
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-3.573	-			
• SBIR/STTR Transfer	-40.604	-			
• Adjustments to Budget Years	-	-	-1,722.716	-	-1,722.716

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: CS7: FLRAA MTA

Congressional Add: *FLRAA Program Increase*

Congressional Add: *Modular Communication, Command, and Control Suite*

Congressional Add Subtotals for Project: CS7

Project: F12: Future Attack Reconnaissance Aircraft

Congressional Add: *FARA All Electrical Flight Controls*

Congressional Add Subtotals for Project: F12

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	23.000	-
	12.000	-
	35.000	-
	10.000	-
	10.000	-
	45.000	-

Change Summary Explanation

FY25 funding in the amount of \$525.487 million was realigned within Army's Aviation Portfolio. The remainder of the decrease in FY25 funding from the previous PB to the current PB was realigned to PE 0605241A/Future Long Range Assault Aircraft Development, Future Long Range Assault Aircraft, for execution of the Engineering and Manufacturing Development phase of the program.

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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 0603801A / Aviation - Adv Dev				Project (Number/Name) B47 / Future Vertical Lift			
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
B47: Future Vertical Lift	-	202.522	1,027.608	-	-	-	-	-	-	-	0.000	1,230.130
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year 2025 (FY25), funding previously planned in Program Element 0603801A Project B47 transitions to Program Element 0605241A / Future Long Range Assault Aircraft Development, Project DG5 / Future Long Range Assault Aircraft, to support Budget Activity guidance for programs achieving Milestone B.

A. Mission Description and Budget Item Justification

The Future Vertical Lift (FVL) Project's funding provides for the development of a Future Long Range Assault Aircraft (FLRAA) Capability Set Three weapon system within the FVL family of systems. FLRAA will conduct air assault, urban assault/security, maritime interdiction, medical evacuation, humanitarian assistance/disaster relief, tactical resupply, direct action, noncombatant evacuation operation, and combat search and rescue operations. FLRAA will support the Army, including Special Operations Command (USSOCOM) and the Joint Force, in a contested, near peer threat environment. The FLRAA weapon system will retain the Army's ability to project combat power with transformational increases in range, speed, mobility, and payload over current Army and USSOCOM aircraft.

FLRAA achieved a Materiel Development Decision approval in October 2016 and the Office of Secretary of Defense granted a sufficiency determination of the Analysis of Alternatives (AoA) in July 2019.

The Fiscal Year (FY) 2024 budget request funds continued subsystem risk reduction activities, the initiation of the of the FLRAA weapon system detailed design, continued development of a digital backbone architected to meet Modular Open System Approach (MOSA) objectives, and the initiation of developmental prototype assembly and integration for qualification and test.

The total estimated cost of the FLRAA Middle Tier of Acquisition effort is \$600 million RDT&E from FY21 to FY25. The remainder of the FLRAA program is fully funded across the Future Years Defense Program.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering Services / Research Studies	41.677	52.315	-
Description: Provide engineering research, planning, modeling, and analysis. Support the execution of subsystem risk reduction efforts through the FLRAA Weapon System Development (WSD) contract to continue definition and documentation of subsystem designs as required to inform the system level design and support the FLRAA acquisition schedule. Continue maturation of Model Based System Engineering (MBSE) competencies, infrastructure, and model development used to describe system requirements and design. Continue maturation of Open System Architecture (OSA) standards, processes, and requirements through enterprise-wide collaboration to support a Modular Open System Approach (MOSA) to include definition of system architecture requirements, development of component specification models, and component definition models. Conduct independent cyber and safety			

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>analyses. Provide critical airworthiness support to enable the development of the FLRAA Airworthiness Qualification Specification (AQS). Develop statutory and regulatory Milestone B documentation through Integrated Product Teams (IPT) and working group collaboration.</p> <p>FY 2024 Plans: Support engineering changes associated with refined requirements, review contract deliverables associated with subsystem risk reduction activities and weapon system detailed designs to ensure compliance with technical specifications and airworthiness requirements, continue studies and analyses to refine and implement Open System Architectures (OSA), further enable MBSE in the digital environment, prepare for the FLRAA Weapons System Critical Design Review (CDR), and support the completion and coordination of a FLRAA Milestone B decision.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: In FY25, funding transitions to Budget Activity 6.5 PE 0605241A/Future Long Range Assault Aircraft Development, Project DG5/ Future Long Range Assault Aircraft, for execution of Engineering and Manufacturing Development.</p>				
<p>Title: Program Management</p> <p>Description: Oversight and management of the FLRAA acquisition program. Program analysis of affordability, program performance, and schedule to ensure support of the Army mission. Guide, direct and manage program efforts through development phases of the lifecycle.</p> <p>FY 2024 Plans: Continue to manage the rigorous execution of programmatic, technical, logistics, business and administrative requirements to execute the scope of the FLRAA Engineering and Manufacturing Development acquisition phase, continue to provide critical information technology infrastructure to enable a distributed workforce, and continue to support Aviation enterprise-wide initiatives to facilitate common Modular Open Systems Approach objectives.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: In FY25, funding transitions to Budget Activity 6.5 PE 0605241A/Future Long Range Assault Aircraft Development, Project DG5/ Future Long Range Assault Aircraft, for execution of Engineering and Manufacturing Development.</p>		6.631	6.602	-
<p>Title: Supportability Analysis and Acquisition Support</p> <p>Description: Acquisition and supportability research, planning, modeling, analysis, documentation and reviews supporting the FLRAA acquisition program. Early design influence analysis to assess operational durability; emphasizing digital data thread, active health state awareness in Condition Based Maintenance (CBM+), and optimized human system interface for ease of operations and maintenance.</p> <p>FY 2024 Plans:</p>		6.624	9.851	-

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Initiate the start of extensive provisioning planning to include provisioning coordination activities, demonstrations, and coordination with Soldiers to identify and discuss Soldier touch points to ensure and operable and maintainable weapon system solution. Continue integration of supportability modeling and analysis in direct support of Weapon System Development execution to also include operation support cost refinement via depot source of repair and level of repair analysis.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: In FY25, funding transitions to Budget Activity 6.5 PE 0605241A/Future Long Range Assault Aircraft Development, Project DG5/ Future Long Range Assault Aircraft, for execution of Engineering and Manufacturing Development.</p>			
<p>Title: Prototype Material and Manufacturing Development</p> <p>Description: Purchased materials, including the development and acquisition of GFE hardware and software necessary to meet FLRAA prototype development activities, execution of subsystem risk reduction activities, and execution of the EMD phase of the FLRAA program, including weapon system detailed design and prototype manufacturing efforts.</p> <p>FY 2024 Plans: Complete subsystem risk reduction efforts, begin weapon system detail design preparing for the Critical Design Review, begin building FLRAA EMD prototypes one through six, continue maturing and purchasing GFE for prototype integration and developmental testing, and continue to mature critical enabling capabilities required to meet Army modernization requirements.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: In FY25, funding transitions to Budget Activity 6.5 PE 0605241A/Future Long Range Assault Aircraft Development, Project DG5/ Future Long Range Assault Aircraft, for execution of Engineering and Manufacturing Development.</p>	147.590	958.840	-
Accomplishments/Planned Programs Subtotals	202.522	1,027.608	-

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>
• CS7: FLRAA MTA	462.255	16.536	6.591	-	6.591	-	-	-	-	0.000	485.382
• DG5: Future Long Range Assault Aircraft	-	-	1,253.637	-	1,253.637	843.708	826.934	697.946	725.788	0.000	4,348.013
• A12002: Future Long Range Assault Aircraft (FLRAA)	-	-	0.000	-	0.000	-	265.937	438.536	787.364	Continuing	Continuing

Remarks
Program Element 0603465A Future Vertical Lift Advanced Technology includes Joint Multi-Role Technology Demonstration (JMR-TD); supported flying demonstrator activities providing knowledge transfer from flight test, data analysis, Soldier touch points, and risk reduction activities to the FLRAA program.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift
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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>
Project CS7 includes all FLRAA MTA efforts from FY 2023 through FY 2025, which was initiated as a planned accomplishment under Project B47 in FY 2022.											
Project DG5 includes all FLRAA EMD funding beyond FY 2024.											
Project A12002 includes all FLRAA procurement funding FY 2027 and beyond.											

D. Acquisition Strategy

The Army is executing a hybrid acquisition approach to design, develop, and deliver the FLRAA weapons system. In order to support the Army's modernization strategy and concept for multi-domain operations, the FLRAA program will deliver the first aircraft in FY 2030. This hybrid approach builds on the JMR-TD efforts (started in 2013); the Army's AoA (completed in July 2019); and multiple risk mitigation efforts.

The Army's risk mitigation activities ahead of the Weapon System Development contract award have included: (1) additional conceptual design and flight envelope expansion tasks on the existing JMR-TD Technology Investment Agreement (TIA); (2) MOSA, FVL Architecture Collaboration Working Group (with participation from industry and academia) to establish a common architecture requirements framework for FLRAA system development; and (3) a CD&RR effort, awarded to two Project Agreement Holders (PAH), using an Aviation Missile and Technology Consortium (AMTC) Other Transaction Authority (OTA) agreements to provide substantiating technical documentation on weapon system designs, requirements decompositions, trade-studies, and requirements feasibility for the FLRAA Weapon System Development.

These risk reduction activities have maintained industry engagement and momentum from the JMR-TD program, informed capabilities and system requirements, and provided initial trade assessments for the final operational requirements. They also informed the final acquisition strategy, matured the Government's architecture requirements, and transitioned appropriate Science & Technology investments to the PoR. CD&RR Phase II incorporated efforts leading to preliminary design using a digital engineering environment. The Army competitively awarded the Weapon System Development contract in December 2022 to one vendor with a hybrid acquisition approach. This approach includes the opportunity to employ new DoDI 5000.80 (Operation of the Middle Tier of Acquisition (MTA)) authorities along with a tailored DoDI 5000.85 (Major Capability Acquisition) acquisition strategy.

Finally, the Army is also addressing life cycle affordability, sustainability, and maintainability early in the program. The FLRAA program is employing multiple strategies including: should cost reduction opportunities, use of a digital thread from design through sustainment, and stochastic sustainment modeling. Additionally, FLRAA is one of the Army's pilot programs for digital engineering and life cycle intellectual property and data strategy development.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift
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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			
Program Management	Various	Various : Redstone Arsenal, AL	18.452	3.617	Dec 2022	3.206	Dec 2023	-		-		-	0.000	25.275	-
Program Management-Consolidated Support Contract	C/FFPLOE	Smartonix, Inc. : Huntsville, AL	5.870	5.548	Mar 2023	3.396	Mar 2024	-		-		-	0.000	14.814	-
Subtotal			24.322	9.165		6.602		-		-		-	0.000	40.089	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			
Prototype Material - Government Furnished Equipment	Various	Various : Various/ Redstone Arsenal	8.379	26.373	Mar 2023	13.542	Dec 2023	-		-		-	0.000	48.294	-
EMD Subsystem Risk Reduction	C/Various	Bell Textron Inc. : Ft. Worth, TX	-	120.838	May 2023	431.813	Nov 2023	-		-		-	0.000	552.651	-
Prototype Material and Manufacturing Development (EMD)	Option/Various	Bell Textron Inc. : Various	-	-		508.421	Jun 2024	-		-		-	0.000	508.421	-
Subtotal			8.379	147.211		953.776		-		-		-	0.000	1,109.366	N/A

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			
Acquisition and Supportability Analysis	Various	AMCOM ALC, CCDC AvMC : Redstone Arsenal, AL	12.736	4.857	Nov 2022	7.875	Nov 2023	-		-		-	0.000	25.468	-
Engineering Services / Research Studies - Other	MIPR	Various : Huntsville, AL	38.196	16.565	Nov 2022	-		-		-		-	0.000	54.761	-
Enterprise Logistics and Support Analysis	Various	Various : Redstone Arsenal, AL	-	-		1.976	Mar 2024	-		-		-	0.000	1.976	-

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift
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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			
Engineering Services - Collaborative Efforts	MIPR	CCDC AvMC, S3I, SRD : Huntsville, AL	-	10.784	Jan 2023	18.207	Jan 2024	-		-		-	0.000	28.991	-
Engineering / Research Support Services	C/FFPLOE	Torch Technologies : Huntsville, AL	-	13.394	Jan 2023	11.297	Jan 2024	-		-		-	0.000	24.691	-
Enterprise Common Technical Support to Programs	Various	Various : Various	8.789	-		12.841	Mar 2024	-		-		-	0.000	21.630	-
Enterprise Architecture Convergence and Holistic Survivability	Various	Various : Huntsville, AL	-	-		6.660	Mar 2024	-		-		-	0.000	6.660	-
Adaptive Work Environment Enabling Infrastructure and Support	Various	Various : Huntsville, AL	-	-		3.310	Mar 2024	-		-		-	0.000	3.310	-
Subtotal			59.721	45.600		62.166		-		-		-	0.000	167.487	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			
Government Test and Evaluation Support	Various	Redstone Test Center : Redstone Arsenal, AL	-	0.546		5.064	Dec 2023	-		-		-	0.000	5.610	-
Subtotal			-	0.546		5.064		-		-		-	0.000	5.610	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	92.422	202.522	1,027.608	-	-	-	0.000	1,322.552	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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift
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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
Architecture Definition and Risk Reduction	Architecture Definition and Risk Reduction																											
Competitive Demonstration and Risk Reduction	Competitive Demonstration and Risk Reduction																											
Source Selection Evaluation Board	SSEB																											
Contract Award	Contract Award																											
Virtual Prototyping (MTA)	Virtual Prototyping																											
Preliminary Design (MTA) and Detail Design	Preliminary and Detail Design																											
FLRAA Virtual Prototype Deliveries (Delivered under Proj...)									Virtual Prototype Deliveries																			
Prototype Builds									Prototype Build																			

Note
 The FLRAA MTA effort transitioned to Project CS7 in FY23, under which the Virtual Prototypes were delivered; this program transitions to Program Element 0605241A/ Future Long Range Assault Aircraft Development, Project DG5/Future Long Range Assault Aircraft, for execution of the Engineering and Manufacturing Development phase of the program.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) B47 / Future Vertical Lift
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Material Development Decision	1	2017	1	2017
Analysis of Alternatives	3	2017	4	2019
System Specification Development	2	2019	3	2021
Program Documentation and Contracts Requirements Package	2	2019	3	2021
Architecture Definition and Risk Reduction	3	2019	4	2024
Competitive Demonstration and Risk Reduction	2	2020	1	2023
Request for Proposal Release	4	2021	4	2021
Proposal Preparation	4	2021	4	2021
Source Selection Evaluation Board	3	2021	2	2023
Contract Award	1	2023	1	2023
Virtual Prototyping (MTA)	1	2023	1	2025
Preliminary Design (MTA) and Detail Design	1	2023	1	2025
FLRAA Virtual Prototype Deliveries (Delivered under Project CS7)	4	2024	4	2024
Prototype Builds	3	2024	4	2024

Note

Virtual Prototyping Middle Tier Acquisition (MTA) is funded in B47 for FY 2022 and realigns to Project CS7 in FY 2023.

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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 0603801A / Aviation - Adv Dev				Project (Number/Name) CK7 / FARA Ecosystem			
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
CK7: FARA Ecosystem	-	18.346	29.151	-	-	-	-	-	-	-	0.000	47.497
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding supported persistent experimentation of FARA Ecosystem relevant technologies in a Joint All Domain Operations (JADO) environment. The Army's persistent experimentation events garnered early user feedback to inform and refine requirements and accelerate technology development. Demonstration of critical technologies in relevant operational environments informed refinement and validation of requirements for the FARA Ecosystem and its enablers; enabled timely decisions to transition relevant S&T technologies into the Ecosystem; provided an opportunity for operational assessment of capability gaps in the Ecosystem; and accelerated development and delivery of Army Aviation capabilities.

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

	FY 2023	FY 2024	FY 2025
Title: FARA Ecosystems	18.346	29.151	-
Description: Funding for FARA Ecosystem supports prototyping demonstration with relevant technologies in a Joint All Domain Operations (JADO) environment, which will inform FVL requirements including FARA, MOSA, and Launched Effects (LE) and enable timely decisions to accelerate capabilities, transition of S&T technologies. The Army's Experimental Demonstration Gateway Event (EDGE) and Project Convergence (PC) activities will garner early user feedback informing developmental efforts.			
FY 2024 Plans: FY2024 will build upon prior demonstrations, providing for early opportunities to validate technologies and requirement concepts and to off-ramp, maintain, or accelerate investments, to enable modernization at the speed of relevance.			
FY 2024 to FY 2025 Increase/Decrease Statement: Army discontinued FARA efforts beyond FY 2024.			
Accomplishments/Planned Programs Subtotals	18.346	29.151	-

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
• F12: Future Attack Reconnaissance Aircraft	430.172	428.865	0.000	-	0.000	-	-	-	-	0.000	859.037

Remarks

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CK7 / FARA Ecosystem

D. Acquisition Strategy

The FVL CFT utilized several U.S. Army Combat Capability Development Centers, Other Government Agencies, Test Centers, Project Management Offices and their respective procurement and scope execution instruments to execute persistent experimentation events to assess the viability of technology and inform the Ecosystems requirements and concepts. The FVL CFT and Program Executive Office Aviation (PEO AVN) conducted Technology Scouting to analyze the most viable Industry and other Government partners for specific FARA Ecosystem use cases, conducted market assessments, created technology roadmaps, and developed recommendations for future experimentation or rapid fielding and procurement investments. The conduct of persistent experimentation events, such as the FVL EDGE series, generated substantial quantifiable cost avoidance to the Government annually by stimulating tens of millions of dollars in Independent Research and Development (IRAD) investments from Industry, and offsetting tens of millions of dollars of Test and Evaluation costs for existing developmental and S&T programs, other Government agencies, and international partners.

The Army discontinued FARA program efforts beyond FY 2024.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CK7 / FARA Ecosystem
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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				
FVL Acquisition Informed by Risk and Technology Opportun...	FVL Acquisition Informed by Risk and Technology Opportunities																															
FY23 Experimental Demonstration Gateway Event	<div style="text-align: center;">1 EDGE Demo</div>				<div style="text-align: center;">2 PC Demo</div>				<div style="text-align: center;">3 EDGE Demo</div>																							
FY24 Project Convergence Capstone 4																																
FY24 Experimental Demonstration Gateway Event																																

Note
Experimentation and demonstration events in the CK7 schedule profile are aligned to the phasing in the AFC Test Synchronization Matrix.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CK7 / FARA Ecosystem
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FVL Acquisition Informed by Risk and Technology Opportunities	2	2022	4	2024
FY22 Experimental Demonstration Gateway Event	3	2022	3	2022
FY22 Project Convergence	4	2022	4	2022
FY23 Experimental Demonstration Gateway Event	3	2023	3	2023
FY24 Project Convergence Capstone 4	2	2024	2	2024
FY24 Experimental Demonstration Gateway Event	4	2024	4	2024

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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 0603801A / Aviation - Adv Dev				Project (Number/Name) CS7 / FLRAA MTA			
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
CS7: FLRAA MTA	-	462.255	16.536	6.591	-	6.591	-	-	-	-	0.000	485.382
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army's use of Middle Tier of Acquisition (MTA) authorities for Future Long Range Assault Aircraft (FLRAA) transitions work completed during the Competitive Demonstration and Risk Reduction effort to support three priority efforts: (1) completion of the rapid prototyping for the delta Preliminary Design Review; (2) deliver two virtual prototypes including a vehicle dynamic model and portable crew station; and (3) support the requirements for Milestone B certification under 10 U.S.C. 2366b.

Funds will provide for the completion of the FLRAA weapon system preliminary design to include development of a digital backbone architecture to meet modular open system approach (MOSA) objectives. The development and delivery of two virtual prototypes will directly support early user involvement at the Air Maneuver Battle Lab (AMBL), the Combat Aviation Brigade Architecture Integration Lab (CABAIL), and also support system and subsystem analysis and testing.

The total cost of the FLRAA Middle Tier of Acquisition effort under this Project is estimated to be \$485.382 million RDT&E from FY23 to FY25. The remainder of the FLRAA program is fully funded across the Future Years Defense Program.

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

	FY 2023	FY 2024	FY 2025
Title: Middle Tier of Acquisition (MTA) Preliminary Design and Virtual Prototype Rapid Prototyping	427.255	16.536	6.591
Description: The FLRAA MTA program supports finalization of the preliminary design through execution of the delta Preliminary Design Review (dPDR) to complete any outstanding tasks required to ensure any deficiencies identified during the Competitive Demonstration and Risk Reduction (CD&RR) effort are addressed, preliminary designs are sufficiently documented, and all mission system solutions are identified and incorporated into the design. Additionally, MTA efforts support delivery of two (2) FLRAA portable crew stations (FPC) and a Vehicle Dynamics Model (VDM) completing virtual prototype design activities			
FY 2024 Plans: Completes design updates resulting in a successful delta Preliminary Design Review, continues design updates to the FLRAA Virtual Prototypes, and delivers the FLRAA Portable Crew Station (FPC) Trainers.			
FY 2025 Plans: Completes update and final delivery of the FLRAA Virtual Prototypes.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding decreased from FY24 to FY25 due to reduced scope from virtual prototype delivery to final updates and task closeout.			
Accomplishments/Planned Programs Subtotals	427.255	16.536	6.591

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CS7 / FLRAA MTA
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	FY 2023	FY 2024
Congressional Add: FLRAA Program Increase	23.000	-
<i>FY 2023 Accomplishments:</i> Executed additional scope on the FLRAA Weapon System Development contract to include incorporating design provisions for MEDEVAC, Air Launched Effects data links, Aviation Mission Common Server, and Heads Up display capabilities. Further refine and mature Government Furnished Equipment and associated models to support the FLRAA MTA program execution.		
Congressional Add: Modular Communication, Command, and Control Suite	12.000	-
<i>FY 2023 Accomplishments:</i> Supported the maturation of technologies and models supporting modular communication, command, and control mounted form factor prototyping efforts.		
Congressional Adds Subtotals	35.000	-

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• B47: Future Vertical Lift	202.522	1,027.608	0.000	-	0.000	-	-	-	-	0.000	1,230.130

Remarks
The FLRAA MTA was initiated under PE 0603801A/B47 - Future Vertical Lift in FY 2022 and was restructured into the unique Project CS7 for FY 2023 through the remainder of the MTA Program.

D. Acquisition Strategy

The Future Long Range Assault Aircraft (FLRAA), Future Vertical Lift (FVL) Capability Set Three (CS3) is the program that will develop the next generation of affordable vertical lift tactical assault / utility aircraft for the Army.

