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**Department of Defense
Fiscal Year (FY) 2025 Budget Estimates**

March 2024



Army

Justification Book