The FLRAA MTA program supports finalization of the preliminary design through execution of the delta Preliminary Design Review (dPDR) to complete any outstanding tasks required to ensure any deficiencies identified during the Competitive Demonstration and Risk Reduction (CD&RR) effort are addressed, preliminary designs are sufficiently documented, and all mission system solutions are identified and incorporated into the design. Additionally, FLRAA MTA efforts support the design and development of FLRAA virtual prototypes consisting of the FLRAA Vehicle Dynamic Model (VDM) and FLRAA Portable Crew Stations (FPC). The VDM will be used with an FPC prototype simulator and integrated with the CABAIL and AMBL capabilities. The virtual prototypes will be capable of performing hardware in the loop test after successful integration of the Aircraft software. The virtual prototypes will help conduct early tactics, techniques, and procedures (TTPs) experimentation before user evaluations and participate in Army warfighting exercises to develop multi-domain operation doctrine and concepts.

The follow-on physical weapons system development will leverage the outcomes of the FLRAA MTA program to provide the Joint Force with a capability that possesses transformational increases in speed, range, and maneuverability to allow the Army to retain the freedom of maneuver and win in Multi Domain Operations (MDO). This

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CS7 / FLRAA MTA
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medium lift tactical assault and medical evacuation (MEDEVAC) aircraft will augment the Army's H-60 Black Hawk utility helicopter fleet to provide Combat Aviation Brigades with long-range, high-speed options that are survivable in contested environments.

The Army is executing a hybrid acquisition approach to design, develop, and deliver the FLRAA weapons system. In order to support the Army's modernization strategy and concept for multi-domain operations, the FLRAA program will deliver the first aircraft in FY 2030. This hybrid approach builds on the JMR-TD efforts (started in 2013), the Army's AoA (completed in July 2019), and multiple ongoing risk mitigation efforts.

The Army's risk mitigation activities ahead of the MTA and Weapon System Development include: (1) additional conceptual design and flight envelope expansion tasks on the existing JMR-TD Technology Investment Agreements (TIA); (2) MOSA, FVL Architecture Collaboration Working Group (with participation from industry and academia) to establish a common architecture requirements framework for FLRAA system development; and (3) a CD&RR effort, awarded to two Project Agreement Holders (PAH), using OTA agreements to provide substantiating technical documentation on weapon system designs, requirements decompositions, trade-studies, and requirements feasibility for the FLRAA PoR. These risk reduction activities maintain industry engagement and momentum from the JMR-TD program, inform capabilities and system requirements, and provide initial trade assessments for the final operational requirements. They also inform the final acquisition strategy, mature the Government's architecture requirements development, and transition appropriate Science and Technology investments to the PoR. CD&RR Phase II incorporated efforts leading to preliminary design using a digital engineering environment. The Army competitively awarded the Weapon System Development contract in December 2022 to one vendor with a hybrid acquisition approach.

This approach includes the opportunity to employ new DoDI 5000.80 (Operation of the Middle Tier of Acquisition (MTA)) authorities along with a tailored DoDI 5000.85 (Major Capability Acquisition) acquisition strategy. Finally, the Army is also addressing life cycle affordability, sustainability, and maintainability early in the program. The FLRAA program is employing multiple strategies including should cost reduction opportunities, use of a digital thread from design through sustainment, and stochastic sustainment modeling. FLRAA is also one of the Army's pilot programs for digital engineering and life cycle intellectual property and data strategy development.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CS7 / FLRAA MTA
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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
FLRAA delta Preliminary Design (MTA)	██████████ <i>Preliminary Design</i>				██████████																							
FLRAA Virtual Prototyping (MTA)	██████████████████████ <i>Virtual Prototyping</i>				██████████																							
FLRAA Virtual Prototype Delivery 1	██████████				██████████				▲ 1 FPC Delivery 1																			
FLRAA Virtual Prototype Delivery 2	██████████				██████████				▲ 2 FPC Delivery 2																			

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) CS7 / FLRAA MTA
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FLRAA delta Preliminary Design (MTA)	1	2023	2	2024
FLRAA Virtual Prototyping (MTA)	1	2023	1	2025
FLRAA Virtual Prototype Delivery 1	4	2024	4	2024
FLRAA Virtual Prototype Delivery 2	4	2024	4	2024

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) F12 / Future Attack Reconnaissance Aircraft
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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
F12: Future Attack Reconnaissance Aircraft	-	430.172	428.865	-	-	-	-	-	-	-	0.000	859.037
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Capability Set 1 (CS1) Future Attack Reconnaissance Aircraft (FARA) was part of the Future Vertical Lift (FVL) Family of Systems. FARA was intended to restore crewed attack/reconnaissance dominance with sweeping improvements in lethality, agility, reach, survivability, and sustainability. FARA was intended to mitigate enemy long-range capabilities to allow joint force commanders to fight and operate from relative sanctuary while creating lethal effects from outside enemy sensor/weapons range.

Funding supported the development and integration of Government Furnished Equipment (GFE). FARA would have been powered by Improved Turbine Engine (ITE), with maximum cruise airspeed greater than or equal to 180 KTAS, an integrated Area Weapons System (AWS), Modular Effects Launcher (MEL) for Launched Effects (LE) and Long Range Precision Munition (LRPM), and Modular Open System Approach (MOSA) digital backbone.

The FVL Capability Set 1 Initial Capabilities Requirements Document (ICRD) was approved in July 2018 under the name Future Attack Reconnaissance Aircraft (FARA). An Abbreviated Capability Development Document (A-CDD) was approved on 9 Apr 2021 and updated on 15 Aug 2022. The Acquisition Approach and Determination and Findings for Other Transaction Authority for Prototyping agreements were approved on 1 February 2019 by the Acting Under Secretary of Defense (Acquisition and Sustainment) to execute a Competitive Prototyping (CP) effort.

Prior to the Army's decision to discontinue FARA program funding beyond FY 2024, FARA was conducting a Competitive Prototyping (CP) design and demonstration in parallel with the Weapons System (WS) Preliminary Design to inform a Milestone B decision.

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

	FY 2023	FY 2024	FY 2025
Title: Future Attack Reconnaissance Aircraft	420.172	428.865	-
Description: FARA was chartered to design, build, test, and field the next-generation reconnaissance aircraft. Prior to the Army's decision to discontinue FARA program funding beyond FY 2024, FARA was conducting parallel prototyping and preliminary design activities to inform a Milestone B and source selection decision.			
FY 2024 Plans: Continues support of hardware (HW) and software (SW) development, component/subsystem Assembly, Integration and Test (AI&T), SW and HW In-the-Loop efforts, GFE planning/development and MOSA development in preparation for final AI&T of the CP aircraft and conduct CP Flight Demonstration. Continues Increment #1 Weapons System preliminary development and design (air vehicle and mission systems development) culminating in- a Preliminary Design Review (PDR) in FY 2025. Supports			

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) F12 / Future Attack Reconnaissance Aircraft

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>the second and final Open Systems Verification Demonstrations that will verify each vendors compliance with MOSA standards. Supports the flight testing efforts associated with the FARA CP aircraft. Continues support of documentation requirements for the Program of Record (POR). Supports release of the final EMD RFP and initiates the SSEB review process for EMD contract award and down selection to one vendor.</p> <p>Supports early program analyses of life cycle affordability, sustainability, and maintainability. The FARA program is employing multiple strategies including should cost reduction opportunities, use of a digital thread from design through sustainment, and stochastic sustainment modeling.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The Army has discontinued the FARA program beyond FY 2024.</p>			
Accomplishments/Planned Programs Subtotals	420.172	428.865	-

	FY 2023	FY 2024
Congressional Add: FARA All Electrical Flight Controls	10.000	-
FY 2023 Accomplishments: Support analysis of Flight Control Systems for FARA Air Vehicle / Weapon System Preliminary Design.		
Congressional Adds Subtotals	10.000	-

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
• B47: Future Vertical Lift	202.522	1,027.608	0.000	-	0.000	-	-	-	-	0.000	1,230.130
• CK7: FARA Ecosystem	18.346	29.151	0.000	-	0.000	-	-	-	-	0.000	47.497

Remarks

D. Acquisition Strategy

The Future Attack Reconnaissance Aircraft (FARA) program was executing a streamlined acquisition approach leveraging modern tools, processes, and industry innovation. FARA was born digital, leveraging an Open Systems Approach and Model-Based Systems Engineering from its inception, and demonstrated early cost and schedule efficiencies through Open Systems Verification Demonstrations (OSVD).

Prior to the Army's decision to discontinue FARA program funding beyond FY 2024, FARA was conducting a Competitive Prototyping (CP) design and demonstration in parallel with the Weapons System (WS) Preliminary Design to inform a Milestone B (MS B) decision. The Army's two-phased CP effort utilized Other Transaction Authority for Prototyping (OTAP).

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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 0603801A / <i>Aviation - Adv Dev</i>	Project (Number/Name) F12 / <i>Future Attack Reconnaissance Aircraft</i>

The initial design and risk reduction phase was awarded in April 2019 to five industry performers. Phase two began in March 2020 with two of the five industry performers selected to proceed to final detailed design and the development, integration and test of a flyable prototype air vehicle.

The FARA program plans to conduct engine ground runs, an OSVD, continued test and evaluation of the Modular Effects Launcher, experimentation and demonstration with relevant crewed and uncrewed technologies, technology transfer to other modernization efforts, and program close-out activities in FY 2024.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) F12 / Future Attack Reconnaissance Aircraft
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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			
PM FARA System Engineering and Program Mangement	Various	Various : Redstone Arsenal, AL	39.222	22.023	Mar 2023	21.443	Mar 2023	-		-		-	0.000	82.688	-
Subtotal			39.222	22.023		21.443		-		-		-	0.000	82.688	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			
Competitive Prototype (CP) & Weapons System Preliminary Design - Raider X	C/CS	Sikorsky Aircraft Corporation : Stratford, CT	670.378	192.700	Oct 2022	176.121	Oct 2023	-		-		-	0.000	1,039.199	-
Competitive Prototype (CP) & Weapons System Preliminary Design - 360 Invictus	C/CS	Bell Textron, Inc. : Fort Worth, TX	501.835	135.385	Oct 2022	139.425	Oct 2022	-		-		-	0.000	776.645	-
GFE - Improved Turbine Engine Development	C/CPIF	PM ATE : Redstone Arsenal	43.410	9.713	Dec 2022	7.466	Dec 2023	-		-		-	0.000	60.589	-
GFE - Modular Effects Launcher Development	Various	CCDC AvMC : Redstone Arsenal, AL	39.147	11.620	Dec 2022	17.182	Dec 2022	-		-		-	0.000	67.949	-
GFE - Area Weapon System Development	Various	CCDC AC : Picatinny Arsenal, NJ	26.087	2.256	Dec 2022	3.647	Dec 2023	-		-		-	0.000	31.990	-
Mission Systems - Integration and Support	Various	Various : Various	6.788	5.979	Dec 2022	14.334		-		-		-	0.000	27.101	-
Modular Open System Approach Development	Various	Various : Redstone Arsenal, AL	65.861	13.474	Dec 2022	13.165	Dec 2023	-		-		-	0.000	92.500	-
Subtotal			1,353.506	371.127		371.340		-		-		-	0.000	2,095.973	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 0603801A / Aviation - Adv Dev	Project (Number/Name) F12 / Future Attack Reconnaissance Aircraft
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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			
Engineering Services Support - CP Air Vehicle Dev & Test	MIPR	Redstone Test Center, CCDC-AvMC: : Redstone Arsenal, AL	12.528	4.873	Dec 2022	7.251	Dec 2023	-		-		-	0.000	24.652	-
Engineering Services Support - CP Airworthiness	MIPR	CCDC-AvMC-SRD: : Redstone Arsenal, AL	36.656	18.388	Mar 2023	19.535	Mar 2024	-		-		-	0.000	74.579	-
Simulation, Studies, and Analysis	TBD	Various : Various	15.949	3.761	Mar 2023	9.296	Mar 2024	-		-		-	0.000	29.006	-
FARA All Electrical Flight Controls	TBD	Various : Various	5.000	10.000		-		-		-		-	0.000	15.000	-
Subtotal			70.133	37.022		36.082		-		-		-	0.000	143.237	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		1,462.861	430.172	428.865	-	-	0.000	2,321.898	N/A

Remarks
 Under the Other Transaction Authorities for Prototyping (OTAP), five incrementally funded agreements were awarded in April 2019, which have payments based on performance milestones. Funding will be incrementally added to the existing awards by modification as negotiated with each performer. In March 2020, two of the five performers were selected for continued execution through final design, prototype build, and flight testing; the other three performers were issued a stop work order and ceased to receive additional funding. In FY 2023, the OTAP agreements were modified to incorporate additional scope for Weapons System Preliminary Design maturation efforts and the performance period was extended to support a Milestone B decision.

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) F12 / Future Attack Reconnaissance Aircraft

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
OTAP CP Build (Title 10 USC §4022 (formerly 2371b))																												
Competitive Prototype Build and Ground Runs																												
Open System Verification Demonstration (OSVD) #1																												
FARA Program Discontinuation Decision																												
OSVD #2																												

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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 0603801A / Aviation - Adv Dev	Project (Number/Name) F12 / Future Attack Reconnaissance Aircraft

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
OTAP Competitive Prototype (CP) Design (Title 10 USC §4022 (formerly 2371b))	3	2019	2	2020
OTAP CP - Down Select to 2 Performers (Title 10 USC §4022 (formerly 2371b))	2	2020	2	2020
OTAP CP Build (Title 10 USC §4022 (formerly 2371b))	3	2020	4	2024
Open System Verification Demonstration (OSVD) #1	4	2023	4	2023
FARA Program Discontinuation Decision	2	2024	2	2024
OSVD #2	4	2024	4	2024

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

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603804A / Logistics and Engineer Equipment - Adv Dev
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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	-	24.287	7.604	12.445	-	12.445	12.845	9.869	2.783	2.811	Continuing	Continuing
526: Marine Orien Log Eq Ad	-	2.385	2.434	2.374	-	2.374	2.723	2.752	2.783	2.811	Continuing	Continuing
EW8: Armored Engineer Vehicles	-	6.902	5.170	10.071	-	10.071	10.122	7.117	-	-	0.000	39.382
G11: Adv Elec Energy Con Ad	-	15.000	-	-	-	-	-	-	-	-	0.000	15.000

A. Mission Description and Budget Item Justification

This Program Element (PE) supports advanced component development and prototypes of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in bridging, armored engineer vehicles to include development of a robotic capability Remote Control System for the Assault Breacher Vehicle, electric power generators, material-handling, environmental control, shelter systems, cargo aerial delivery, field service systems, mortuary affairs equipment and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability on the digital battlefield and to provide for greater sustainment while reducing the logistics support burden. Army Watercraft funding supports initiatives to enhance the seaworthiness, safety, survivability, supportability, energy efficiency, environmental, bulk fuel, water generation, regulatory compliance and reliability of existing systems.

B. Program Change Summary (\$ in Millions)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	24.638	7.604	12.480	-	12.480
Current President's Budget	24.287	7.604	12.445	-	12.445
Total Adjustments	-0.351	0.000	-0.035	-	-0.035
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.351	-			
• Adjustments to Budget Years	-	-	-0.035	-	-0.035

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: G11: Adv Elec Energy Con Ad

Congressional Add: *Lightweight Portable Power*

Congressional Add: *Mobile micro-reactor program*

	FY 2023	FY 2024
	3.000	-
	12.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2023	FY 2024
Congressional Add Subtotals for Project: G11	15.000	-
Congressional Add Totals for all Projects	15.000	-

Change Summary Explanation

Change from prior year to current year is a result of cost adjustments.

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) 526 / Marine Orien Log Eq Ad
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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
526: Marine Orien Log Eq Ad	-	2.385	2.434	2.374	-	2.374	2.723	2.752	2.783	2.811	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 526 Marine Orientation Logistics Equipment Advanced Development line supports current Army Watercraft Systems (AWS) that provide the Combatant, Multi-Domain Operations (MDO) and Joint All Domain Operations (JADO) Commanders with an organic waterborne lift capability to enable Dynamic Force Repositioning (DFR) in support of unified land operations. AWS provides the waterborne transportation capability to deliver combat-configured equipment with personnel, vehicles and sustainment cargo (Bulk Water and Fuel), through fixed, degraded and austere ports, inland waterways, remote and unimproved beaches and coastlines for missions across the spectrum of military operations. AWS bridges the gap between strategic sealift and sustains lethality in littoral areas or where mature ports and road networks are unavailable. Watercraft are a key enabler to Army and Joint force in support of Title 10 and DODD missions of providing logistics to joint operations and campaigns, including DODD missions of providing logistics to joint operations and campaigns, including joint logistics over joint logistics over-the-shore and intra-theater transport of time sensitive, mission-critical personnel and equipment, and in support of amphibious and riverine operations (DODD 5100.01).

This Army Watercraft funding supports initiatives to enhance the seaworthiness, safety, and survivability while increasing the lethality, tactical mobility, and operational capability of the Army Mariner to preserve the Combatant Commanders requirement of "freedom of seas" access in all areas of the world particularly the littorals, to support maneuver operations in all Areas of Responsibility. All modification and services efforts are critical enablers for the success Army's Watercraft Systems Transformation Strategy (AWSTS) and continued fulfillment of the AWS Title 10 mission.

Funded engineering efforts will address critical gaps in these areas for the current AWS for regaining capability, while at the same time researching, developing and testing emergent technologies. To support future acquisitions and future fleet planning, funding efforts will include conducting trade studies, Business Case Analyses to inform the requirement development process, and support Analysis of Alternatives (AoA). The funding enables Army's compliance with the National Defense Authorization Act of 1996 and 502(6) of the Clean Water Act and compliance with Environmental protection Agency (EPA) emission standards.

FY 2025 RDTE dollars in the amount of \$2.374 million supports modernization of the current Army Watercraft fleet by investigating technology insertions, including, but not limited to: force protection, prognostics & preventative maintenance, vessel electronics, autonomous operations and other emerging technologies. Funding also supports developing initial prototypes to enable refinement of operational requirements and early user feedback to support future sustainment and operational movement operating concepts. All Army Watercraft modernization efforts will incorporate Predictive Logistics which includes digital updates across commercial solutions which will improve readiness, predictive maintenance, unplanned emergency repairs.

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

	FY 2023	FY 2024	FY 2025
Title: Environmental Compliance Projects (UNDs)	0.055	0.070	0.070

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) 526 / Marine Orient Log Eq Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Description: Environmental projects enable compliance with requirements as defined under in the law Uniform National Discharge Standards (UNDS) and Environmental Protection Agency (EPA) emissions standards. The EPA reviews the UNDS Code of Federal Regulations (CFR) language in five-year increments separated into three batches (types of discharge). This is an ongoing assessment of statutory language which may or may not result in material solution change.</p> <p>FY 2024 Plans: Update UNDS Awareness brief for Batch III Discharges and develop an environmental compliance waterfront training brief.</p> <p>FY 2025 Plans: Support for all aspects of the UNDS program, including updates for Army UNDS implementation plan and Technical bulletin; provide recommendation for new Army watercraft designs equipped with clean ballast water systems and their respective ship specifications based on Approval process (including environmental testing of shock, vibe and EMI).</p>				
<p>Title: Force Protection Capability</p> <p>Description: Army Watercraft Systems (AWS) Force Protection capability is limited to defensive measures. Current efforts include development of gunner station and weapon station locations, integration of Common Remotely Weapon Station (CROWS) and non-lethal Escalation of Force (EoF). The EoF capability includes white light, an acoustic hailing device, and Forward Looking Infra-Red (FLIR) cameras.</p> <p>FY 2024 Plans: Support EoF capabilities that include, but are not limited to, white light, an acoustic hailing device, sub surface surveillance, and Electro-Optical / Infrared (EO/IR) capabilities.</p> <p>FY 2025 Plans: Support CROWS testing and EoF capabilities that include, but are not limited to, white light, an acoustic hailing device, sub surface surveillance, and Electro-Optical / Infrared (EO/IR) capabilities.</p>		0.530	0.524	0.524
<p>Title: Army Watercraft Program Support</p> <p>Description: Army Watercraft Program Support includes Program Management and System Engineering matrix salaries and in-house contractor salaries, travel, and other support costs required to effectively manage the AWS projects and provide contractor oversight. It also includes benefits, personnel training, and other Government costs required to retain a professional acquisition workforce.</p> <p>FY 2024 Plans:</p>		1.100	1.190	1.180

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) 526 / Marine Orient Log Eq Ad		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Provide engineering support for C5ISR Studies, LSV technical upgrades and Force Protection design work. FY 2025 Plans: Provide engineering support for C5ISR Studies, LSV technical upgrades and Force Protection design work. FY 2024 to FY 2025 Increase/Decrease Statement: FY25 decrease in matrix labor support for RDTE requirements.				
Title: Trade Studies and Business Analysis Description: Conduct Affordability and Feasibility Studies for concept development for future vessel platforms. FY 2024 Plans: Funding will continue to support concept development improvements for the current and future fleet. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to completion of trade study and business analysis efforts in FY24.		0.050	0.050	-
Title: Predictive Logistics Description: As Army Watercraft are equipped with subsystems that allow for sharing of digital information it is a natural evolution to incorporate Predictive Logistics which includes digital updates across commercial solutions which will improve readiness, improve maintainability with predictive maintenance, and timely repair of unplanned emergency repairs. FY 2024 Plans: Funding to ramp up of predictive logistics to improve new digital integrated subsystem upgrades on the vessels. FY 2025 Plans: Funding for predictive logistics to improve new digital integrated subsystem upgrades on the vessels.		0.050	0.100	0.100
Title: Test Support Description: Supports in house and external performance tests of concept hardware. In addition, supports evaluation of subsystems and components for Army Watercraft Systems Current Fleet. FY 2024 Plans: Funding will continue to support test and evaluation engineering design changes on the fleet to improve maintainability and readiness of the fleet. FY 2025 Plans:		0.150	0.500	0.500

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) 526 / Marine Orient Log Eq Ad

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funding will continue to support test and evaluation engineering design changes on the fleet to improve maintainability and readiness of the fleet.			
Title: At Sea Transfer Technology	0.450	-	-
Description: At Sea Transfer Technology enables roll on and roll off (RO/RO) capability from vessels at sea and causeway transport of vehicles and equipment to the beach or shore. The current effort serves to inform development of the Service Life Extension Program (SLEP) for the Modular Warping Tug (MWT) and Causeway Ferru (CF) which are principle working platforms on the Modular Causeway System (MCS)			
Accomplishments/Planned Programs Subtotals	2.385	2.434	2.374

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
• MA4501: MODIFICATION KITS	37.891	20.282	26.258	-	26.258	20.117	35.663	32.332	32.655	Continuing	Continuing
• MA4502: INSTALLATION OF MODIFICATIONS	4.999	5.833	8.160	-	8.160	5.575	9.861	9.848	9.903	Continuing	Continuing
• M11101: Army Watercraft Esp	47.889	30.592	55.459	-	55.459	59.275	71.374	29.699	29.996	0.000	324.284

Remarks

D. Acquisition Strategy

The Product Manager for Army Watercraft intends to leverage government and public research centers Ground Vehicle Systems Center (GVSC), Naval Surface Warfare Center (NSWC) Philadelphia, AWS System Technical Support (STS) contractor (Noblis) and known public research institutes (Battelle) along with associated contract mechanisms to prototype, test, and evaluate component technologies that can improve maintainability and supportability, increase readiness, and reduce costs of Army Watercraft Systems.

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) 526 / Marine Oriented Log Eq Ad
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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			
Force Protection, Escalation of Force (EoF) Development (i.e. CROWS)	MIPR	TARDEC : Warren, MI	6.188	0.530	Nov 2022	0.524	Nov 2023	0.524	Nov 2024	-		0.524	Continuing	Continuing	-
Environmental Compliance Uniform National Discharge Standards (UNDS)	MIPR	Carderock : Maryland and Pennsylvania	3.448	0.055	Oct 2022	0.070	Oct 2023	0.070	Oct 2024	-		0.070	Continuing	Continuing	-
Trade Study Analyses	TBD	TBD : TBD	0.453	0.050	Feb 2023	0.050	Feb 2024	-		-		-	0.000	0.553	-
Predictive Logistics	TBD	TBD : TBD	-	0.050	Jun 2023	0.100	Dec 2024	0.100	Dec 2024	-		0.100	0.000	0.250	-
At Sea Transfer Technology	MIPR	Battelle : Battelle	7.984	0.450	May 2023	-		-		-		-	0.000	8.434	-
Subtotal			18.073	1.135		0.744		0.694		-		0.694	Continuing	Continuing	N/A

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			
Army Watercraft Program Support	MIPR	Detroit Arsenal PMs, TARDEC, NAVSEA Carderock : Maryland, Warren, MI	3.167	1.100	Dec 2022	1.190	Dec 2023	1.180	Dec 2024	-		1.180	Continuing	Continuing	-
Subtotal			3.167	1.100		1.190		1.180		-		1.180	Continuing	Continuing	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			
Test and Evaluation	TBD	TBD : TBD	-	0.150	Jun 2023	0.500	Oct 2023	0.500	Oct 2024	-		0.500	0.000	1.150	-
Subtotal			-	0.150		0.500		0.500		-		0.500	0.000	1.150	N/A

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>		Project (Number/Name) 526 / <i>Marine Oriented Log Eq Ad</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				
Army Watercraft Program Support	[Redacted]																															
Force Protection: Escalation of Force (EOF)	[Redacted]																															
Force Protection: CROWS on LSV Class	[Redacted]				[Redacted]																											
Force Protection: CROWS on LCU Class	[Redacted]																															
Environmental Compliance	[Redacted]																															
Uniformed National Discharge Standards (UNDS)	[Redacted]																															
Predictive Logistics	[Redacted]																															
At Sea Transfer Technology	[Redacted]				[Redacted]																											

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) 526 / <i>Marine Oriented Log Eq Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Army Watercraft Program Support	1	2018	4	2029
Force Protection: Escalation of Force (EOF)	1	2018	4	2029
Force Protection: CROWS on LSV Class	1	2018	4	2023
Force Protection: CROWS on LCU Class	1	2023	4	2028
At Sea Transfer Technology (MCS)	1	2018	1	2021
Modular Warping Tug (MWT) / Causeway Ferry (CF)	1	2018	1	2021
MWT / CF - SLEP Development Contract	4	2018	4	2018
MWT / CF - SLEP Prototype and Proof Concept	1	2018	4	2020
MWT / CF - SLEP Testing	1	2020	4	2020
Environmental Compliance	1	2018	4	2029
Uniformed National Discharge Standards (UNDS)	1	2018	4	2029
UNDS Batch 2	4	2020	4	2020
UNDS Batch 3	4	2022	4	2022
Trade Studies and Business Analyses	4	2019	2	2022
Predictive Logistics	1	2023	4	2029
At Sea Transfer Technology	2	2018	4	2023

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>				Project (Number/Name) EW8 / <i>Armored Engineer Vehicles</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
EW8: <i>Armored Engineer Vehicles</i>	-	6.902	5.170	10.071	-	10.071	10.122	7.117	-	-	0.000	39.382
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the prototype development, test and evaluation of a robotic capability Remote Control System (RCS) for the Assault Breacher Vehicle (ABV), to include prototype fabrication, developmental testing, operational testing and logistics demonstration / user test events.

Funding supports modernization of Army Bridging and Armored Engineer Vehicle fleets by investigating technology insertions including, but not limited to: condition based maintenance, increased military load capacities, autonomous operations and other emerging technologies. Funding also supports developing initial prototypes and testing to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

FY 2025 Base dollars in the amount of \$10.071 million supports a Assault Breacher Vehicle Robotic Control System (ABV RCS) development contract award for test asset build, developmental testing, logistics and training development, and program support.

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

	FY 2023	FY 2024	FY 2025
Title: Assault Breacher Vehicle (ABV) Remote Control System (RCS)	6.902	5.170	10.071
FY 2024 Plans: Funds additional prototype testing, conduct of a second User Jury, test asset shipping, and program support.			
FY 2025 Plans: Funds award of a follow-on development contract, training and logistics development, and associated developmental testing.			
FY 2024 to FY 2025 Increase/Decrease Statement: Increase in FY 2025 for training/logistic development activities.			
Accomplishments/Planned Programs Subtotals	6.902	5.170	10.071

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

N/A

Remarks

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) EW8 / <i>Armored Engineer Vehicles</i>

D. Acquisition Strategy

The Assault Breacher Vehicle (ABV) Remote Control System (RCS) program is pursuing prototype development and testing strategy with one vendor to provide an RCS materiel solution for production and integration into the ABV system. Anniston Army Depot (ANAD) previously refurbished 3 ABV assets for prototype development and testing. The ABV RCS prototype will be developed and refined through prototype test and User Jury events. Successful completion of prototype testing will be used as the entrance criteria for a follow-on development contract award. Under this contract, test assets will be developed with test commencing in 4th quarter FY25 and early user test in FY26. Upon successful completion of developmental testing, the program will execute a Low Rate Initial Production (LRIP) contract for production assets in FY27. First unit equipped is projected in FY28.

The current Army Procurement Objective (APO) is 36 for ABV RCS kits.

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) EW8 / Armored Engineer Vehicles
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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			
ABV RCS Matrix Functional Support	MIPR	Various : Various	2.509	1.141	Nov 2022	0.863	Nov 2023	1.350	Oct 2024	-		1.350	0.000	5.863	-
Subtotal			2.509	1.141		0.863		1.350		-		1.350	0.000	5.863	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			
ABV RCS Prototype Development and Fabrication	C/TBD	TBD : TBD	2.835	0.606	Apr 2023	-		-		-		-	0.000	3.441	-
ABV RCS Refurbishment of ABV Assets	MIPR	Anniston Army Depot : Anniston AL	5.438	3.018	Mar 2023	-		-		-		-	0.000	8.456	-
ABV RCS Shipping	TBD	TBD : TBD	0.020	0.014	Jul 2023	0.300	Jul 2024	0.300	Oct 2024	-		0.300	0.000	0.634	-
ABV RCS Depot Support	RO	ANAD : Anniston Army Depot	-	0.229	Jul 2023	0.250	Mar 2024	0.200	Oct 2024	-		0.200	0.000	0.679	-
ABV RCS Logistics/ Training Development	TBD	Contrator/ILSC : Ann Arbor/Warren	-	-		-		0.570	Oct 2024	-		0.570	0.000	0.570	-
ABV RCS Development Contract Award	TBD	Cybernet : Ann Arbor	-	-		-		5.500	Oct 2024	-		5.500	0.000	5.500	-
Subtotal			8.293	3.867		0.550		6.570		-		6.570	0.000	19.280	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			
ABV RCS Test & Evaluation	MIPR	ATC : Aberdeen, MD	-	1.894	Jul 2023	3.657	Nov 2023	2.151	Mar 2025	-		2.151	0.000	7.702	-
ABV RCS User Jury	TBD	TBD : TBD	-	-		0.100	Feb 2024	-		-		-	0.000	0.100	-
Subtotal			-	1.894		3.757		2.151		-		2.151	0.000	7.802	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 0603804A / Logistics and Engineer Equipment - Adv Dev				Project (Number/Name) EW8 / Armored Engineer Vehicles					
	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		10.802	6.902	5.170	10.071	-	10.071	0.000	32.945	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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) EW8 / <i>Armored Engineer Vehicles</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
ABV RCS Prototype Development	[Redacted]				[Redacted]																							
ABV RCS User Jury (First)	[Redacted]				[Redacted]																							
ABV RCS User Jury (Second)	[Redacted]				[Redacted]																							
ABV RCS Overhaul/ Refurb	[Redacted]				[Redacted]																							
ABV RCS RCM Maintenance Planning	[Redacted]				[Redacted]																							
ABV RCS Prototype Test	[Redacted]				[Redacted]																							
ABV RCS Development Contract Award	[Redacted]				[Redacted]																							
ABV RCS Dev/Test Asset Build	[Redacted]				[Redacted]				[Redacted]																			
ABV RCS Logistics Development	[Redacted]				[Redacted]				[Redacted]				[Redacted]															
ABV RCS Training Development	[Redacted]				[Redacted]				[Redacted]				[Redacted]															
ABV RCS Developmental Test	[Redacted]				[Redacted]				[Redacted]				[Redacted]															
ABV RCS Early User Test	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]											
ABV RCS Design Updates	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]											

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) EW8 / <i>Armored Engineer Vehicles</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	
ABV RCS LRIP Award																	4												
ABV RCS LRIP Award																													
ABV RCS Production																													
ABV RCS Production Qualification Test																													
ABV RCS PQT																													
ABV RCS Fieldings																													

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) EW8 / <i>Armored Engineer Vehicles</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ABV RCS P Spec Development	1	2020	4	2021
ABV RCS Request for Prototype Proposals	1	2022	1	2022
ABV Overhaul (Qty of 2)	4	2021	2	2022
ABV RCS Prototype Source Selection	2	2022	2	2022
ABV RCS Prototype OTA Award	3	2022	3	2022
ABV RCS Prototype Development	3	2022	2	2024
ABV RCS User Jury (First)	3	2023	3	2023
ABV RCS User Jury (Second)	3	2024	3	2024
ABV RCS Overhaul/ Refurb	1	2023	2	2024
ABV RCS RCM Maintenance Planning	1	2023	1	2024
ABV RCS Prototype Test	2	2024	4	2024
ABV RCS Development Contract Award	1	2025	1	2025
ABV RCS Dev/Test Asset Build	1	2025	4	2025
ABV RCS Logistics Development	1	2025	2	2027
ABV RCS Training Development	1	2025	2	2027
ABV RCS Developmental Test	3	2025	4	2026
ABV RCS Early User Test	3	2026	4	2026
ABV RCS Design Updates	4	2026	2	2027
ABV RCS LRIP Award	1	2027	1	2027
ABV RCS Production	1	2027	1	2031
ABV RCS Production Qualification Test	2	2027	4	2027
ABV RCS Fieldings	4	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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) G11 / Adv Elec Energy Con Ad
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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
G11: Adv Elec Energy Con Ad	-	15.000	-	-	-	-	-	-	-	-	0.000	15.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This project is a Congressional Interest Item

A. Mission Description and Budget Item Justification

As the DoD's Lead Standardization Activity for Tactical Electric Power (TEP), Project Manager Expeditionary Energy & Sustainment Systems (PM E2S2) matures and integrates technology that will improve the next generation of standard tactical power sources in support of all Services. It supports technical maturation of TEP systems that will extend Army operational mission reach and duration in support of the Army Operating Concept and Multi-Domain Battle.

Funding supports modernization of the current Tactical Electric Power capability with technology insertions including, but not limited to hybrid capabilities, light-weight power solutions, vehicle/tactical microgrid interoperability and Tactical Microgrid Standards (TMS). Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment an operational energy concepts. This project is a Congressional Interest Item. Congressionally provided funds will support analysis and planning for potential transition to the Army of the mobile micro-reactor prototype and capability.

G11 / Adv Elec Energy Con Ad has no FY 2025 funding request.

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

	FY 2023	FY 2024
Congressional Add: Lightweight Portable Power	3.000	-
FY 2023 Accomplishments: FY23 congressional funds to be executed on the final development of a lightweight, portable power generation system.		
Congressional Add: Mobile micro-reactor program	12.000	-
FY 2023 Accomplishments: FY23 congressional funds to be executed in the analysis to support the potential transition of the mobile micro-reactor program.		
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
• 194: Engine Driven Gen Ed	24.475	12.806	11.865	-	11.865	6.995	3.132	3.207	3.239	0.000	65.719

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</i>

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
• MA9800: <i>Generators And Associated Equip</i>	112.689	78.364	81.540	-	81.540	83.041	96.266	95.808	96.091	Continuing	Continuing

Remarks

D. Acquisition Strategy

Complete advanced development pre-Milestone B technology assessments and analysis, and transition products to Engineering and Manufacturing Development (EMD) phase (Milestone B) and subsequent transition to production (Milestone C). Support concept development and demonstration efforts. Products and technologies supported include tactical power and energy sources, alternative/renewable energy systems, power distribution components, and power management and distribution control systems. Perform analysis of Operational Energy related impacts to future development programs to better direct United States Army Combat Capabilities Development Command (CCDC) efforts.

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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 0603804A / Logistics and Engineer Equipment - Adv Dev	Project (Number/Name) G11 / Adv Elec Energy Con Ad
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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			
Mobile micro-reactor program	Various	OCE; RTI : Various	-	1.169	Sep 2023	-		-		-		-	0.000	1.169	-
Lightweight portable power generation	Various	C5ISR : Aberdeen Proving Ground, MD	-	0.012	Aug 2023	-		-		-		-	0.000	0.012	-
Subtotal			-	1.181		-		-		-		-	0.000	1.181	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			
Lightweight portable power generation	Various	C5ISR : Aberdeen Proving Ground, MD	12.421	2.988	Sep 2023	-		-		-		-	Continuing	Continuing	Continuing
Mobile micro-reactor program	Various	Idaho National Labs; Air Force Civil Engineering Cmd : Idaho Falls, ID; Tyndall AF Base, FL	-	10.831	Sep 2023	-		-		-		-	0.000	10.831	-
Subtotal			12.421	13.819		-		-		-		-	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		12.421	15.000	-	-	-	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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>		Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</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
Lightweight portable power	[Greyed out]				[Greyed out]																							
Modeling and development of lightweight portable power																												
Mobile micro-reactor program	[Greyed out]				[Greyed out]																							
Planning and Analysis of MMPP technologies and applications																												

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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 0603804A / <i>Logistics and Engineer Equipment - Adv Dev</i>	Project (Number/Name) G11 / <i>Adv Elec Energy Con Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Lightweight portable power	2	2021	4	2024
Modeling and development of lightweight portable power	2	2021	4	2024
Mobile micro-reactor program	3	2023	4	2024
Planning and Analysis of MMPP technologies and applications	3	2023	4	2024

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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 0603807A / <i>Medical Systems - Adv Dev</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	-	5.598	1.602	0.582	-	0.582	1.014	1.026	1.038	1.050	0.000	11.910
808: <i>DoD Drug & Vacc Ad</i>	-	0.403	0.422	0.422	-	0.422	0.432	0.438	0.443	0.449	0.000	3.009
836: <i>Field Medical Systems Advanced Development</i>	-	5.195	1.180	0.160	-	0.160	0.582	0.588	0.595	0.601	0.000	8.901

A. Mission Description and Budget Item Justification

This Program Element (PE) funds development of medical materiel within the early system integration portion of the System Development and Demonstration phase of the acquisition life cycle using 6.4 (Advanced Component Development and Prototype) funding. Program efforts support transition of promising Science and Technology candidate medical technologies (drugs, vaccines, medical devices, diagnostics, and mechanisms for detection and control of disease carrying insects) to larger scale testing in humans for safety and effectiveness. Programs are aligned to meet future force requirements identified within concept documents and organizational structures. This PE also provides funding for Food and Drug Administration (FDA) regulated human clinical trials to gain additional information about safety and effectiveness on the path to licensure for use in humans. These efforts are managed by U.S. Army Medical Materiel Development Activity (USAMMDA) of the U.S. Army Medical Research and Development Command.

B. Program Change Summary (\$ in Millions)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	5.598	1.602	0.596	-	0.596
Current President's Budget	5.598	1.602	0.582	-	0.582
Total Adjustments	0.000	0.000	-0.014	-	-0.014
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.014	-	-0.014

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 836: *Field Medical Systems Advanced Development*

Congressional Add: *Program increase - wearable medical device for Traumatic Brain Injury (TBI) prevention*

Congressional Add Subtotals for Project: 836

	FY 2023	FY 2024
	5.000	-
	5.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603807A / <i>Medical Systems - Adv Dev</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2023	FY 2024
Congressional Add Totals for all Projects	5.000	-

Change Summary Explanation

Decrease due to alignment of medical health applications to DHA.

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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 0603807A / <i>Medical Systems - Adv Dev</i>				Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</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
808: <i>DoD Drug & Vacc Ad</i>	-	0.403	0.422	0.422	-	0.422	0.432	0.438	0.443	0.449	0.000	3.009
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds development of candidate medical countermeasures for endemic infectious diseases of military relevance. These efforts are in: vaccines, drugs, diagnostic kits/devices. These funds support human clinical effectiveness (capacity to produce a desired size of an effect under ideal or optimal conditions) trials of the drug/vaccine in larger groups that are designed to assess how well the drug/vaccine works and continue safety assessments in a larger group of volunteers. Funding supports both technical evaluations and human clinical testing to assure the safety and effectiveness of medical diagnostic kits and devices. This work, which is performed in military laboratories or civilian pharmaceutical firms, is directed toward the prevention of disease, early diagnosis, and accelerated recovery time once diagnosed to enhance battlefield readiness. All clinical trials are conducted in accordance with United States (U.S.) Food and Drug Administration (FDA) regulations, a mandatory obligation for all military products placed into the hands of medical providers or service members. Product development priorities are determined based upon four major factors: (1) the extent and threat of the disease within the Combatant Commands theater of operations, (2) the clinical severity of the disease, (3) the technical maturity of the proposed solution, and (4) the affordability of the solution (development and production).

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

	FY 2023	FY 2024	FY 2025
Title: DoD Drug and Vaccine Advanced Development - Medical Readiness	0.403	0.422	0.422
Description: Funding is provided for the development of candidate medical countermeasures for military relevant infectious disease focusing on prevention to increase medical readiness. Funding supports both technical evaluations and human clinical testing to assure the safety and effectiveness of drugs, vaccines, medical diagnostic kits and devices			
FY 2024 Plans: Will provide Civilian Manpower support for Warfighter Health, Performance and Evacuation Project Management Office			
FY 2025 Plans: Will continue to provide Civilian Manpower support for Medical Field Systems Project Management Office (MFS PMO, formerly known as Warfighter Health, Performance and Evacuation PMO)			
Accomplishments/Planned Programs Subtotals	0.403	0.422	0.422

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

N/A

Remarks

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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 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</i>
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D. Acquisition Strategy

Test and evaluate in-house and commercially developed products in extensive commercial partner or government-managed clinical trials to gather data required for FDA licensure ensuring government (military) requirements are met with judicious investment.

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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 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</i>
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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
Medical Field Systems Project Management Office (MFS PMO...)																												

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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 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 808 / <i>DoD Drug & Vacc Ad</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Medical Field Systems Project Management Office (MFS PMO) Civilian Manpower support	1	2023	4	2025

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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 0603807A / <i>Medical Systems - Adv Dev</i>				Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</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
836: <i>Field Medical Systems Advanced Development</i>	-	5.195	1.180	0.160	-	0.160	0.582	0.588	0.595	0.601	0.000	8.901
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the demonstration and validation of medical products for enhanced combat casualty care and follow-on care. This Project funds human clinical trials to test the safety and effectiveness of biologics (products derived from living organisms) and devices necessary to meet medical requirements. The Project Manager (PM) also considers factors to reduce the medical logistics footprint through smaller weight, volume, and equipment independence from supporting materials. All clinical trials are conducted in accordance with U.S. FDA regulations. Products from this project will transition to PE 0604807A (Medical Materiel/Medical Biological Defense Equipment - Eng Dev) /Project 832 (Field Medical Systems Engineering Development).

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

	FY 2023	FY 2024	FY 2025
Title: Field Medical Systems Advanced Development - Medical Readiness	0.195	1.180	0.160
Description: Funding is provided for engineering and manufacturing development of medical products for diagnostic devices and testing of medical devices for use in the field. This project provides for the advanced product development and prototyping of Army lifesaving medical field systems. Project supports development and testing of medical products and equipment for deployable forces providing future interoperability of systems on the battlefield and situational awareness of Soldier well-being. Project supports enhancements to Soldier battlefield effectiveness, survivability, and sustainment. This project also supports joint medical field systems and prolonged combat casualty care requirements.			
FY 2024 Plans: Medical Health Applications: Transitioned more advanced apps from 6.4 - 836 to 832. Will finalize software design, development, test planning, acquisition documentation, and life cycle support of mission planning mobile software apps that give Commanders the tools capable of optimizing Soldier performance and readiness and reducing the risk of costly non-battle injuries related to mental acuity, fatigue management and arctic warfare.			
Arctic Medical Capabilities: Will develop a family of casualty care and prevention systems for operation in extreme cold weather per 2021 U.S. Army Arctic Strategy, "Regaining Arctic Dominance".			
FY 2025 Plans: Division Medical Mobile Shelter (DMMS): Begin evaluating commercial infrastructure equipment and development of DMMS.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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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 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funding decrease in FY25 due to transition of Medical Health Applications to DHA and extended delay in Arctic Medical Capabilities requirements.			
Accomplishments/Planned Programs Subtotals	0.195	1.180	0.160

	FY 2023	FY 2024
Congressional Add: Program increase - wearable medical device for Traumatic Brain Injury (TBI) prevention	5.000	-
FY 2023 Accomplishments: Wearable medical device for TBI Prevention- Award R&D contract to Medical Technology Enterprise Consortium (MTEC) Other Transaction Authority (OTA); Initiate protocol development for severe and penetrating TBI safety study (large animal); Purchase request for 5,000 Q-Collars for use in long-term safety study and fit/tolerability evaluations; Initiate protocol development for long-term safety study (human) and fit/tolerability evaluations; Early coordination with U.S. Army Center for Initial Military Training (CIMT) for study participants		
Congressional Adds Subtotals	5.000	-

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

N/A

Remarks

D. Acquisition Strategy

Develop in-house or industrial prototypes in government-managed programs to meet military and regulatory requirements for production and fielding.

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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 / 4				PE 0603807A / Medical Systems - Adv Dev				836 / Field Medical Systems Advanced 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
Medical Product Development Management Services Cost	Various	Not Applicable : Not applicable	50.446	-		0.466		0.012		-		0.012	Continuing	Continuing	Continuing
Subtotal			50.446	-		0.466		0.012		-		0.012	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
Program Increase - Wearable Medical Device for TBI prevention	TBD	TBD : TBD	8.000	5.000		-		-		-		-	0.000	13.000	-
Subtotal			8.000	5.000		-		-		-		-	0.000	13.000	N/A
Support (\$ 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
Medical Health Applications	TBD	TBD : TBD	-	0.195		0.714		-		-		-	0.000	0.909	-
Division Medical Mobile Shelter (DMMS)	TBD	TBD : TBD	-	-		-		0.148		-		0.148	0.000	0.148	-
Subtotal			-	0.195		0.714		0.148		-		0.148	0.000	1.057	N/A
Remarks															
No product/contract costs greater than \$1M individually.															
Project Cost Totals			58.446	5.195		1.180		0.160		-		0.160	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 0603807A / <i>Medical Systems - Adv Dev</i>			Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>				

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
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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 0603807A / <i>Medical Systems - Adv Dev</i>		Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</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
Medical Health Applications																												
Division Medical Mobile Shelter (DMMS)																												

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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 0603807A / <i>Medical Systems - Adv Dev</i>	Project (Number/Name) 836 / <i>Field Medical Systems Advanced Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Medical Health Applications	1	2023	4	2024
Division Medical Mobile Shelter (DMMS)	1	2025	4	2026

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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 0603827A / <i>Soldier Systems - Advanced 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	-	20.807	27.681	24.284	-	24.284	31.528	31.861	32.215	32.540	Continuing	Continuing
CF2: <i>Integrated Soldier Systems Prototyping (SL CFT)</i>	-	3.291	3.688	3.642	-	3.642	3.897	3.938	3.982	4.022	0.000	26.460
ET8: <i>Personnel Airdrop System Development</i>	-	1.785	2.208	0.911	-	0.911	2.258	2.282	2.308	2.333	Continuing	Continuing
S53: <i>Clothing And Equipment</i>	-	2.966	4.700	5.959	-	5.959	8.589	8.681	8.776	8.864	Continuing	Continuing
S54: <i>Small Arms Improvement</i>	-	7.950	9.094	7.971	-	7.971	8.974	9.069	9.169	9.261	0.000	61.488
VS4: <i>Soldier Protective Equipment</i>	-	4.815	7.991	5.801	-	5.801	7.810	7.891	7.980	8.060	Continuing	Continuing

A. Mission Description and Budget Item Justification

A portion of this funding line is directly aligned to the Soldier Lethality Army Modernization Priority. This Program Element (PE), Soldier Systems - Advanced Development, manages the Soldier as a system to increase combat effectiveness, test and deliver tangible products that save Soldiers lives and improve combat capability. The PE provides funding for evaluating, developing, and testing emerging technologies and critical Soldier support systems to reduce technology risk.

Project CF2: Develop and maintain a PEO Soldier Futures Strategy ICW the Soldier Lethality Cross Functional Team and all DEVCOM Centers laying out a road-map for the Army of 2040 and beyond to execute Multi Domain Operations. Provide prototyping capabilities for evaluation and integration. Execute evaluation of new measurements and methodologies from the S&T community, execute system level evaluation environments, and support Soldier system modeling. Funding for this project aligns with the Army's priorities in support of the National Defense Strategy and is a priority of the Soldier Lethality Cross Functional Team.

Project ET8: Personnel Airdrop System improves Low Altitude and High-Altitude personnel parachutes and associated equipment to include canopy improvement based on integration of new technology with the goal of enhancing the insertion capability and safety of the airborne Soldier and increasing the performance, reliability, and durability of personnel airdrop equipment.

Project S53: Funding is used to evaluate and integrate technologies and representative or prototype systems that help expedite Soldier Clothing and Individual Equipment technology transition from the laboratory to operational use. Efforts focus on proving out commonality across as broad a spectrum of users as possible to provide a modular, integrated uniform/clothing system from skin out and head-to-toe. It funds efforts to transition new technologies and domestically available fabrics with Flame Resistant (FR), moisture wicking, insect protection and camouflage technologies, including integration of fabrics appropriate for uniforms and equipment used in jungle/tropical and arctic environments. New technologies are identified to monitor health and improve Soldier survivability, reduce weight, and improve affordability, mobility and comfort in combat and training/administrative environments. Includes integration and interface on the Soldier system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0603827A / <i>Soldier Systems - Advanced Development</i>
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Project S54: The Small Arms Improvement Advanced Component Development and Prototypes (ACD&P) program provides funds to mature, demonstrate, test and evaluate emerging technology from Budget Activity (BA) 3 Program Element 0603607A Joint Service Small Arms Program (JSSAP) Project 627 Defense Advanced Research Projects Agency (DARPA), Department of Energy National Laboratories, Research Development & Engineering Centers (RDECs) and other domestic and foreign sources for small arms weapon systems and technology. Small arm weapon systems include weapons ranging up to 40 millimeter in caliber. Current and future efforts focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, usability, training effectiveness and reliability of weapons to include ammunition when developing and/or evaluating standard and non-standard weapons. Focus areas include the maturing of technology through testing and evaluation of sub-system or system prototypes which demonstrates lightweight materials, wear resistant/protective/anti-reflective coatings, observation/situational awareness improvements, human-systems integration, robotic armament capability, non-lethal capability, and equipment enhancements. Benefits include continuous improvements to small arms weapon systems, fire control equipment, optics, gun barrels, training devices, suppressors, component mounts, weapon mounts, and weapon/ammunition interface. Includes costs associated with efforts for integration and interface of products on Soldiers' head, body and weapons.

Project VS4: Supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Personal Protective Equipment (PPE) technology transition from the laboratory to operational use.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	23.444	27.681	29.981	-	29.981
Current President's Budget	20.807	27.681	24.284	-	24.284
Total Adjustments	-2.637	0.000	-5.697	-	-5.697
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.782	-			
• SBIR/STTR Transfer	-0.855	-			
• Adjustments to Budget Years	-	-	-5.697	-	-5.697

Change Summary Explanation

Decrease from the PB to the CB reflects anticipated transition of the Low Altitude Static Line Reserve Parachute Automatic Activation Device (SLRPAAD) from the Technology Maturation and Risk Reduction phase to the Engineering and Manufacturing Deployment phase, and the anticipated transition of efforts supporting improved hard armor to final production qualification and capability insertion.

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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 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</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
CF2: <i>Integrated Soldier Systems Prototyping (SL CFT)</i>	-	3.291	3.688	3.642	-	3.642	3.897	3.938	3.982	4.022	0.000	26.460
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Develop a long term synchronized Soldier Integration Modernization Plan ICW the Close Combat Integration Enterprise (CCIE) for the Soldier, Squad and Company enablers to execute Multi-Domain Operations as part of an integrated Joint Force. Verify and maintain tools that provide Systems Engineering, Configuration Management, and Evaluations in a virtual and physical environment. Verify and maintain the Adaptive Squad Architecture (ASA) with emphasis on development of Interface Control Documents (ICDs), specifically to support the rapid integration of the Soldier Lethality Cross Functional Team (SL CFT) priority programs with all other dismounted Soldier equipment. Prototype capabilities for evaluation and integration. Execute evaluation of new measurements and methodologies from the S&T community, execute system level evaluation environments, and support Soldier system modeling. Funding for this project aligns with the Army's priorities in support of the National Defense Strategy and is a Soldier Lethality Cross Functional Team priority.

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

	FY 2023	FY 2024	FY 2025
Title: Integrated Soldier Systems Prototyping	3.291	3.688	0.449
Description: Develop and maintain a PEO Soldier Modernization Plan ICW the Soldier Lethality Cross Functional Team and all DEVCOM Centers laying out a roadmap for the Army of 2040 and beyond to execute Multi Domain Operations. Provide ASA implementation capabilities for evaluation and integration. Execute Soldier Integration facility evaluation of new measurements and methodologies from the S&T community, execute system level evaluation environments, and support Soldier system modeling. Funding for this project aligns with the Army's priorities in support of the National Defense Strategy and is a priority of the Soldier Lethality Cross Functional Team.			
FY 2024 Plans: Continue to update the synchronized PEO Soldier futures plan and execute prototype integration demonstrations in support of Squad as an Integrated Combat Platform.			
FY 2025 Plans: Continue to update the synchronized PEO Soldier futures plan and execute prototype integration demonstrations in support of Squad as an Integrated Combat Platform.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
In FY 2025 Integrated Soldier Systems Prototyping has been split for better fidelity and decrease from \$3.688 million to \$3.642 million reflects minor reduction to prototyping effort.				
<p>Title: Adaptive Squad Architecture (ASA)</p> <p>Description: ASA provides a digital engineering foundation for Soldier Centered Design in a virtual (Army Cloud) environment to provide a common operating picture across the CCIE. The ASA requirement is based on the 2018 Soldier Lethality Initial Capabilities Document which promotes "capturing models in the ASA that identify specific connection points for development, integration and commonality of new systems that exchange data to provide information to warfighters that augment the speed of decisions with improved accuracy and reliability".</p> <p>ASA provides a starting point for new integration efforts to explore integration gaps and opportunities prior to and as part of the prototyping phase, before a Soldier Touch Point, and throughout the acquisition life cycle.</p> <p>ASA is responsible for the development of the Architecture Assessment Tool (AAT) - The AAT is the central ASA digital engineering tool that provides a Soldier Centered Design context in a virtual environment. AAT provides visualization of individual end items, and physical architecture (Head Body Weapon) of those items baselined by Soldier duty position (Squad Leader Team Leader Grenadier Rifleman Automatic Rifleman etc.) and those items authorized at the Squad Platoon Levels. The Visualization includes aggregated weight, an ability to compare Soldier configurations for analysis, and an ability to organize primary purposes of individual items into capabilities such as Lethality, Protection, Mobility and Mission Command. The AAT Soldier baselines are built from Army fielded (Modified Table of Organization and Equipment) items and they serve as a basis of comparison for OK Analysis data gathering events with operational units and other analysis.</p> <p>FY 2025 Plans: Execute integration, innovation, and synchronization across PEO Soldier and other PEOs to provide Small Units with decisive overmatch resulting from a synchronization of effects in multiple domains.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in FY2025 reflects funding aligned from Integrated Soldier Systems Prototyping to Adaptive Squad Architecture (ASA) for efforts to provide Small Units with decisive overmatch.</p>		-	-	0.995
<p>Title: Soldier Modernization Plan Development</p> <p>Description: Both a document and set of processes & systems that enable and facilitate an enduring transformative approach to modernizing Soldiers and Small Tactical Unit capabilities over time. Collaboratively created by, with and through the Close Combat Integration Enterprise (CCIE). Project Polaris provides shared understanding across the CCIE and ensures unity of effort,</p>		-	-	2.025

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
synchronization and prioritization of resources. Produced annually in synchronization with the Planning, Programming, Budgeting, and Executing (PPBE) process, this document is then operationalized and executed through the year.				
<p>FY 2025 Plans: Execute integration, innovation, and synchronization across PEO Soldier and other PEOs to provide Small Units with "decisive overmatch resulting from a synchronization of effects in multiple domains.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in FY2025 reflects funding aligned from Integrated Soldier Systems Prototyping to Soldier Modernization Plan Development for Project Polaris efforts.</p>				
<p>Title: CACI SETA</p> <p>FY 2025 Plans: Fund support personnel to conduct mission requirements.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in FY2025 reflects funding aligned from Integrated Soldier Systems Prototyping to CACI SETA to support personnel to conduct mission requirements.</p>		-	-	0.055
<p>Title: ASA Test & Eval</p> <p>Description: ASA provides a digital engineering foundation for Soldier Centered Design in a virtual (Army Cloud) environment to provide a common operating picture across the CCIE. The ASA requirement is based on the 2018 Soldier Lethality Initial Capabilities Document which promotes "capturing models in the ASA that identify specific connection points for development, integration and commonality of new systems that exchange data to provide information to warfighters that augment the speed of decisions with improved accuracy and reliability". ASA provides a starting point for new integration efforts to explore integration gaps and opportunities prior to and as part of the prototyping phase, before a Soldier Touch Point, and throughout the acquisition life cycle.</p> <p>FY 2025 Plans: Capture models in the ASA that identify specific connection points for development, integration and commonality of new systems that exchange data to provide information to warfighters that augment the speed of decisions with improved accuracy and reliability.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		-	-	0.118

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Increase in FY2025 reflects funding aligned from Integrated Soldier Systems Prototyping to capture models in the ASA that identify specific connection points for development, integration and commonality of new systems.			
Accomplishments/Planned Programs Subtotals	3.291	3.688	3.642

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
• CF2: <i>Integrated Soldier Systems Prototyping (SL CFT)</i>	3.291	3.688	3.642	-	3.642	3.897	3.938	3.982	4.022	0.000	26.460

Remarks

The reduction in FY 2025 reflects minor reduction to prototyping effort.

D. Acquisition Strategy

PEO Soldier ICW the Soldier Lethality Cross Functional Team and DEVCOM Centers will develop a synchronized road-map of future programs to progress though S&T to programs of record to be developed, produced and fielded to the Army in support of Multi Domain Operations. In support of this Futures Strategy, execute component and system level evaluations in the Soldier Integration Facility and support Soldier system modeling.

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</i>
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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			
Adaptive Squad Architecture (ASA)	C/FFP	Various : Various	1.912	1.275	Jan 2023	1.135	Jan 2024	0.995	Jan 2024	-		0.995	Continuing	Continuing	Continuing
Soldier Modernization Plan Development	Option/CPFF	Natick ACC : Natick MA	-	0.900		0.945		2.025		-		2.025	0.000	3.870	-
Subtotal			1.912	2.175		2.080		3.020		-		3.020	Continuing	Continuing	N/A

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			
CACI SETA	TBD	APEO : Fort Belvoir	-	-		-		0.055		-		0.055	0.000	0.055	-
Subtotal			-	-		-		0.055		-		0.055	0.000	0.055	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			
ASA Test & Eval	C/FFP	Various : various	5.709	0.741	Jan 2023	1.196	Jan 2024	0.118	Jan 2024	-		0.118	Continuing	Continuing	Continuing
Soldier Integration Facility Evaluations https://pandr.altess.army.mil/ngPrf/src/ng1/img/caret-down.s	C/CPFF	Natick ACC : Natick MA	-	0.375		0.412		0.449		-		0.449	0.000	1.236	-
Subtotal			5.709	1.116		1.608		0.567		-		0.567	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		7.621	3.291	3.688	3.642	-	3.642	Continuing	Continuing

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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</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
ASA Implementation	[Redacted]																											
Soldier Modernization Plan Development	[Redacted]																											
Soldier Integration Facility Evaluations	[Redacted]																											
	[Redacted]																											

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) CF2 / <i>Integrated Soldier Systems Prototyping (SL CFT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ASA Implementation	2	2020	4	2029
Soldier Modernization Plan Development	1	2023	4	2029
Soldier Integration Facility Evaluations	2	2020	4	2029

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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 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</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
ET8: <i>Personnel Airdrop System Development</i>	-	1.785	2.208	0.911	-	0.911	2.258	2.282	2.308	2.333	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this project supports the Army's Cross Functional Teams (CFT) initiatives. Project ET8, Personnel Airdrop System Development, improves Low Altitude and High Altitude personnel parachutes and associated equipment to include canopy improvement based on integration of new technology with the goal of enhancing the insertion capability and the safety of the airborne Soldier and increasing the performance, reliability, and durability of personnel airdrop equipment. This project will transition capabilities from our Science and Technology partners to increase performance and safety of Soldier equipment. It will continue to support cross-service initiatives to improve commonality.

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

	FY 2023	FY 2024	FY 2025
Title: Personnel Airdrop System Development	1.785	2.208	0.911
Description: Improve Low Altitude and High Altitude personnel parachutes and ancillary equipment that supports airborne operations to include canopy improvements based on integration of new technology with the goal of enhancing the insertion and safety of the airborne Soldier and increasing the performance, reliability, and durability of personnel airdrop equipment.			
FY 2024 Plans: Continue integration testing of the Low Altitude Static Line Reserve Parachute Automatic Activation Device (SLRPAAD) to mature technology of product to enter Developmental Testing (DT). Evaluate technology for next generation parachutes, detecting towed jumper within the parachute system, and parachutists' ancillary safety equipment.			
FY 2025 Plans: Continue to evaluate personnel parachute system enhancements and parachutists' ancillary safety equipment.			
FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in FY2025 funding for the anticipated transition of the Low Altitude Static Line Reserve Parachute Automatic Activation Device (SLRPAAD) from the Technology Maturation and Risk Reduction phase to the Engineering and Manufacturing Deployment phase.			
Accomplishments/Planned Programs Subtotals	1.785	2.208	0.911

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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 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</i>			

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• ES9: <i>Advanced Tactical Parachute System</i>	2.918	2.776	3.646	-	3.646	3.977	4.020	4.065	4.106	0.000	25.508
• MA7801: <i>Advanced Tactical Parachute System</i>	42.444	39.279	35.216	-	35.216	32.439	32.458	32.487	32.811	0.000	247.134

Remarks

D. Acquisition Strategy

Programs pursue technology maturation and prototype development, culminating in the transition of mature technologies (Technology Readiness Level (TRL) 6-7) to system development and demonstration (SDD).

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</i>
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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			
Developmental Contracts	C/FFP	Various : Various	1.347	0.824		0.780		0.250		-		0.250	2.588	5.789	-
Engineering Support	MIPR	DEVCOM-SC : Natick, MA	0.596	0.280		0.240		0.157		-		0.157	0.827	2.100	-
Subtotal			1.943	1.104		1.020		0.407		-		0.407	3.415	7.889	N/A

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			
Program Management Support	Allot	PM SCIE : Belvoir	1.169	0.200		0.188		0.100		-		0.100	0.811	2.468	-
Subtotal			1.169	0.200		0.188		0.100		-		0.100	0.811	2.468	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			
Test and Evaluation	MIPR	Various : Various	1.041	0.481		1.000		0.404		-		0.404	0.782	3.708	-
Subtotal			1.041	0.481		1.000		0.404		-		0.404	0.782	3.708	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		4.153	1.785	2.208	0.911	0.911	5.008	14.065	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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</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
Evaluate Component and Subsystem Technologies	[Redacted]				[Redacted]																							
Low Altitude Static Line Reserve Parachute Automatic Act...	[Redacted]				[Redacted]																							
Airborne Insertion Enhancements	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Static Line Parachute System Enhancements	[Redacted]				[Redacted]				[Redacted]				[Redacted]															

Note
Airborne Insertion Enhancements includes the following: Towed Jumper Detection, Glide Technology, Situational Awareness Aids, and GPS Denied Navigation Aid.

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) ET8 / <i>Personnel Airdrop System Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate Component and Subsystem Technologies	1	2019	4	2023
Low Altitude Static Line Reserve Parachute Automatic Activation Device (SLRPAAD)	3	2020	4	2024
Airborne Insertion Enhancements	1	2024	4	2029
Static Line Parachute System Enhancements	1	2025	4	2027

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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 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) S53 / <i>Clothing And Equipment</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
S53: <i>Clothing And Equipment</i>	-	2.966	4.700	5.959	-	5.959	8.589	8.681	8.776	8.864	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this effort supports the Army's Cross Functional Teams' (CFT) initiatives to evaluate and integrate technologies and prototypes that expedite Product Manager Soldier Clothing and Individual Equipment (PdM SCIE) technology transitions from the laboratory to operational use. Efforts focus on achieving commonality across all services to provide footwear, uniforms and clothing systems consisting of all layers required to accommodate Warfighters in all environments resulting in integrated systems for the Airborne, Arctic, Arid, Jungle, and Temperate Soldier. PdM SCIE efforts include female Warfighter specific items and sizing. This effort funds the transition of new, improved technologies and domestically available fabrics with capabilities such as Flame Resistance (FR), moisture wicking, vector protection and innovative multi-service efforts to advance camouflage technologies to mitigate multi-spectral signature detection. This effort also funds integration of fabrics for uniforms and equipment for use in all environments. PdM SCIE will transition capabilities from our Science and Technology partners to increase performance of Warfighter clothing and equipment and identify emerging technologies to integrate advanced material capabilities into combat uniforms and equipment. Additional advances in existing technologies to improve survivability by focusing on reducing weight and improving performance, mobility and comfort. PdM SCIE will continue to support multi-service commonality initiatives through technology that enables combat operations in a gender integrated fighting force.

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

	FY 2023	FY 2024	FY 2025
Title: Soldier Uniforms and Clothing	2.208	3.410	3.450
Description: Develop and provide superior, integrated and sustainable uniforms and clothing for the Soldier in an evolving global security environment.			
FY 2024 Plans:			
Supports opportunities for commonality in OCIE across all Services (Army, Navy, Air Force, Marines and Coast Guard) and further supports the domestic Clothing and Textile Industrial Base. Evaluate transitioned fabric and system designs that provide improved vector protection, enhanced concealment and identification capability, Flame Resistant (FR) protection and improved comfort for inclusion in tactical and environmental clothing. Focus on improvements for cold weather and extreme cold weather clothing and handwear. Transition to system development and demonstration government developed materials that meet Signature Management requirements, to include enhance Identification of Friend or Foe (IFF) and reduction of costs across all Services. Transition functional textiles to mitigate Ground Surveillance Radar (GSR) detection by opposing forces. Develop enhanced uniforms utilizing enhanced, domestically available FR fabrics. Transition materials that will improve breathability for dismounted Soldiers and reduce spectral and thermal signature to further mitigate detection. Investigate and evaluate e-textiles (fabric level). Transition materials that will protect against emerging microwave threats. Evaluate transitioned fabric and designs for the next			

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>generation cold weather clothing system. Supports The Chief of Staff Army's directives resulting from the Army Uniform Board held twice annually to include upgrades to clothing bag items.</p> <p>FY 2025 Plans: Supports opportunities for commonality in OCIE across all Services (Army, Navy, Air Force, Marines, Space Force and Coast Guard) and further supports the domestic Clothing and Textile Industrial Base. Supports Army Chief of Staff directives resulting from the Army Uniform Board held twice annually to include upgrades to clothing bag items. Funds the Science and Technology transition of materials, including All Range Tactical Clothing and Arctic Mobility Solutions. Funds laboratory testing on improved base layer fabrics and updated base layer patterns using improved materials and common service sizing. Funds transition of solutions that will reduce spectral and thermal signature to further mitigate detection and improve survivability. Supports laboratory testing of materials for cold weather fuel handling garments. Identify and implement common design features in legacy Clothing.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increases between FY24 and FY25 due to accelerated integration of signature management fabrics.</p>				
<p>Title: Individual Equipment</p> <p>Description: Develop and provide superior, integrated and sustainable individual equipment for the Soldier in an evolving global security environment.</p> <p>FY 2024 Plans: Supports opportunities for commonality in OCIE across all Services (Army, Navy, Air Force, Marines and Coast Guard) and further supports the domestic Clothing and Textile Industrial Base. Perform laboratory testing on novel materials to support Cold Weather Equipment programs and enhanced load management systems. Evaluate current load carriage equipment to assess its ability to support the modernization of current individual weapons and situational awareness capabilities. Continue to optimize the capability of Load Carriage items to support modernization of weapons and tactical equipment. Evaluate new technology for the desalinization of salt water as part of the Individual Water Treatment Device program.</p> <p>FY 2025 Plans: Supports opportunities for commonality in OCIE across all Services (Army, Navy, Air Force, Marines and Coast Guard) and further supports the domestic Clothing and Textile Industrial Base. Design, develop, prototype, and transition load carriage and enhanced load management equipment components. Evaluate current load carriage equipment to assess its ability to support the modernization of individual weapons and situational awareness capabilities. Continue evaluation of improved water treatment technology. Supports laboratory testing of commercial Arctic Mobility Solutions.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		0.758	1.290	2.509

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funding increases between FY24 and FY25 due to increase of efforts for transition of technologies that will provide improved water treatment.			
Accomplishments/Planned Programs Subtotals	2.966	4.700	5.959

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
• S60: <i>Clothing & Equipment</i>	6.083	3.427	6.218	-	6.218	8.675	8.768	8.866	8.955	0.000	50.992
• OMA - CFF-OMA 121018: OMA SCIE 121018	-	-	-	-	-	-	-	-	-		

Remarks

D. Acquisition Strategy

Programs pursue technology maturation and prototype development, culminating in the transition of mature technologies (Technology Readiness Level (TRL) 6-7) to Systems Development and Demonstration. This Project continues to exercise competitively awarded contracts using best value source selection procedures.

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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 / 4				PE 0603827A / Soldier Systems - Advanced Development				S53 / Clothing And Equipment							
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
Program Management Support	TBD	PM SCIE : Ft. Belvoir, VA	17.272	0.265		0.480		0.550		-		0.550	Continuing	Continuing	Continuing
Subtotal			17.272	0.265		0.480		0.550		-		0.550	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
Engineering and Development Support	MIPR	DEVCOM-SC : Natick, MA	19.964	0.785		1.110		1.397		-		1.397	Continuing	Continuing	Continuing
Development Contracts	C/FFP	Various : Various	39.111	0.565		0.973		-		-		-	0.000	40.649	-
Subtotal			59.075	1.350		2.083		1.397		-		1.397	Continuing	Continuing	N/A
Remarks															
Previously annotated Development contracts (FY23 and FY24) are being placed in Engineering and Development Support cost element to align with DoD 7000.14-R, Volume 2B, Chapter 5.															
Support (\$ 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
Technical Support	MIPR	DEVCOM-SC : Natick, MA	10.130	0.415		0.653		1.365		-		1.365	Continuing	Continuing	Continuing
Subtotal			10.130	0.415		0.653		1.365		-		1.365	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
Developmental Test & Evaluation (DT&E)	MIPR	Various : Various	31.364	0.936		1.484		2.647		-		2.647	Continuing	Continuing	Continuing

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</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
UNIFORM CLOTHING																												
Flame Resistant Clothing Improvements																												
Improve Signature and Thermal Management																												
Cold Weather/ Extreme Cold Weather (CW/ECW) Clothing Imp..																												
Cold Weather/ Extreme Cold Weather (CW/ECW) Handwear																												
Novel Materials Development																												
Clothing Bag upgrades and evaluations																												
Arctic Fuel Handlers Clothing																												
INDIVIDUAL EQUIPMENT																												
Develop Water Treatment Device																												
Load Carriage																												
Arctic Mobility Dismounted																												

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S53 / <i>Clothing And Equipment</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UNIFORM CLOTHING	1	2010	4	2028
Flame Resistant Clothing Improvements	1	2012	4	2024
Improve Signature and Thermal Management	2	2012	4	2029
Cold Weather/ Extreme Cold Weather (CW/ECW) Clothing Improvements	1	2019	4	2025
Cold Weather/ Extreme Cold Weather (CW/ECW) Handwear	1	2020	4	2024
Novel Materials Development	1	2020	4	2029
Clothing Bag upgrades and evaluations	1	2014	4	2029
Arctic Fuel Handlers Clothing	4	2025	4	2026
INDIVIDUAL EQUIPMENT	4	2015	4	2025
Develop Water Treatment Device	1	2022	4	2028
Load Carriage	1	2020	4	2028
Arctic Mobility Dismounted	2	2024	4	2025

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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 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) S54 / <i>Small Arms Improvement</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
S54: <i>Small Arms Improvement</i>	-	7.950	9.094	7.971	-	7.971	8.974	9.069	9.169	9.261	0.000	61.488
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Arms Improvement Advanced Component Development and Prototypes (ACD&P) program provides funds to mature, demonstrate, test and evaluate emerging technology from Budget Activity (BA) 3 Program Element (PE) 0603607A Joint Service Small Arms Program (JSSAP) Project 627 Defense Advanced Research Projects Agency (DARPA), Department of Energy National Laboratories, Research Development & Engineering Centers (RDECs) and other domestic and foreign sources for small arms weapon systems and technology. Small Arms Improvement supports the Army Modernization priorities (Build a More Lethal Force) through enhancement of Joint Lethality in contested environments by minimizing and eliminating erosion of close combat capability relative to peer competitors in complex terrain as outlined in the National Defense Strategy (NDS). Small Arms weapon systems include weapons ranging up to 40 millimeter in caliber, recoilless rifles and remote weapon stations. Current and future efforts focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, usability, training effectiveness and reliability of weapons to include ammunition when developing and/or evaluating standard and non-standard weapons. Focus areas include the maturing of technology through testing and evaluation of sub-system or system prototypes which demonstrates light weight materials, wear resistant/protective/anti-reflective coatings, observation/situational awareness improvements, human-systems integration, robotic armament capability, non-lethal capability, advanced laser protection for optics, and equipment enhancements. Benefits include continuous improvements to small arms weapon systems, remote weapon systems, fire control equipment, optics, gun barrels, training devices, suppressors, component mounts, weapon mounts, ancillary items and weapon/ammunition interface. Includes costs associated with efforts for integration and interface of products on Soldiers' head, body and weapons.

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

	FY 2023	FY 2024	FY 2025
Title: New Weapon Systems	2.191	1.000	1.000
Description: Development of new small arms weapon systems.			
FY 2024 Plans:			
Advanced Technologies for Machine Gun: Will conduct market research, evaluations, trade studies and assessments for new Medium Machine Gun technologies to address capability needs. These technologies may include, but are not limited to, novel recoil mitigation, alternative lightweight materials, barrel technologies, suppressor technologies, mounting and fire control interfaces. Will develop and build test fixture for evaluation of various weapons' recoil profiles to facilitate measuring operating mechanism kinematics and transmitted recoil.			

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>New Weapons and Enabling Technology Evaluation and Assessments: Will continue to perform initial and follow-on evaluations, assessments and integration of new weapons to include various new weapon system platforms.</p> <p>FY 2025 Plans: Will assess advanced machine gun technologies, hardware and prototypes developed under previous efforts. Will continue to conduct market research for novel technologies and/or weapon systems that will apply to draft Future Medium Machine Gun requirements. Will acquire and develop prototype hardware for test and experimentation against (currently notional) Future Medium Machine Gun requirements. Will continue to conduct evaluations, trade studies and assessments for new machine gun technologies to address capability needs. These technologies may include, but are not limited to, novel recoil mitigation, alternative lightweight materials, barrel technologies, suppressor technologies, mounting and fire control interfaces.</p>				
<p>Title: Small Arms Weapon Systems Enhancements</p> <p>Description: Enhancements and development of small arms weapon systems.</p> <p>FY 2024 Plans: Small Business Innovative Research (SBIR) Enhancements will continue future efforts to focus on improvements designed to enhance lethality, target acquisition and tracking, fire control, training effectiveness and reliability of weapons.</p> <p>Enhanced System for Remote Weapon Stations & Kinetic Counter-Unmanned Aerial System (UAS) Weapons will begin development of enhanced sensor packages to improve target identification range. This program will also continue software development to integrate Counter Unmanned Aerial System (CUAS) kinetic defeat functionality into the CROWS Baseline Technology Refresh Software. In addition, it will continue development of hardware solutions to expand system power and data capacity to accommodate integration of future effectors.</p> <p>Power and Data Enabled Rail (PDER) (formerly Power and Data Integration onto Open Architecture Accessory Rails) will continue to integrate power and data capability in a negative space rail system. This will have potential applicability to systems such as, but not limited to Next Generation Squad Weapon-Rifle/Automatic Rifle, Precision Sniper Rifle, and Next Generation Medium/Heavy Machine Gun, Family of Weapon Sights and STORM.</p> <p>Weapon Enhancements for Improved Ammunition will continue to enhance weapons as ammunition is improved.</p> <p>New Weapons and Enabling Technology Evaluations and Assessments will continue to assess and evaluate selected capabilities and improvements for all current and legacy weapon systems.</p> <p>FY 2025 Plans:</p>		1.834	4.954	3.615

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Enhanced System for Remote Weapon Stations & Kinetic Counter-Unmanned Aerial System (UAS) Weapons will continue development of enhanced sensor packages to improve target identification range. This program will also continue software development to integrate Counter Unmanned Aerial System (CUAS) kinetic defeat functionality into the CROWS Baseline Technology Refresh Software. In addition, it will continue development of hardware solutions to expand system power and data capacity to accommodate integration of future effectors.</p> <p>New Weapons and Enabling Technology Evaluations and Assessments will continue to assess and evaluate selected capabilities and improvements for all current and legacy weapon systems.</p> <p>Will assess technologies and prototypes that provide direct fire capability to defeat defilade and point area targets while reducing collateral damage. Will continue to conduct market research for technologies and/or weapon systems that meet the draft requirements. Will acquire and develop prototype hardware for testing and conduct evaluations, trade studies and assessments for counter-defilade technologies to address capability needs.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in funding in FY25 reflects decreased requirements for fewer new weapons, enabling technology evaluations and assessments.</p>				
<p>Title: Combat Optics</p> <p>Description: Improvement of small arms combat optics.</p> <p>FY 2024 Plans: Advanced Combat Optics will continue to integrate current and emerging target acquisition component technologies such as, but not limited to rifle optics, binoculars and variable magnification spotting scopes. Will continue to evaluate state of the art advances in optical component technologies for inclusion in future combat optic products.</p> <p>FY 2025 Plans: Advanced Combat Optics will continue to integrate current and emerging target acquisition, sensing and ballistic calculation component technologies such as, but not limited to rifle optics, binoculars and variable magnification spotting scopes in support of legacy and emerging weapons. Will continue to evaluate state of the art advances in optical component technologies for inclusion in future combat optic products such as lightweight lens technology, lightweight housing material, advanced hazard and threat protection, and others.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		0.090	0.050	1.400

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Increase in funding in FY25 due to the inclusion of future combat optic components and technologies.			
<p>Title: Fire Control</p> <p>Description: Small arms fire control.</p> <p>FY 2024 Plans: Next Generation Weapons/Enhancements will continue to support technology development for future Next Generation Weapon variants addressing operational force needs for increased lethality, increased probability of hit, increased soldier acceptance, decreased signature, reduced recoil, reduced soldier aim error, and reduced engagement time. New weapons may be variants or enhancements of the Next Generation Squad Weapon Rifle (NGSW Rifle) and Next Generation Squad Automatic Rifle or new weapon platforms to fulfill other roles such as machine guns, sniper rifles, and others.</p> <p>Next Generation and Fire Control Technology Enhancements will continue to support technology integration with Next Generation Weapons addressing soldier aim error, engagement time, probability of hit, situational awareness, lethality, and soldier acceptance. Iterative prototyping will be utilized to develop component technologies to support future variants of the Next Generation Squad Weapon. Technology may include enhanced camera based technology, target tracking, automatic target detection, increased networked lethality, reduced signature, increased user acceptance, along with other emerging weapon, ammunition, and fire control technologies that will increase the lethality of the next generation squad weapons.</p> <p>Small Arms Fire Control Enhancements will continue research test and evaluation efforts on laser based wind sensors, proof-of-concept devices, and other optical designs for prototypes that incorporate fire control sensors and ballistic solver software and integration of sensor input and communication with ammunition for all small arms weapon platforms. The purpose of this effort is to evaluate downrange wind sensing technologies for incorporation into future fire control systems. Downrange wind sensing is the largest unmeasured variable remaining in ballistic calculation.</p> <p>FY 2025 Plans: Next Generation Weapons/Enhancements will continue to support technology development for future Next Generation Weapon variants addressing operational force needs for increased lethality, increased probability of hit, increased soldier acceptance, decreased signature, reduced recoil, reduced soldier aim error, and reduced engagement time. New weapons may be variants or enhancements of the Next Generation Squad Weapon Rifle (NGSW Rifle) and Next Generation Squad Automatic Rifle or new weapon platforms to fulfill other roles such as machine guns, sniper rifles, and others.</p> <p>Next Generation Fire Control Technology Enhancements will continue to support technology integration with Next Generation Weapons addressing soldier aim error, engagement time, probability of hit, situational awareness, lethality, and soldier acceptance. Iterative prototyping will be utilized to develop component technologies to support future variants of the Next</p>	3.785	3.040	1.906

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Generation Squad Weapon. Technology may include enhanced camera based technology, target tracking, automatic target detection, increased networked lethality, reduced signature, increased user acceptance, along with other emerging weapon, ammunition, and fire control technologies that will increase the lethality of the next generation squad weapons.</p> <p>Small Arms Fire Control Enhancements will continue research test and evaluation efforts on down range wind sensors, proof-of-concept devices, and other optical designs for prototypes that incorporate fire control sensors and ballistic solver software and integration of sensor input and communication with ammunition for all small arms weapon platforms. The purpose of this effort is to evaluate downrange wind sensing technologies for incorporation into future fire control systems. Downrange wind sensing is the largest unmeasured variable remaining in ballistic calculation.</p> <p>Will evaluate state of the art advances in optical component technologies for inclusion in future fire control systems such as lightweight lens technology, lightweight housing materials, munition programming, projectile tracking, advanced hazard and threat protection, and others.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in funding in FY25 due to the inclusion of future combat optic components and technologies for small arms fire control.</p>				
<p>Title: Research and Analysis</p> <p>Description: Research and analysis of small arms.</p> <p>FY 2024 Plans: Will continue Market Research and Benefit Analysis of new weapons and enabling technology evaluations and assessments to include, but not limited to 360 degree situational awareness, active stabilization, advanced kinetic weapons, low flying drone engagement, and other small arms research to include new technologies in emerging robotic and aerial armaments.</p> <p>FY 2025 Plans: Will continue research and analysis of new weapons and enabling technologies. Evaluations and assessments will include, but not limited to 360 degree situational awareness, active stabilization, advanced kinetic weapons, low flying drone engagement, and other small arms research to include new technologies in emerging robotic and aerial armaments.</p>		0.050	0.050	0.050
Accomplishments/Planned Programs Subtotals		7.950	9.094	7.971

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	
			Base	OCO	Total					Complete	Total Cost
• EW4: <i>Crew Served Weapons Engineering Development</i>	7.277	4.300	3.685	-	3.685	3.981	4.022	4.067	4.108	0.000	31.440
• FF2: <i>Small Arms Fire Control</i>	7.880	10.050	3.350	-	3.350	4.858	4.910	4.965	5.015	0.000	41.028
• FM4: <i>Next Generation Squad Weapons</i>	17.156	16.141	10.805	-	10.805	10.818	10.934	11.056	11.168	0.000	88.078
• S63: <i>Individual Weapons Engineering Development</i>	3.812	3.549	3.430	-	3.430	3.704	3.742	3.784	3.822	Continuing	Continuing
• FL4: <i>Small Caliber Ammo for Next Gen Squad Weapons</i>	32.625	11.809	11.955	-	11.955	11.968	12.097	12.232	12.354	0.000	105.040
• E06002: <i>NEXT GENERATION COMBAT ROUND</i>	52.623	35.896	38.140	-	38.140	70.227	70.219	70.218	70.922	Continuing	Continuing

Remarks

In support of Small Arms Initial Capability and Capability Development Requirements, advanced technology of small arms weapon systems is transitioned from Joint Service Small Arms Program (JSSAP), Project 627, Program Element 0603607A, (Budget Activity 3) to Small Arms Improvement, Project S54, Program Element 0603827A, (Budget Activity 4). After the technology is demonstrated and/or validated, the program transitions to Infantry Support Weapons, Program Element 0604601A, (Budget Activity 5) for engineering and manufacturing development.

D. Acquisition Strategy

Primary strategy is to study, develop, demonstrate and evaluate emerging technologies that ultimately lead to modernizing, enhancing and/or improving the small arms inventory.

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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 / 4				PE 0603827A / Soldier Systems - Advanced Development				S54 / Small Arms Improvement								
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	
Program Management	Allot	PM Soldier Lethality : Picatinny Arsenal	8.726	0.357	Mar 2023	0.354	Mar 2024	0.305	Mar 2025	-		0.305	Continuing	Continuing	Continuing	
Subtotal			8.726	0.357		0.354		0.305		-		0.305	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	
Hardware Development	MIPR	DEVCOM AC : Multiple	65.758	4.873	Jun 2023	5.640	Mar 2024	4.841	Mar 2025	-		4.841	Continuing	Continuing	Continuing	
Subtotal			65.758	4.873		5.640		4.841		-		4.841	Continuing	Continuing	N/A	
Support (\$ 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	
Engineering	MIPR	DEVCOM AC : Multiple	33.581	1.433	Mar 2023	1.600	Mar 2024	1.450	Mar 2025	-		1.450	Continuing	Continuing	Continuing	
Subtotal			33.581	1.433		1.600		1.450		-		1.450	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	
Developmental Testing	MIPR	Army Test and Evaluation Centers, : Multiple	22.565	1.287	Jun 2023	1.500	Mar 2024	1.375	Mar 2025	-		1.375	Continuing	Continuing	Continuing	
Subtotal			22.565	1.287		1.500		1.375		-		1.375	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 / 4	R-1 Program Element (Number/Name) PE 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</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
NEW WEAPON SYSTEMS																												
Advanced Technologies for Machine Gun																												
New Weapons and Enabling Technology Evaluation and Ass																												
SMALL ARMS WEAPON SYSTEMS ENHANCEMENTS																												
Weapon Enhancements for Improved Ammunition																												
Smart Rail System Controller and Remote																												
Power and Data Enabled Rail (PDER)																												
Enhanced System for Remote Weapon Stations & Kinetic Co																												
Small Business Innovative Research																												
New Weapons and Enabling Technology Evaluations and Ass																												
COMBAT OPTICS																												
Advanced Combat Optics																												
FIRE CONTROL																												

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</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
Small Arms Fire Control Enhancements																												
<i>Formerly Small Arms Fire Control -Precision/Enhancements</i>																												
Next Generation and Fire Control Technology Enhancements																												
RESEARCH AND ANALYSIS																												
Research and Analysis of Small Arms																												

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) S54 / <i>Small Arms Improvement</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NEW WEAPON SYSTEMS	1	2008	4	2029
Advanced Technologies for Machine Gun	1	2022	4	2029
New Weapons and Enabling Technology Evaluation and Assessments	1	2020	4	2029
SMALL ARMS WEAPON SYSTEMS ENHANCEMENTS	1	2008	4	2029
Weapon Enhancements for Improved Ammunition	1	2023	4	2024
Smart Rail System Controller and Remote	1	2021	4	2024
Power and Data Enabled Rail (PDER)	1	2021	4	2024
Enhanced System for Remote Weapon Stations & Kinetic Counter-UAS Weapons	1	2020	4	2029
Small Business Innovative Research	1	2015	4	2029
New Weapons and Enabling Technology Evaluations and Assessments	1	2020	4	2029
COMBAT OPTICS	1	2008	4	2027
Advanced Combat Optics	1	2020	4	2027
FIRE CONTROL	1	2008	4	2029
Small Arms Fire Control Enhancements	1	2017	4	2025
Next Generation and Fire Control Technology Enhancements	1	2019	4	2029
RESEARCH AND ANALYSIS	1	2012	4	2029
Research and Analysis of Small Arms	1	2015	4	2029

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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 0603827A / <i>Soldier Systems - Advanced Development</i>				Project (Number/Name) VS4 / <i>Soldier Protective Equipment</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
VS4: <i>Soldier Protective Equipment</i>	-	4.815	7.991	5.801	-	5.801	7.810	7.891	7.980	8.060	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this project supports the Army's Cross Functional Teams' (CFT) initiatives. This Project supports efforts to evaluate integrated technologies and representative or prototype systems that help expedite Personal Protective Equipment (PPE) technology transition from the laboratory to operational use. This project will transition capabilities from our Science and Technology partners to increase performance and safety of Soldier clothing and protective equipment. This project will continue to support cross-service initiatives to increase commonality.

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

	FY 2023	FY 2024	FY 2025
Title: Soldier Protective Equipment (SPE)	4.815	7.991	5.801
Description: Effort to increase Warfighter survivability and mobility by optimizing Soldier protection while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).			
FY 2024 Plans: The project will build on previously developed Technology/Maturation and Risk Reduction efforts across the PPE portfolio to support SPS requirements for lighter-weight ballistic materials with improved performance and manufacturing/ testing process improvements. In FY24, the program office will coordinate with the S&T community with efforts such as Novel Fabric for Torso Protection, Novel Defeat Mechanisms, Fragmentation uniform protective materials, Hearing Protection, Eye Protection Anti-Scratch Coating, and Improved Blunt Impact Protection.			
Product Management Office will evaluate current and future material, processing upgrades, and inform stakeholders of new operational capabilities. The program will continue developing conformal body armor and equipment to better accommodate female soldiers. In FY24, the program will continue efforts to update gender geometric anatomy into models, such as Operational Requirements-based Casualty Assessment, to inform designs, sizing, and variations development and improvements to support Department of Defense (DoD) Soldier protection needs.			
Hard Armor protection efforts will leverage technical testing on prototypes of single plate transitioning designed to defeat multiple threats with low weight. Head Protection efforts will include technology transitioning for anti-fog capability and its applicability on the battlefield and test eyewear film that reduces the occurrence of scratches and allows for self-healing of the lenses.			

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>

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

Overarching efforts for this program will be to maintain development initiatives to increase durability, shelf life, and functional service life of existing personal protective systems at the subsystem/ component level. Continue the development of improved measurement, evaluation, and testing processes for existing systems and emerging requirements. Program Office will develop, and test prototype assets built with materials and methodologies transitioning from S&T community.

FY 2025 Plans:

The VS4 project will build on previously developed Technology/Maturation and risk reduction efforts across the PPE portfolio to support SPS requirements. The project will facilitate the exploration and optimization of alternative materials for use against emerging Vital Toros Protection threats. Program office will explore other technologies such as higher performing ballistics defeating materials, new construction methods to address weight reduction and emerging threats. This Program office will facilitate test method refinement and improve surveillance testing capabilities to update lifecycle estimates, refine risk injury criteria, and continue mass reduction.

Product Management Office will evaluate material and processing upgrades to inform stakeholders of new operational capabilities. The program will conduct technical testing on body armor designed to defeat multiple threats with low weight. Develop and test ceramic materials for improved hard armor ballistic performance to defeat emerging threats. Head Protection efforts will include testing eye protection and blunt force trauma capabilities transitioning from the Science and Technology community such as anti-scratch coating, active light technology that detects laser threats and improved blunt impact protection.

FY 2024 to FY 2025 Increase/Decrease Statement:

Funding decrease from FY 2024 to FY 2025 is due to anticipated transition of efforts supporting improved hard armor to final production qualification and capability insertion.

FY 2023	FY 2024	FY 2025
Accomplishments/Planned Programs Subtotals	4.815	7.991
	5.801	

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>
• VS5: <i>Soldier Protective Equipment</i>	8.963	8.150	8.510	-	8.510	8.513	8.599	8.695	8.782	0.000	60.212
• OMA - 121 - 12101700/	-	-	-	-	-	-	-	-	-		
RJSI: <i>Soldier Modernization</i>											
- <i>Soldier Protection Systems</i>											

Remarks

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>

D. Acquisition Strategy

Programs pursue technology transition from science and technology, maturation, and prototype development, culminating in the transition of mature technologies (Technology Readiness Levels (TRL) 6-7) to Engineering and Manufacturing Development. This Project continues to exercise competitively awarded contracts using best value source selection procedures where applicable.

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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 / 4				PE 0603827A / Soldier Systems - Advanced Development				VS4 / Soldier Protective Equipment								
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	
Program Management Support	Allot	PM SSV Various : Various	4.726	0.759		1.805		0.750		-		0.750	Continuing	Continuing	Continuing	
Subtotal			4.726	0.759		1.805		0.750		-		0.750	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	
Dev/Sys Engineering Spt	MIPR	CCDC-SC : Natick, MA	10.452	1.649		1.522		1.324		-		1.324	Continuing	Continuing	Continuing	
Dev/Integ Contracts	TBD	CCDC-SC : Natick, MA	82.298	0.798		2.700		1.862		-		1.862	Continuing	Continuing	Continuing	
Subtotal			92.750	2.447		4.222		3.186		-		3.186	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	
Ballistic/Blast/Nonballistic Testing	MIPR	Various : Various	20.165	1.609		1.964		1.865		-		1.865	Continuing	Continuing	Continuing	
Subtotal			20.165	1.609		1.964		1.865		-		1.865	Continuing	Continuing	N/A	
Project Cost Totals			117.641	4.815		7.991		5.801		-		5.801	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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</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
SPS Technology Upgrade Insertion	[Redacted]																											
VTP Technology Upgrade Insertion	[Redacted]																											
TEP Technology Upgrade Insertion	[Redacted]																											
Military Protective Eyewear Systems Improvement	[Redacted]																											
Helmet Technology Upgrade Insertion	[Redacted]																											

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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 0603827A / <i>Soldier Systems - Advanced Development</i>	Project (Number/Name) VS4 / <i>Soldier Protective Equipment</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SPS Technology Upgrade Insertion	1	2018	4	2029
VTP Technology Upgrade Insertion	1	2021	4	2029
TEP Technology Upgrade Insertion	1	2021	4	2029
Military Protective Eyewear Systems Improvement	1	2023	4	2029
Helmet Technology Upgrade Insertion	1	2021	4	2029

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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 0604017A / <i>Robotics 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	-	27.444	3.024	3.039	-	3.039	3.043	3.075	3.109	3.140	0.000	45.874
CF4: <i>Robotic Combat Vehicle (RCV) NGCV-CFT</i>	-	27.444	-	-	-	-	-	-	-	-	0.000	27.444
FD9: <i>Robotics Systems</i>	-	-	3.024	3.039	-	3.039	3.043	3.075	3.109	3.140	0.000	18.430

A. Mission Description and Budget Item Justification

This Program Element contains multiple projects. CF4: Robotic Combat Vehicle (RCV) NGCV-CFT and FD9: Robotic Systems.

CF4: The Robotic Combat Vehicle (RCV) has transitioned from a family of light, medium, and heavy variants to a single vehicle approach with a common chassis. The Army has decided to field a common platform that will pair elements of the previous RCV medium concept with the RCV common chassis. The development programs, which include a RCV Middle-Tier Acquisition Rapid Prototyping (MTA-RP) and a RCV Software Acquisition Pathway (SWP) program, will produce unmanned ground combat vehicle prototypes to inform Concepts of Operations (CONOPS) and Tactics, Techniques, and Procedures (TTP) maturation, Capabilities Development Document (CDD) development, acquisition and integration of secure advanced autonomy and artificial intelligence algorithms, force design updates, robotic and autonomous systems (RAS) doctrine development, and follow-on production and fielding decisions.

The RCV program will enhance the Human Machine Integration (HMI) effort by soliciting early Soldier feedback to reduce risk to the MTA-RP and SWP acquisition pathways. The RCV MTA-RP program will perform three complementary lines of effort (LOE): 1) Surrogate Prototypes (SP); 2) Full System Prototypes (FSP); 3) and Manned Control Vehicles (MCV), while leveraging the software developed in the SWP to perform incremental capability releases.

The RCV SP LOE utilizes RCV experimental prototypes and new build SP vehicles in an iterative design-upgrade-test approach that includes integration of software updates from the RCV SWP and follow-on Capability Releases (CR) from the RCV SWP. The SP LOE includes recurring design-upgrade-test cycles from FY 2023-2025 that conclude with FORSCOM operational pilots to collect Soldier feedback and demonstrate improved capabilities related to demonstrate improved capabilities to sensors, autonomous software, system safety, control architecture, and network resiliency. Each design-upgrade-test cycle will culminate in a Knowledge Point (KP) to review program progress and determine SP architectures or capabilities ready for incorporation into the FSP LOE. The SP LOE will also serve to validate user requirements, assist in finalization of the RCV Capabilities Development Document (CDD) and inform DOTMLPF-P and force design considerations.

The RCV FSP LOE will leverage mature capabilities from previous RCV experimentation and SP development efforts and integrate additional embedded software, perception sensors, user control interfaces, and communication links that will permit autonomous movement, tele-op movement, and increased battlefield situational awareness. The FSP acquisition strategy includes a robust competition through Other Transaction Authority (OTA) that selected four vendors to deliver platform prototypes to inform down select to a single vendor for prototype build. Developmental testing of prototypes will include safety, Reliability, Availability and Maintainability (RAM), lethality, survivability, and Electromagnetic Environmental Effects (E3) testing. Additionally, Operational Testing (OT) in the form of Prototype Operational Demonstration (POD) will be executed to evaluate system suitability and effectiveness.

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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 0604017A / <i>Robotics Development</i>
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The MCV focuses on Control Station hardware and Human Systems Integration into host platforms for RCV operations.

The RCV SWP focuses on embedded software development and sustainment activities including RCV autonomy software, control station software, and payload control software. A system integration laboratory (SIL) will be used in conjunction with RCV systems to verify and validate software capabilities in both virtual and live test environments. The RCV SWP will provide software capabilities to the SP and FSP LOEs for integration. The RCV SWP will incorporate Soldier and integrator feedback into product roadmaps to guide the development and maturation of critical software capabilities.

The Robotic Combat Vehicle (RCV) development program directly aligns with the Next Generation Combat Vehicle (NGCV) Army Modernization Priority and includes the RCV Middle-Tier Acquisition Rapid Prototyping and a RCV Software Pathway.

The projected total cost of the RCV MTA Rapid Prototyping program is \$497.81 million (then-year dollars) RDT&E from FY 2022 to FY 2027. The remainder of the RCV MTA Rapid Prototyping program is fully funded across the Future Years Defense Program.

FD9: Robotics Development (RD) improves robotic and autonomous program acquisition schedules by supporting the development of integrated and synchronized capability documents (e.g. JCIDS, Department Directed, etc.) and by maturing / transitioning technology. Research Development Technology Evaluation (RDTE) funds enable support to capability development of emerging requirements. Activities include studies, assessments, and document development such as Technology Readiness Levels, Manufacturing Readiness Levels, Analysis of Alternatives / Letter of Sufficiency determinations, draft acquisition documents, and draft contract documents. Efforts include robotics and autonomous systems technology maturation / transition from Science & Technology (S&T) projects and Robotic Enhancement Program (REP) initiatives, Milestone Decision Documentation (MDD), and activities leading up to formal program initiation at Milestone B or C. The pre-acquisition activities conducted under this line intend to reduce acquisition cost, schedule, and performance risk by conducting market surveys, technical risk assessments, developing performance specifications, scopes of work, acquisition strategies, systems engineering plans, test and evaluation master plans, lifecycle sustainment plans, engaging in early test planning, and prototype development activities. This line is for large robotic systems that are transported by vehicle, maneuver under their own power, or are installed as robotic applique kits.

RD expands Modeling and Simulation (M&S) including Continuous Autonomy Simulation Test Laboratory Environment (CASTLE) capability to include Live/Virtual capability and to test and evaluate Manned Unmanned teaming, combat scenarios or other emerging Robotics requirement needs. RD funding will utilize the M&S environment to mature and evaluate S&T for inclusion to program requirements, Engineering Change Proposals (ECPs) and/or technical insertions, utilize gaming technology in conjunction with Autonomy Software to develop Training, Tactics and Procedures (TTPs), requirements and Concepts of Operations (CONOPS). RD supports Program Management activities including inter-service support, travel, conducting Analysis of Alternative (AoA), draft performance specifications, prototype demos, payload demos, future payload maturation for Robotic Platforms and pre-MS B activities. Funding supports transition of legacy S&T autonomy software into the GVSC ROS and RTK repositories.

RD also supports modernization of the current Ground Robotic fleets and current Army vehicles by investigating technology insertions including, but not limited to condition-based maintenance, vetronics, Robotic Architecture, autonomous operations and other emerging technologies. This project supports developing initial

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0604017A / <i>Robotics Development</i>
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prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts. Funds will be utilized for infrastructure to support cloud-based tools for development and deployment of Autonomy and Artificial Intelligence/Machine learning (AI/ML) software, tools to support automated testing of Autonomy Software in a DEVSECOPS process and transition of prior program software modules to the Robotic Technology Kernel (RTK) and Robotic Operating System (ROS) library for future reuse.

FY 2025 Base RDTE funds in the amount of \$3.039 million supports extending current Modeling and Simulation (M&S) for development and testing of autonomous systems. Addresses Manned/Unmanned Teams capabilities including Live/Virtual testing to reduce the number of needed physical assets and to increase safety on the test range/course. Funding will also be used to evaluate and mature Artificial Intelligence and Machine Learning (AI/ML) algorithms for potential use in future robotic programs and to develop a radio modeling capability and cyber resiliency products. Funding supports systems engineering activities for emerging programs.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	26.555	3.024	3.033	-	3.033
Current President's Budget	27.444	3.024	3.039	-	3.039
Total Adjustments	0.889	0.000	0.006	-	0.006
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.858	-			
• SBIR/STTR Transfer	-0.969	-			
• Adjustments to Budget Years	-	-	0.006	-	0.006

Change Summary Explanation

Slight increase accounts for small increase in system software capability upgrade costs.

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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 0604017A / <i>Robotics Development</i>				Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV) NGCV-CFT</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
CF4: <i>Robotic Combat Vehicle (RCV) NGCV-CFT</i>	-	27.444	-	-	-	-	-	-	-	-	0.000	27.444
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year (FY) 2024, the funding in PE 0604017A/ Robotics Development, CF4 / Robotic Combat Vehicle (RCV) NGCV-CFT (BA4) transitions to Program Element 0604641A / Tactical Unmanned Ground Vehicle (TUGV), CF5 / Robotic Combat Vehicle NGCV-CFT (BA5)

A. Mission Description and Budget Item Justification

The Robotic Combat Vehicle (RCV) has transitioned from a family of light, medium, and heavy variants to a single vehicle approach with a common chassis. The Army has decided to field a common platform that will pair elements of the previous RCV medium concept with the RCV common chassis. The development programs, which include a RCV Middle-Tier Acquisition Rapid Prototyping (MTA-RP) and a RCV Software Acquisition Pathway (SWP) program, will produce unmanned ground combat vehicle prototypes to inform Concepts of Operations (CONOPS) and Tactics, Techniques, and Procedures (TTP) maturation, Capabilities Development Document (CDD) development, acquisition and integration of secure advanced autonomy and artificial intelligence algorithms, force design updates, robotic and autonomous systems (RAS) doctrine development, and follow-on production and fielding decisions.

The RCV program will enhance the Human Machine Integration (HMI) effort by soliciting early Soldier feedback to reduce risk to the MTA-RP and SWP acquisition pathways. The RCV MTA-RP program will perform three complementary lines of effort (LOE): 1) Surrogate Prototypes (SP); 2) Full System Prototypes (FSP); 3) and Manned Control Vehicles (MCV), while leveraging the software developed in the SWP to perform incremental capability releases.

The RCV SP LOE utilizes RCV experimental prototypes and new build SP vehicles in an iterative design-upgrade-test approach that includes integration of software updates from the RCV SWP and follow-on Capability Releases (CR) from the RCV SWP. The SP LOE includes recurring design-upgrade-test cycles from FY 2023-2025 that conclude with FORSCOM operational pilots to collect Soldier feedback and demonstrate improved capabilities related to demonstrate improved capabilities to sensors, autonomous software, system safety, control architecture, and network resiliency. Each design-upgrade-test cycle will culminate in a Knowledge Point (KP) to review program progress and determine SP architectures or capabilities ready for incorporation into the FSP LOE. The SP LOE will also serve to validate user requirements, assist in finalization of the RCV Capabilities Development Document (CDD) and inform DOTMLPF-P and force design considerations.

The RCV FSP LOE will leverage mature capabilities from previous RCV experimentation and SP development efforts and integrate additional embedded software, perception sensors, user control interfaces, and communication links that will permit autonomous movement, tele-op movement, and increased battlefield situational awareness. The FSP acquisition strategy includes a robust competition through Other Transaction Authority (OTA) that selected four vendors to deliver platform prototypes to inform down select to a single vendor for prototype build. Developmental testing of prototypes will include safety, Reliability, Availability and Maintainability (RAM), lethality, survivability, and Electromagnetic Environmental Effects (E3) testing. Additionally, Operational Testing (OT) in the form of Prototype Operational Demonstration (POD) will be executed to evaluate system suitability and effectiveness.

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV)</i> NGCV-CFT

The MCV focuses on Control Station hardware and Human Systems Integration into host platforms for RCV operations.

The RCV SWP focuses on embedded software development and sustainment activities including RCV autonomy software, control station software, and payload control software. A system integration laboratory (SIL) will be used in conjunction with RCV systems to verify and validate software capabilities in both virtual and live test environments. The RCV SWP will provide software capabilities to the SP and FSP LOEs for integration. The RCV SWP will incorporate Soldier and integrator feedback into product roadmaps to guide the development and maturation of critical software capabilities.

The Robotic Combat Vehicle (RCV) development program directly aligns with the Next Generation Combat Vehicle (NGCV) Army Modernization Priority and includes the RCV Middle-Tier Acquisition Rapid Prototyping and a RCV Software Pathway.

The projected total cost of the RCV MTA Rapid Prototyping program is \$497.81 million (then-year dollars) RDT&E from FY 2022 to FY 2027. The remainder of the RCV MTA Rapid Prototyping program is fully funded across the Future Years Defense Program.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Title: Surrogate Prototype (SP) - Product Development Description: Engineering design and development of the Surrogate Prototypes (SPs), to include integration of software capability updates from the Software Acquisition Pathway (SWP) line of effort. SP Product development also includes the design and integration of improvements for safety, cybersecurity, perception sensors, and reliability to support the Soldier user experiments and modeling and simulation (M&S) efforts. Additionally, SP Product Development provides engineering support to prototype build, in addition to on-site Field Service Representative (FSR) support and new equipment training (NET) for all phases of SP testing.	25.376	-	-
Title: Program Management Description: Government project management to RCV development programs. Includes salaries, travel, training, supplies, facilities, and equipment.	2.068	-	-
Accomplishments/Planned Programs Subtotals	27.444	-	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Cost To	Total Cost
			Base	OCO	Total					Complete	
• 0604641A: <i>Tactical Unmanned Ground Vehicle (TUGV)</i>	107.975	142.125	92.540	-	92.540	140.898	136.879	142.311	142.322	0.000	905.050

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV) NGCV-CFT</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>
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Remarks
 Robotic Combat Vehicle development and RCV Software Acquisition Pathway (SWP) efforts are continued in program element 0604641A / Tactical Unmanned Ground Vehicle (TUGV), CF5 / Robotic Combat Vehicle (BA5) NGCV-CFT.

D. Acquisition Strategy

RCV development includes a RCV Middle-Tier Acquisition (MTA) Rapid Prototyping program as well as a Software Acquisition Pathway (SWP) program.

RCV Acquisition Strategy:
 On 10 February 2022, the Army Acquisition Executive (AAE) approved the execution of RCV Rapid Prototyping program under authorities granted under Section 804 of the 2016 NDAA (PL 114-92). The RCV MTA Rapid Prototyping program will be accomplished in two complementary lines of effort (LOE), Surrogate Prototypes (SP), and Full System Prototypes (FSP).

The SP LOE will utilize existing Other Transaction Authority (OTA) task assignment with QinetiQ North America and Textron Systems to both update existing RCV experimental prototypes to Surrogate Prototype configuration as well as procure new build Surrogate Prototypes. The Surrogate Prototypes will support recurring design-upgrade-test cycles from FY 2023-2024 that include FORSCOM operational pilots to collect Soldier feedback and demonstrate improved capabilities related to autonomous software, system safety, and network capabilities, and integrated architecture validation. Each design-upgrade-test cycle will culminate in a Knowledge Point (KP) to review program process and determine SP capabilities ready for incorporation into the FSP LOE.

The FSP acquisition strategy includes a full and open competition that will select up to four vendors, delivering two demonstrators each, to inform down select to a single vendor for prototype build and testing. Developmental testing of FSPs will include safety, Reliability, Availability and Maintainability (RAM), lethality, survivability, and Electromagnetic Environmental Effects (E3) testing. Additionally, Operational Testing (OT) in the form of Prototype Operational Demonstration (POD) will be executed to evaluate system suitability and effectiveness.

Upon successful completion of the RCV Rapid Prototyping program, an MTA Outcome Determination (OD) will determine if the program will transition to a MTA Rapid Fielding effort aimed at fielding RCV FSPs to selected unit(s) for Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policies (DOTMLPF-P) analysis and integration of Human-Machine Integration formations.

Software Acquisition Pathway (SWP) Acquisition Strategy:
 The SWP Acquisition Decision Memorandum (ADM), signed 3 August 2021, directs the use of the draft Cross Functional Team (CFT) Next Generation Combat Vehicle (NGCV) Robotic and Optionally Manned Autonomous (ROMA) Capabilities Needs Statement (CNS) as the base user capabilities document from which to derive capabilities for the RCV SWP. The RCV SWP will provide government furnished software to RCV SP and FSP LOEs. The RCV SWP will implement a Government - Contractor hybrid development approach to mature, integrate, and secure software capabilities from the science and technology base. The RCV SWP will incorporate

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV)</i> NGCV-CFT

software contracting best practices to support the transition of software capabilities into secure code base required for the resilient operation of RCVs in contested environments. On 25 January 2023, the AAE approved Software Acquisition Pathway entrance into the Execution Phase.

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV)</i> NGCV-CFT
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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			
Program Management	MIPR	Various : Various	22.842	2.068	Nov 2022	-		-		-		-	0.000	24.910	-
Subtotal			22.842	2.068		-		-		-		-	0.000	24.910	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	Various	GVSC; Various : Warren, MI; Various	69.116	25.376	Nov 2022	-		-		-		-	0.000	94.492	-
RCV Medium	SS/FFP	Textron Systems; Howe & Howe; ; Hunt Valley, MD; Waterboro, ME	20.000	-		-		-		-		-	0.000	20.000	-
Subtotal			89.116	25.376		-		-		-		-	0.000	114.492	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			
Modeling and Simulation	MIPR	GVSC; Various : Warren, MI; Various	4.954	-		-		-		-		-	0.000	4.954	-
Test and Evaluation	MIPR	Various : Various	40.997	-		-		-		-		-	0.000	40.997	-
Subtotal			45.951	-		-		-		-		-	0.000	45.951	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			157.909	27.444	-	-	-	-	0.000	185.353	N/A

Remarks
FY 2023 funding for Development Engineering supports Surrogate Prototype Product Development efforts.

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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 0604017A / <i>Robotics Development</i>			Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV)</i> NGCV-CFT			

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
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FY 2023 Program Management efforts include Government engineering, financial management, acquisition planning, risk assessment and mitigation, contract management, and operations support necessary to manage Surrogate Prototype Product Development.

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV)</i> NGCV-CFT

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
Surrogate Prototype (SP) Design/Build	[Bar]																											
	SP Design/Build																											
Surrogate Prototype (SP) Design/Upgrade/Test					[Bar]																							
					SP Design/Upgrade/Test #2																							
Surrogate Prototype (SP) FORSCOM Pilots					[Bar]																							
					SP FORSCOM Pilots																							
Robotic Combat Vehicle (RCV) Knowledge Point (KP) #1					▲ 3																							
					RCV(L) KP #1																							
Robotic Combat Vehicle (RCV) Knowledge Point (KP) #2									▲ 7																			
									RCV(L) KP #2																			
Full System Prototype (FSP) Solicitation Development	[Bar]																											
	FSP Solicitation Development																											
Full System Prototype (FSP) Request for Prototype Propos...	▲ 2																											
	FSP RPP Release Phase I																											
Full System Prototype (FSP) Selection Evaluation Board (...)	[Bar]																											
	FSP SEB Phase I																											
Full System Prototype (FSP) Prototype Contract Award (CA...	▲ 4																											
	FSP Prototype CA Phase I																											
Full System Prototype (FSP) Design/Build Phase I					[Bar]																							
					FSP Design/Build Phase I																							
Full System Prototype (FSP) Test Phase I									[Bar]																			
									FSP Test Phase I																			
Full System Prototype (FSP) Request for Prototype Propos...					▲ 6																							
					FSP RPP Release Phase II																							
Full System Prototype (FSP) Selection Evaluation Board (...)					[Bar]																							
					FSP SEB Phase II																							

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV)</i> NGCV-CFT

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
Full System Prototype (FSP) Contract Award Phase II									8 FSP CA Phase II																			
Full System Prototype (FSP) Design/Build Phase II																												
Full System Prototype (FSP) Test Phase II																												
RCV(L) Outcome Determination (OD)																	11 RCV(L) OD											
Software Acquisition Pathway (SWP) Planning Phase	1 SWP Planning Phase																											
Software Acquisition Pathway (SWP) Execution Phase	1 SWP Execution Phase																											
Software Acquisition Pathway (SWP) Software (SW) Design/...																												
Software Acquisition Pathway (SWP) Minimum Viability Cap...					5 SWP MVCR																							
Software Acquisition Pathway (SWP) Capability Release (C...									9 SWP CR #1																			
Software Acquisition Pathway (SWP) Capability Release (C...													10 SWP CR #2															
Software Acquisition Pathway (SWP) Capability Release (C...																	12 SWP CR #3											
Software Acquisition Pathway (SWP) Capability Release (C...																					13 SWP CR #4							
Software Acquisition Pathway (SWP) Capability Release (C...																									14 SWP CR #5			

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV) NGCV-CFT</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DEVCOM Experimental Prototype Build	1	2021	2	2021
DEVCOM Experimental Prototype Testing	3	2021	3	2022
Soldier Operational Experiment (SOE) II	3	2022	4	2022
Surrogate Prototype (SP) OTA Contract Development/Modification	2	2021	4	2021
Surrogate Prototype (SP) Contract Build #1	4	2021	4	2021
Surrogate Prototype (SP) Design/Build	4	2021	4	2023
Middle-Tier Acquisition Rapid Prototyping (MTA-RP) Start	2	2022	2	2022
Surrogate Prototype (SP) Design/Upgrade/Test	2	2023	4	2024
Surrogate Prototype (SP) FORSCOM Pilots	4	2023	4	2024
Robotic Combat Vehicle (RCV) Knowledge Point (KP) #1	4	2023	4	2023
Robotic Combat Vehicle (RCV) Knowledge Point (KP) #2	4	2024	4	2024
Full System Prototype (FSP) Solicitation Development	1	2023	2	2023
Full System Prototype (FSP) Request for Prototype Proposal (RPP) Release Phase I	2	2023	2	2023
Full System Prototype (FSP) Selection Evaluation Board (SEB) Phase I	3	2023	4	2023
Full System Prototype (FSP) Prototype Contract Award (CA) Phase I	4	2023	4	2023
Full System Prototype (FSP) Design/Build Phase I	1	2024	4	2024
Full System Prototype (FSP) Test Phase I	4	2024	1	2025
Full System Prototype (FSP) Request for Prototype Proposal (RPP) Release Phase II	3	2024	3	2024
Full System Prototype (FSP) Selection Evaluation Board (SEB) Phase II	4	2024	1	2025
Full System Prototype (FSP) Contract Award Phase II	2	2025	2	2025
Full System Prototype (FSP) Design/Build Phase II	2	2025	2	2026
Full System Prototype (FSP) Test Phase II	2	2026	2	2027

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) CF4 / <i>Robotic Combat Vehicle (RCV) NGCV-CFT</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
RCV(L) Outcome Determination (OD)	2	2027	2	2027
Software Acquisition Pathway (SWP) Planning Phase	3	2021	2	2023
Software Acquisition Pathway (SWP) Execution Phase	2	2023	2	2023
Software Acquisition Pathway (SWP) Software (SW) Design/Build/Test	4	2022	4	2029
Software Acquisition Pathway (SWP) Minimum Viability Capability Release (MVCR)	3	2024	3	2024
Software Acquisition Pathway (SWP) Capability Release (CR) #1	3	2025	3	2025
Software Acquisition Pathway (SWP) Capability Release (CR) #2	1	2026	1	2026
Software Acquisition Pathway (SWP) Capability Release (CR) #3	3	2027	3	2027
Software Acquisition Pathway (SWP) Capability Release (CR) #4	3	2028	3	2028
Software Acquisition Pathway (SWP) Capability Release (CR) #5	3	2029	3	2029

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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 0604017A / <i>Robotics Development</i>				Project (Number/Name) FD9 / <i>Robotics Systems</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
FD9: <i>Robotics Systems</i>	-	-	3.024	3.039	-	3.039	3.043	3.075	3.109	3.140	0.000	18.430
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Robotics Development (RD) improves robotic and autonomous program acquisition schedules by supporting the development of integrated and synchronized capability documents (e.g. JCIDS, Department Directed, etc.) and by maturing / transitioning technology. Research Development Technology Evaluation (RDTE) funds enable support to capability development of emerging requirements. Activities include studies, assessments, and document development such as Technology Readiness Levels, Manufacturing Readiness Levels, Analysis of Alternatives / Letter of Sufficiency determinations, draft acquisition documents, and draft contract documents. Efforts include robotics and autonomous systems technology maturation / transition from Science & Technology (S&T) projects and Robotic Enhancement Program (REP) initiatives, Milestone Decision Documentation (MDD), and activities leading up to formal program initiation at Milestone B or C. The pre-acquisition activities conducted under this line intend to reduce acquisition cost, schedule, and performance risk by conducting market surveys, technical risk assessments, developing performance specifications, scopes of work, acquisition strategies, systems engineering plans, test and evaluation master plans, lifecycle sustainment plans, engaging in early test planning, and prototype development activities. This line is for large robotic systems that are transported by vehicle, maneuver under their own power, or are installed as robotic applique kits.

RD expands Modeling and Simulation (M&S) including Continuous Autonomy Simulation Test Laboratory Environment (CASTLE) capability to include Live/Virtual capability and to test and evaluate Manned Unmanned teaming, combat scenarios or other emerging Robotics requirement needs. RD funding will utilize the M&S environment to mature and evaluate S&T for inclusion to program requirements, Engineering Change Proposals (ECPs) and/or technical insertions, utilize gaming technology in conjunction with Autonomy Software to develop Training, Tactics and Procedures (TTPs), requirements and Concepts of Operations (CONOPS). RD supports Program Management activities including inter-service support, travel, conducting Analysis of Alternative (AoA), draft performance specifications, prototype demos, payload demos, future payload maturation for Robotic Platforms and pre-MS B activities. Funding supports transition of legacy S&T autonomy software into the GVSC ROS and RTK repositories.

RD also supports modernization of the current Ground Robotic fleets and current Army vehicles by investigating technology insertions including, but not limited to condition-based maintenance, vetronics, Robotic Architecture, autonomous operations and other emerging technologies. This project supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts. Funds will be utilized for infrastructure to support cloud-based tools for development and deployment of Autonomy and Artificial Intelligence/Machine learning (AI/ML) software, tools to support automated testing of Autonomy Software in a DEVSECOPS process and transition of prior program software modules to the Robotic Technology Kernel (RTK) and Robotic Operating System (ROS) library for future reuse.

FY 2025 Base RDTE funds in the amount of \$3.039 million supports extending current Modeling and Simulation (M&S) for development and testing of autonomous systems. Addresses Manned/Unmanned Teams capabilities including Live/Virtual testing to reduce the number of needed physical assets and to increase safety on the test range/course. Funding will also be used to evaluate and mature Artificial Intelligence and Machine Learning (AI/ML) algorithms for potential use in future robotic programs and to develop a radio modeling capability and cyber resiliency products. Funding supports systems engineering activities for emerging programs.

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) FD9 / <i>Robotics Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: Emerging Robotics Systems</p> <p>Description: Validation and verification of incremental system software capability upgrades for emerging robotic requirements through M&S Software-in-the-loop (SIL) and Hardware-in-the-loop (HIL) allowing for transition into Program of Record.</p> <p>FY 2024 Plans: Funds Modeling and Simulation (M&S) to support the development and test of autonomous systems. Addresses Manned/Unmanned Teams capabilities including Live/Virtual testing to reduce the number of needed physical assets and to increase safety on the test range/course. Funding will also be used to evaluate and mature Artificial Intelligence and Machine Learning (AI/ML) algorithms for potential use in future robotic programs. Funding supports systems engineering activities for emerging programs.</p> <p>FY 2025 Plans: FY 2025 plans continue efforts from FY 2024 to fund Modeling and Simulation (M&S) to support the development and test of autonomous systems. Funding addresses Manned/Unmanned Teams capabilities including Live/Virtual testing to reduce the number of needed physical assets and to increase safety on the test range/course. Funding will also be used to evaluate and mature Artificial Intelligence and Machine Learning (AI/ML) algorithms for potential use in future robotic programs. Funding supports systems engineering activities for emerging programs.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase accounts for slight increase in system software capability upgrade costs.</p>	-	3.024	3.039
Accomplishments/Planned Programs Subtotals	-	3.024	3.039

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks Pre-acquisition program activities funded by this line transition to a separate Program Element and Project prior to their first program acquisition Milestone (B or C).</p> <p>D. Acquisition Strategy Robotics Development (RD) is designed to facilitate the transition of robotics and autonomous systems technology from Science and Technology (S&T) projects into programs of record. It informs the acquisition process early in the development cycle allowing key stakeholders the ability to make integration decisions and affordability trades while writing requirements.</p> <p>Efforts include Capabilities Document input, capture technical and test data, close analysis of OTD activities that feed cost estimates, provide test support, develop Modeling and Simulation (M&S) capabilities, and develop a Software Integration Lab (SIL). Will support Rapid prototyping to inform emerging requirements and other Army systems. A "buy/lease, try and inform" methodology may be used to evaluate Government Off the Shelf (GOTS), Commercial Off the Shelf (COTS), and Non-</p>
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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army	Date: March 2024
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 4	PE 0604017A / <i>Robotics Development</i>	FD9 / <i>Robotics Systems</i>

Developmental Item (NDI) robotics products that have the potential to enhance Soldier combat effectiveness. Actual operational user feedback and evaluation results obtained will inform emerging capabilities and requirements documents in support of a return on investment to support future Army decision making.

Combat Capabilities Development Command (CCDC) Ground Vehicle Systems Center (GVSC) funding allows the Army to demonstrate and operationally assess an unmanned vehicle capability with operational units and users to validate the technology. The Army will build, and test prototype systems for safety release, Soldier use, and further technology maturation. Funds will be used to further mature demonstrated capabilities and to create training and maintenance documentation for rapid insertion to PoR.

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) FD9 / <i>Robotics Systems</i>
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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			
Software Integration Lab / Modeling & Simulation	MIPR	Multiple : Various	1.266	-		0.600	Dec 2023	0.300	Dec 2024	-		0.300	0.000	2.166	-
VANE Development Support	MIPR	Army Corp of Engineer (ERDC) : Vicksburg, Mississippi	0.462	-		0.300	Jan 2024	0.300	Jan 2025	-		0.300	0.000	1.062	-
CASTLE / VANE Accreditation Support Plan and Validation	MIPR	Data Analysis Center (DEVCOM) : Aberdeen Proving Grounds, MD	0.519	-		0.200	Jan 2024	0.200	Feb 2025	-		0.200	0.000	0.919	-
Cybersecurity for Robotic and Autonomous Systems Hardening	MIPR	Ground Vehicle Robotics : Warren, MI	0.050	-		0.300	Mar 2024	-		-		-	0.000	0.350	-
CASTLE Immersive Simulation Support	MIPR	Software Engineering Center (GVSC) : Warren, MI	0.406	-		0.300	Mar 2024	0.300	Mar 2025	-		0.300	0.000	1.006	-
CASTLE Automated Testing Development	MIPR	Software Engineering Center (GVSC) : Warren, MI	0.246	-		0.250	Mar 2024	0.250	Mar 2025	-		0.250	0.000	0.746	-
Automated Testing of Manned/Unmanned Teaming Ops Development	MIPR	Software Engineering Center (GVSC) : Warren, MI	-	-		0.300	Jan 2024	0.300	Feb 2025	-		0.300	0.000	0.600	-
Artificial Intelligence/ Machine Learning	TBD	TBS : TBD	-	-		0.400	Jan 2024	0.400	Jan 2025	-		0.400	0.000	0.800	-
Robotic Capability Maturation Cell	TBD	GVSC : Warren, MI	-	-		-		0.606	Mar 2025	-		0.606	0.000	0.606	-
Subtotal			2.949	-		2.650		2.656		-		2.656	0.000	8.255	N/A

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) FD9 / <i>Robotics Systems</i>
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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
RD MODELING & SIMULATION (M&S) cont.					RD M&S																							
RD Artificial Intelligence/Machine Learning					RD AI/ML																							

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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 0604017A / <i>Robotics Development</i>	Project (Number/Name) FD9 / <i>Robotics Systems</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Robotics Development	1	2017	4	2022
RD (ERP, CBRN, CRS-LR, etc.)	1	2021	4	2021
RD MODELING & SIMULATION (M&S)	1	2017	4	2022
RD MODELING & SIMULATION (M&S) cont.	1	2024	4	2028
RD Artificial Intelligence/Machine Learning	1	2024	4	2028

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</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	-	250.351	97.018	102.589	-	102.589	278.773	300.600	0.000	0.000	0.000	1,029.331
BU9: <i>IFPC High Energy Laser</i>	-	208.943	85.852	31.643	-	31.643	-	-	-	-	0.000	326.438
CO6: <i>IFPC High Power Microwave (HPM)</i>	-	41.408	11.166	4.031	-	4.031	-	-	-	-	0.000	56.605
DJ5: <i>Multi-Domain Artillery Cannon System (MDACS)</i>	-	-	-	66.915	-	66.915	278.773	300.600	-	-	0.000	646.288

Note

This PE supports transitioning the High Energy Laser -Tactical Vehicle Demonstration Science & Technology effort to manufacturing combat ready rapid prototype systems for delivery in FY 2025 and potential future transition to Program of Record.

Multi-Domain Artillery Cannon System (MDACS) project DJ5 is a new start within the Expanded Mission Area Missile (EMAM) program in FY 2025.

A. Mission Description and Budget Item Justification

These funding lines are directly aligned to the Army Air and Missile Defense Modernization Priority. Work in this PE, the Expanded Mission Area Missile (EMAM) program, supports the Integrated Air and Missile Defense (IAMD) architecture and provides Directed Energy - Indirect Fire Protection Capability (DE-IFPC) intercept capability to defeat Cruise Missiles (CM); Unmanned Aircraft System (UAS); Rocket, Artillery, and Mortar (RAM) threats; Fixed Wing (FW); and Rotary Wing (RW). The DE-IFPC is an Air Defense capability consisting of the Indirect Fire Protection Capability - High Energy Laser (IFPC-HEL), the Indirect Fire Protection Capability - High Power Microwave (IFPC-HPM) and the Multi-Domain Artillery Cannon System (MDACS).

- IFPC-HEL will provide a ground-based weapon system designed to acquire, track, engage, and defeat the CM, UAS, RAM, FW and RW threats. The IFPC-HEL requirement consists of a vehicle, high energy laser subsystem, power and thermal subsystem, and a beam control subsystem integrated with battle management command, control and communication software. IFPC-HEL provides much needed protection against adversarial threat systems capable of targeting U.S. and Allied forward operating bases and other critical assets.
- IFPC-HPM will provide a ground-based weapon system designed to acquire, track, engage, and defeat UAS swarms. The IFPC-HPM requirement consists of a HPM source, power and thermal subsystem, and an antenna subsystem interoperable with battle management command, control and communication software. IFPC-HPM provides much needed protection against adversarial UAS swarms capable of targeting and overwhelming U.S. and Allied air defense systems.
- MDACS is a rapid prototype, deep magazine, cost-effective, and scalable system consisting of a Multi-domain Artillery Cannon (MDAC), Multi-Function Precision Radar (MFPR), Multi-Domain Battle Manager (MDBM), Hypervelocity Projectiles (HVP), and an Ammo Handler Vehicle. MDACS complements existing AMD systems and provides integrated and standalone defense against a broad range of threats.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	258.320	97.018	363.435	-	363.435
Current President's Budget	250.351	97.018	102.589	-	102.589
Total Adjustments	-7.969	0.000	-260.846	-	-260.846
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	-			
• SBIR/STTR Transfer	-7.968	-			
• Adjustments to Budget Years	-	-	-260.846	-	-260.846

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: BU9: *IFPC High Energy Laser*

Congressional Add: *Program Increase: IFPC-HEL*

	FY 2023	FY 2024
	40.000	-
Congressional Add Subtotals for Project: BU9	40.000	-
Congressional Add Totals for all Projects	40.000	-

Change Summary Explanation

The decrease in funding reflects changes in priorities for the Expanded Mission Area Missile.

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) BU9 / <i>IFPC High Energy Laser</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
<i>BU9: IFPC High Energy Laser</i>	-	208.943	85.852	31.643	-	31.643	-	-	-	-	0.000	326.438
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This PE supports transitioning the High Energy Laser -Tactical Vehicle Demonstration S&T effort to manufacturing combat ready rapid prototype vehicles for delivery in FY 2025 and potential future transition to Program of Record.

A. Mission Description and Budget Item Justification

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

The Directed Energy Indirect Fire Protection Capability (DE-IFPC) High Energy Laser (HEL) is an Air Defense capability consisting of IFPC - HEL prototypes with residual combat capability at the IFPC Battery Level in support of Multi-Domain Operations (MDO). IFPC-HEL will provide the Army prototype weapon systems for defense of fixed and semi-fixed sites from Cruise Missiles (CM); Unmanned Aircraft Systems (UAS); Rocket, Artillery, and Mortar (RAM); Fixed Wing (FW); and Rotary Wing (RW) threats. This project will deliver an operationally effective rapid prototype capability in the near term. Efforts will include accelerated materiel development and competitive prototyping. IFPC-HEL funds an improved mechanism to effectively confront emerging threats and advance the United States' military dominance in accordance with the National Defense Strategy. Efforts include development, acquisition, test and evaluation, assessment, maturation, and potential future transition of prototype technologies to acquisition programs.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy, and it supports the Army's future capability opportunities for leap-ahead technology for directed energy.

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

	FY 2023	FY 2024	FY 2025
Title: IFPC-High Energy Laser	168.943	85.852	31.643
Description: This effort will provide planning, prototype manufacturing, and testing for the Indirect Fire Protection Capability (IFPC)-High Energy Laser (HEL) prototypes with residual combat capability to support the IFPC mission. The IFPC-HEL is a modularized laser weapon system that can be integrated onto a Heavy Expanded Mobility Tactical Truck (HEMTT) Palletized Load System (PLS) to defend fixed and semi-fixed sites from Cruise Missile (CM); Unmanned Aircraft System (UAS); Rocket, Artillery, and Mortar (RAM); Fixed Wing (FW); and Rotary Wing (RW) threats delivered with residual combat capability in FY 2025 as part of the IFPC Battery in support of Multi-Domain Operations (MDO). IFPC-HEL builds on the technology maturation and demonstration from PE 0602150A (Air and Missile Defense Technology) / Project AC9 (High Energy Laser Tactical Vehicle Demonstrator Technology) and PE 0603466A (Air and Missile Defense Advanced Technology) / Project AD1 (High Energy Laser Tactical Vehicle Demo Advanced Technology).			

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) BU9 / <i>IFPC High Energy Laser</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i> Prototype fabrication will continue to include hardware integration and assembly. Will continue systems engineering, program management, engineering and technical support.</p> <p><i>FY 2025 Plans:</i> Complete prototype fabrication, system test, evaluation and assessment, prototype deliveries and initiate Contractor Logistics Support (CLS).</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The decrease of \$54.209M in FY 2025 reflects progression from hardware purchase and integration in FY 2024 to delivery of prototypes and potential future transition to Program of Record.</p>			
Accomplishments/Planned Programs Subtotals	168.943	85.852	31.643

	FY 2023	FY 2024
<i>Congressional Add:</i> Program Increase: IFPC-HEL	40.000	-
<i>FY 2023 Accomplishments:</i> This effort continued development and demonstration of Indirect Fire Protection Capability - High Energy Laser, including integration with Command and Control.		
Congressional Adds Subtotals	40.000	-

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

N/A

Remarks

D. Acquisition Strategy

IFPC - HEL prototype weapon systems will be delivered with residual combat capability in FY 2025 as part of the IFPC Battery in support of Multi-Domain Operations (MDO). Soldier touchpoints will be conducted to provide feedback in support of Army requirements generation/soldier centered design, prototype maturation, fielding, and future capability development. Performance characteristics measured in test, evaluation and assessment will inform future acquisition activities and a potential future transition to a Program of Record with PEO Missiles and Space.

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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 / 4				PE 0604019A / Expanded Mission Area Missile (EMAM)						BU9 / IFPC High Energy Laser					
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
Program Management Support	Various	Various : Various	0.795	5.382	Dec 2022	8.547	Dec 2023	6.639	Dec 2024	-		6.639	Continuing	Continuing	-
Facilities, IT/Supplies, Travel, Training	C/Various	Various : Various	-	0.260	Dec 2022	-		-		-		-	0.000	0.260	-
Program Increase: IFPC-HEL Management Support	C/Various	Various : Various	-	2.944		-		-		-		-	0.000	2.944	-
Subtotal			0.795	8.586		8.547		6.639		-		6.639	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
Systems, Development: Indirect Fire Protection Capability - High Energy Laser (IFPC-HEL)	C/CPFF	Lockheed Martin : Huntsville, AL	7.162	157.642	Jul 2023	77.305	Nov 2023	18.238	Nov 2024	-		18.238	Continuing	Continuing	-
Software Development and Support	MIPR	Various : Various	-	3.224	Feb 2023	-		-		-		-	0.000	3.224	-
Program Increase: IFPC-HEL	C/CPFF	Various : Huntsville, AL	-	37.056		-		-		-		-	0.000	37.056	-
Subtotal			7.162	197.922		77.305		18.238		-		18.238	Continuing	Continuing	N/A
Support (\$ 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
Contractor Logistics Support (CLS)	C/CPFF	Lockheed Martin : Huntsville, AL	-	-		-		2.100	Nov 2024	-		2.100	Continuing	Continuing	-
Subtotal			-	-		-		2.100		-		2.100	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 / 4	R-1 Program Element (Number/Name) PE 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) BU9 / <i>IFPC High Energy Laser</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
IFPC-HEL Prototype Contract			▲ 1																									
IFPC-HEL Prototype Fabrication																												
IFPC-HEL Acceptance Testing																												
IFPC-HEL Prototype #1 Delivery									▲ 2																			
IFPC-HEL Prototype #2 Delivery											▲ 3																	
IFPC-HEL Contractor Logistics Support																												

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) BU9 / <i>IFPC High Energy Laser</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IFPC-HEL Prototype Contract	4	2023	4	2023
IFPC-HEL Prototype Fabrication	4	2023	3	2025
IFPC-HEL Acceptance Testing	1	2025	3	2025
IFPC-HEL Prototype #1 Delivery	2	2025	2	2025
IFPC-HEL Prototype #2 Delivery	3	2025	3	2025
IFPC-HEL Contractor Logistics Support	2	2025	2	2026

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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 0604019A / Expanded Mission Area Missile (EMAM)				Project (Number/Name) CO6 / IFPC High Power Microwave (HPM)			
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
CO6: IFPC High Power Microwave (HPM)	-	41.408	11.166	4.031	-	4.031	-	-	-	-	0.000	56.605
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 Directed Energy - Indirect Fire Protection Capability (DE-IFPC) - High Power Microwave (HPM) is an Air Defense capability consisting of the IFPC-HPM prototype with residual combat capability at the IFPC Battery Level in support of Multi-domain Operations (MDO). The IFPC-HPM program will provide the Army with HPM prototype weapon systems for the short-range defense of fixed and semi-fixed sites from Unmanned Aircraft System (UAS) swarms. This project will deliver an operationally effective rapid prototype capability in the near term. IFPC-HPM funds an improved mechanism to effectively confront emerging threats and advance the United States' military dominance in accordance with the National Defense Strategy. Efforts include development, acquisition, test and evaluation, assessment, maturation, and potential future transition of prototype technologies to acquisition programs.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas, the Army Modernization Strategy, and supports the Army's future capability opportunities for leap-ahead technology for directed energy.

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

	FY 2023	FY 2024	FY 2025
Title: IFPC-High Power Microwave	41.408	11.166	4.031
Description: This effort will provide development, planning, prototype manufacturing, and testing of 4 IFPC-HPM rapid prototypes with residual combat capability to support the IFPC mission. The IFPC-HPM is a weapon system that can be transported by common brigade combat team equipment to defend fixed and semi-fixed sites against Group 1-2 UAS swarms. IFPC-HPM is common with other Services and the Joint Counter-UAS Office HPM effectors for countering UAS. IFPC-HPM leverages previous HPM technology demonstrations and to facilitate continued operational assessment.			
FY 2024 Plans: Will continue prototype fabrication, systems engineering, program management, engineering, and technical support, for weapon system prototyping. Initiate Contractor Logistics Support (CLS).			
FY 2025 Plans: Will support issuance of the residual combat capability to a unit, new threat target software updates, and Contractor Logistics Support (CLS) which facilitates continued operational assessment and a potential future transition to an acquisition program.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) CO6 / <i>IFPC High Power Microwave (HPM)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
The decrease of \$7.135M in FY 2025 reflects progression from integration and delivery in FY 2024 to Contractor Logistics Support (CLS) and potential future transition to Program of Record.			
Accomplishments/Planned Programs Subtotals	41.408	11.166	4.031

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

N/A

Remarks

D. Acquisition Strategy

DE-IFPC will utilize streamlined acquisition methods, processes and techniques to rapidly prototype the capability. The RCCTO awarded a Prototype Other Transactions Agreement (pOTA) to deliver four HPM prototype systems to Soldiers in FY 2024. Soldier touchpoints will be conducted to provide feedback in support of Army requirements generation, prototype maturation, fielding residual combat capability to a unit of action, and potential future capability development.

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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 0604019A / Expanded Mission Area Missile (EMAM)	Project (Number/Name) CO6 / IFPC High Power Microwave (HPM)
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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			
Program Management Support	Various	Various : Various	1.889	2.280	Dec 2022	1.112	Dec 2023	1.145	Dec 2024	-		1.145	Continuing	Continuing	Continuing
Facilities, IT/Supplies, Travel, Training	TBD	Various : Various	-	0.125	Dec 2022	-		-		-		-	0.000	0.125	-
Subtotal			1.889	2.405		1.112		1.145		-		1.145	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			
Indirect Fire Protection Capability - High Power Microwave (IFPC-HPM)	C/FFP	Epirus : Los Angeles, CA	17.009	33.553	Feb 2023	9.354	Dec 2023	-		-		-	Continuing	Continuing	Continuing
Software Development and Support	MIPR	Various : Various	-	0.750	Feb 2023	-		-		-		-	0.000	0.750	-
GFE	MIPR	Various : Various	-	1.000	Feb 2023	-		-		-		-	0.000	1.000	-
Subtotal			17.009	35.303		9.354		-		-		-	Continuing	Continuing	N/A

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	Epirus : Los Angeles, CA	-	-		-		2.386	Dec 2024	-		2.386	0.000	2.386	-
Subtotal			-	-		-		2.386		-		2.386	0.000	2.386	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			
Test Support	MIPR	Various : Various	-	0.700	Jun 2023	0.700	Dec 2023	0.500	Dec 2024	-		0.500	0.000	1.900	-

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) CO6 / <i>IFPC High Power Microwave (HPM)</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	
IFPC-HPM Contract Award	▲1																												
IFPC-HPM Prototype Fabrication		■																											
IFPC-HPM Unit 1 Prototype Delivery					▲2																								
IFPC-HPM Unit 2 Prototype Delivery						▲3																							
IFPC-HPM Unit 3 Prototype Delivery							▲4																						
IFPC-HPM Unit 4 Prototype Delivery								▲5																					
IFPC-HPM Contractor Logistic Support									■																				

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) CO6 / <i>IFPC High Power Microwave (HPM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IFPC-HPM Contract Award	1	2023	1	2023
IFPC-HPM Prototype Fabrication	1	2023	2	2024
IFPC-HPM Unit 1 Prototype Delivery	1	2024	1	2024
IFPC-HPM Unit 2 Prototype Delivery	1	2024	1	2024
IFPC-HPM Unit 3 Prototype Delivery	2	2024	2	2024
IFPC-HPM Unit 4 Prototype Delivery	2	2024	2	2024
IFPC-HPM Contractor Logistic Support	2	2024	2	2025

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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 0604019A / Expanded Mission Area Missile (EMAM)	Project (Number/Name) DJ5 / Multi-Domain Artillery Cannon System (MDACS)
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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
DJ5: Multi-Domain Artillery Cannon System (MDACS)	-	-	-	66.915	-	66.915	278.773	300.600	-	-	0.000	646.288
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Multi-Domain Artillery Cannon System (MDACS) is a new start within the Expanded Mission Area Missile (EMAM) program in FY 2025.

A. Mission Description and Budget Item Justification

The Multi-Domain Artillery Cannon System (MDACS) is rapid prototype, deep magazine, cost-effective, and scalable system consisting of a Multi-Domain Artillery Cannon (MDAC), Multi-Function Precision Radar (MFPR), Multi-Domain Battle Manager (MDBM), Hypervelocity Projectiles (HVP), and an Ammo Handler Vehicle. MDACS complements existing AMD systems and provides integrated and standalone defense against a broad range of threats. MDACS will provide the Joint Force with defense of fixed and semi-fixed sites against Cruise Missiles (CM) and Unmanned Aircraft Systems (UAS) while significantly increasing magazine depth and reducing cost-per-engagement.

The Army will leverage current OSD investments and will prototype and assess MDACS at Battery level in FY 2028 with residual combat capability. The prototype will inform an enduring capability requirement.

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

	FY 2023	FY 2024	FY 2025
Title: Multi Domain Artillery Cannon System (MDACS)	-	-	66.915
Description: This effort will provide development, prototype manufacturing, and operational assessment of a battery formation of MDACS. The battery formation includes MDACs , MFPRs, MDBMs, HVPs and support assets required to facilitate an operational assessment and provide residual combat capability in FY 2028.			
FY 2025 Plans: Establish a program office, initiate program management functions, initiate system design and development, purchase long lead items, and commence prototype fabrication.			
FY 2024 to FY 2025 Increase/Decrease Statement: New start effort in FY 2025.			
Accomplishments/Planned Programs Subtotals	-	-	66.915

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

N/A

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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 0604019A / Expanded Mission Area Mi ssile (EMAM)	Project (Number/Name) DJ5 / Multi-Domain Artillery Cannon System (MDACS)

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

Remarks

D. Acquisition Strategy

The MDACS program will utilize streamlined acquisition methods to rapidly prototype the capability. It will leverage existing prototypes from the Air Force Research Laboratory (AFRL) and the Strategic Capabilities Office (SCO) to refine requirements and address Army and Joint Force concepts. Throughout the developmental effort, Soldier touchpoints will gather feedback for Army requirements generation and prototype maturation. MDACS will use the Integrated Battle Command System (IBCS) and conduct a series of flight tests culminating in a battery-level operational assessment (OA) in FY 2028. The OA will inform the Program of Record decision and guide future acquisition activities. Post OA, MDACS will field residual combat capability to a unit of action as part of a MDACS Battery supporting Multi-Domain Operations (MDO).

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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 0604019A / Expanded Mission Area Missile (EMAM)	Project (Number/Name) DJ5 / Multi-Domain Artillery Cannon System (MDACS)

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	
Request for Proposal					▲ 1																								
Program Office Initiation and Management Support																													
MDACS Contract Award									▲ 2																				
MDACS Prototype Fabrication / Integration																													
System Integration Checkout (SICO) and Delta Qualificati...																													
MDACS Prototype Delivery																									▲ 3				
MDACS Contractor Logistic Support																													
New Equipment Training																													
Operational Assessment																													

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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 0604019A / <i>Expanded Mission Area Missile (EMAM)</i>	Project (Number/Name) DJ5 / <i>Multi-Domain Artillery Cannon System (MDACS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Request for Proposal	3	2024	3	2024
Program Office Initiation and Management Support	1	2025	4	2028
MDACS Contract Award	2	2025	2	2025
MDACS Prototype Fabrication / Integration	2	2025	1	2028
System Integration Checkout (SICO) and Delta Qualification Testing	2	2028	2	2028
MDACS Prototype Delivery	3	2028	3	2028
MDACS Contractor Logistic Support	3	2028	4	2028
New Equipment Training	3	2028	3	2028
Operational Assessment	4	2028	4	2028

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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 0604020A / <i>Cross Functional Team (CFT) Advanced Development & Prototyping</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	0.000	74.189	117.557	63.831	0.000	63.831	0.000	0.000	0.000	0.000	0.000	255.577
DC8: <i>Army Experimentation and Prototyping</i>	-	74.189	117.557	63.831	-	63.831	-	-	-	-	0.000	255.577

A. Mission Description and Budget Item Justification

This Program Element (PE) is the Army led scope of the Rapid Defense Experimentation Reserve (RDER) initiative. To facilitate rapid modernization of the force, the RDER initiative was established in the Defense Planning Guidance for Fiscal Year 2023-2027, to encourage multi-component experimentation through a campaign of learning. Services, Agencies, and other participating organizations are to identify "best of breed" capabilities developed among the DoD prototyping programs and execute approved projects through large-scale experiments in order to refine and/or validate the Joint Warfighting Concept (JWC). Organizations are to nominate proposals to the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) that are multi-component - involving Joint Services, International partners and/or other government agencies - and link to one or more of the four key supporting concepts ("functional battles") of the Joint Warfighting Concept: Joint Concept for Fires, Joint Concept for Command and Control, Joint Concept for Contested Logistics, and Joint Concept for Information Advantage.

Army lead experimentation outcomes will be designed to validate required capabilities enabling the JWC by evaluating and integrating prototyped technologies in operationally relevant, multi-domain environments. Experimentation results will facilitate Joint Staff analysis in the evaluation of the Joint Warfighting Concept, assist the Joint Requirements Oversight Counsel in requirements determination, and inform the Deputy's Management Action Group to make budget decisions that affect changes throughout the Department.

The cited work is consistent with the Under Secretary of Defense, Research and Engineering science and the JWC.

Work in this PE is performed by the United States (U.S.) Army and other Service laboratories and research centers, U.S. Army and Joint Program Executive Offices and Program Management Offices.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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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 0604020A / <i>Cross Functional Team (CFT) Advanced Development & Prototyping</i>
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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	77.000	117.557	0.000	-	0.000
Current President's Budget	74.189	117.557	63.831	-	63.831
Total Adjustments	-2.811	0.000	63.831	-	63.831
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.811	-			
• Adjustments to Budget Years	-	-	63.831	-	63.831

Change Summary Explanation

Increase in funding for FY25 for initiation of Army RDER proposals approved by OSD.

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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 0604020A / <i>Cross Functional Team (CFT) Advanced Development & Prototyping</i>				Project (Number/Name) DC8 / <i>Army Experimentation and Prototyping</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
DC8: <i>Army Experimentation and Prototyping</i>	-	74.189	117.557	63.831	-	63.831	-	-	-	-	0.000	255.577
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Army led programs and experimentation enable Joint All Domain Operations concepts applicable across multiple Combatant Commands (CCMD) to address OUSD R&E priority scenarios. Individual efforts bring together layered solutions to compete with peer and near-peer adversaries through the development of capabilities that support fires, command and control, logistics, and capabilities that will drive information advantage. These activities will accelerate joint warfighting capabilities to quickly demonstrate and assess innovative technologies resulting in follow-on Office of the Secretary of Defense (OSD), Army, and other Service efforts for accelerated transition of the technologies to CCMD required operations.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Joint Warfighting Concepts.

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

	FY 2023	FY 2024	FY 2025
Title: Olympus	74.189	-	-
Description: Mature technologies from Technology Readiness Level (TRL) 6 to TRL7+ prototypes for Soldier evaluations in INDOPACOM as primary experiment event in FY 2024. Efforts will include advanced capabilities for sensing, target identification / target paring, multi-layer networks / data sharing, and advanced command and control. The program portfolio will initiate prototyping, integration and risk reduction activities to facilitate integrated and interoperable capabilities that leverage layered Intelligence, Surveillance and Reconnaissance (ISR), and autonomy with advanced communications and architectures to enable Artificial Intelligence (AI)-infused analytics and Layered Effects.			
Title: Army RDER 24 Program	-	117.557	-
Description: The Army RDER 24 program will mature technologies to TRL7+ prototypes for a series of Soldier evaluations culminating with a CCMD assessment. Efforts will include an expeditionary fabrication capability with constrained resources, expeditionary solutions to reduce demand of logistics resupply and repair, autonomous platform solutions for logistics resupply and supporting modeling and simulation capabilities. Additional efforts focusing on base defense will include advanced fires capabilities, advanced sensing capabilities, and improvements to network, data analytics, and information distribution. The project portfolio will progress from prototyping, integration and risk reduction activities to facilitate an integrated and interoperable capability demonstration of layered solutions for logistics operations, resupply, repair, and base defense.			
FY 2024 Plans:			

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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 0604020A / <i>Cross Functional Team (CFT) Advanced Development & Prototyping</i>	Project (Number/Name) DC8 / <i>Army Experimentation and Prototyping</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Conduct systems design, hardware procurement, systems prototyping, software maturation and systems integration for layered solutions for logistics and base defense within the portfolio of projects. Prototype and integrate materiel and physical systems into platform delivery resupply, reduced demand, and repair solutions for evaluation in real-world environments for a CCMD relevant scenario. Prototype and integrate materiel and physical systems into sensing and fires solutions for evaluation in real-world environments for a CCMD relevant scenario. Integrate resilient communication systems and data analytics, and conduct modeling and simulation to provide interoperability within the portfolio of projects. Conduct risk reduction event for individual projects that lead into the primary CCMD operational assessment event in FY 2025.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in funding due to completion of approved FY24 projects.</p>				
<p>Title: Army RDER 25 Program</p> <p>Description: The Army RDER 25 program will mature technologies to TRL7+ prototypes for a series of Soldier evaluations culminating with a CCMD assessment to facilitate acceleration to Army and Joint Service Acquisition. Efforts will include advanced communication and network connectivity to enable interoperable joint service communication; integrated solutions for advanced fires, sensors, and communication; and advanced logistics support capabilities. The project portfolio will progress from prototyping, integration and risk reduction activities to facilitate warfighter training, experimentation and assessments leading toward potential recommendations for transition acceleration. Army RDER FY25 projects were approved through the OSD-RE / DMAG / CAPE selection process.</p> <p>FY 2025 Plans: Conduct systems design, hardware procurement, systems prototyping, software maturation and systems integration for layered solutions for joint force communication, fires, sensing, and defensive force protection within the portfolio of projects. Prototype and integrate materiel and physical systems into advanced communication systems and layered advanced fires, sensors, and communication systems for evaluation in real-world environments for a CCMD relevant scenario. Conduct risk reduction event for individual projects that lead into the primary CCMD operational assessment events in FY 2025 and FY 2026.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase in funding due to initiation of approved Army RDER FY 25 projects.</p>		-	-	63.831
Accomplishments/Planned Programs Subtotals		74.189	117.557	63.831
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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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 0604020A / <i>Cross Functional Team (CFT) Advanced Development & Prototyping</i>	Project (Number/Name) DC8 / <i>Army Experimentation and Prototyping</i>

D. Acquisition Strategy

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 0604020A / Cross Functional Team (CFT) Advanced Development & Prototyping	Project (Number/Name) DC8 / Army Experimentation and Prototyping
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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			
Olympus: Program Management and Capability Transition	TBD	Various : Various	-	6.178		-		-		-		-	0.000	6.178	-
Army 24: Program Management and Capability Transition	TBD	DEVCOM-ARL; DEVCOM-C5ISR : Various	-	-		13.466		-		-		-	0.000	13.466	-
Army 25: Program Management and Capability Transition	TBD	DEVCOM-ARL; DEVCOM-C5ISR, Various : Various	-	-		-		2.500		-		2.500	0.000	2.500	-
Subtotal			-	6.178		13.466		2.500		-		2.500	0.000	22.144	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			
Layered ISR and autonomy systems design	Option/TBD	Multiple : Various	-	3.163		-		-		-		-	0.000	3.163	-
Layered ISR and autonomy systems hardware procurement	Option/TBD	Multiple : Various	-	16.607		-		-		-		-	0.000	16.607	-
Layered ISR and autonomy systems prototyping	Option/TBD	Multiple : Various	-	5.536		-		-		-		-	0.000	5.536	-
Layered ISR and autonomy software maturation	Option/TBD	Multiple : Various	-	3.163		-		-		-		-	0.000	3.163	-
Layered ISR and autonomy systems integration	Option/TBD	Multiple : Various	-	3.163		-		-		-		-	0.000	3.163	-
Communications and architectures Systems Design	C/TBD	Multiple : Various	-	3.954		-		-		-		-	0.000	3.954	-

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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 0604020A / Cross Functional Team (CFT) Advanced Development & Prototyping	Project (Number/Name) DC8 / Army Experimentation and Prototyping
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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			
Communications and architectures hardware procurement	Option/TBD	Multiple : Various	-	7.118		-		-		-		-	0.000	7.118	-
Communications and architectures systems prototyping	Option/TBD	Multiple : Various	-	4.745		-		-		-		-	0.000	4.745	-
Communications and architectures software maturation	Option/TBD	Multiple : Various	-	5.536		-		-		-		-	0.000	5.536	-
Communications and architectures systems integration	Option/TBD	Multiple : Various	-	3.954		-		-		-		-	0.000	3.954	-
Lab Based Risk Reduction activities	Option/TBD	Multiple : Various	-	3.954		-		-		-		-	0.000	3.954	-
Risk Reduction and Evaluation Events	Option/TBD	Multiple : Various	-	7.118		-		-		-		-	0.000	7.118	-
Army 24: Expeditionary demand reduction systems	Option/TBD	DEVCOM-C5ISR; DEVCOM-GVSC; ERDC : Various	-	-		14.951		-		-		-	0.000	14.951	-
Army 24: Expeditionary Repair	Option/TBD	DEVCOM-GVSC, ERDC : Various	-	-		16.500		-		-		-	0.000	16.500	-
Army 24: Autonomous platform solutions	Option/TBD	DEVCOM-SC, DEVCOM-AC : Various	-	-		33.522		-		-		-	0.000	33.522	-
Army 24: Advanced sensing	Option/TBD	DEVCOM-AvMC, DEVCOM-ARL : Various	-	-		6.826		-		-		-	0.000	6.826	-
Army 24: Advanced fires	Option/TBD	JPEO A&A : Various	-	-		15.000		-		-		-	0.000	15.000	-
Army 24: Network distribution	Option/TBD	DEVCOM-C5ISR : Various	-	-		4.000		-		-		-	0.000	4.000	-
Army 24: Information distribution	Option/TBD	DIA : Various	-	-		7.775		-		-		-	0.000	7.775	-

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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 0604020A / Cross Functional Team (CFT) Advanced Development & Prototyping	Project (Number/Name) DC8 / Army Experimentation and Prototyping

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
Olympus																												
Layered ISR and autonomy systems design																												
Layered ISR and autonomy systems hardware procurement																												
Layered ISR and autonomy systems prototyping																												
Layered ISR and autonomy software maturation																												
Layered ISR and autonomy systems integration																												
Communications and architectures systems design																												
Communications and architectures hardware procurement																												
Communications and architectures systems prototyping																												
Communications and architectures software maturation																												
Communications and architectures systems integration																												
Lab Based Risk Reduction activities																												
Olympus Risk Reduction and Evaluation Event 1				1																								
				Risk Reduction Evaluation																								

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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 0604020A / Cross Functional Team (CFT) Advanced Development & Prototyping	Project (Number/Name) DC8 / Army Experimentation and Prototyping	

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
Olympus Evaluation Event 2					2 <small>Final Evaluation</small>																							
Army RDER Program																												
Army RDER 24 Program																												
Army 24: Expeditionary demand reduction systems																												
Army 24: Expeditionary repair																												
Army 24: Autonomous platform solutions																												
Army 24: Modeling and simulation																												
Army 24: Communication and navigation system integration																												
Army 24: Advanced sensing																												
Army 24: Advanced fires																												
Army 24: Network distribution																												
Army 24: Information distribution																												
Army 24: Lab based risk reduction																												

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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 0604020A / Cross Functional Team (CFT) Advanced Development & Prototyping	Project (Number/Name) DC8 / Army Experimentation and Prototyping

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
Army 24: Risk reduction event																												
Army 24: Evaluation event																												
Army 24: Final Evaluation													3 Final Evaluation															
Army RDER 25 Program																												
Army 25: Advanced Communications																												
Army 25: Advanced Fires and Sensors																												
Army 25: Advanced Sensors																												
Army 25: Advanced Expeditionary Logistics																												
Army 25: Final Evaluation																	4 Final Evaluation											

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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 0604020A / Cross Functional Team (CFT) Advanced Development & Prototyping	Project (Number/Name) DC8 / Army Experimentation and Prototyping

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Olympus	1	2023	4	2024
Layered ISR and autonomy systems design	1	2023	3	2023
Layered ISR and autonomy systems hardware procurement	1	2023	3	2023
Layered ISR and autonomy systems prototyping	2	2023	1	2024
Layered ISR and autonomy software maturation	2	2023	4	2024
Layered ISR and autonomy systems integration	3	2023	4	2024
Communications and architectures systems design	1	2023	3	2023
Communications and architectures hardware procurement	1	2023	3	2023
Communications and architectures systems prototyping	2	2023	1	2024
Communications and architectures software maturation	2	2023	4	2024
Communications and architectures systems integration	3	2023	4	2024
Lab Based Risk Reduction activities	1	2023	4	2024
Olympus Risk Reduction and Evaluation Event 1	4	2023	4	2023
Olympus Evaluation Event 2	4	2024	4	2024
Army RDER Program	1	2023	4	2024
Army RDER 24 Program	1	2024	4	2025
Army 24: Expeditionary demand reduction systems	1	2024	4	2025
Army 24: Expeditionary repair	1	2024	4	2025
Army 24: Autonomous platform solutions	1	2024	4	2025
Army 24: Modeling and simulation	1	2024	4	2025
Army 24: Communication and navigation system integration	1	2024	4	2025
Army 24: Advanced sensing	1	2024	4	2025

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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 0604020A / <i>Cross Functional Team (CFT) Advanced Development & Prototyping</i>	Project (Number/Name) DC8 / <i>Army Experimentation and Prototyping</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Army 24: Advanced fires	1	2024	4	2025
Army 24: Network distribution	1	2024	4	2025
Army 24: Information distribution	1	2024	4	2025
Army 24: Lab based risk reduction	1	2024	4	2024
Army 24: Risk reduction event	3	2024	1	2025
Army 24: Evaluation event	2	2025	4	2025
Army 24: Final Evaluation	4	2025	4	2025
Army RDER 25 Program	1	2025	4	2026
Army 25: Advanced Communications	1	2025	4	2026
Army 25: Advanced Fires and Sensors	1	2025	4	2026
Army 25: Advanced Sensors	1	2025	4	2026
Army 25: Advanced Expeditionary Logistics	1	2025	4	2026
Army 25: Final Evaluation	4	2026	4	2026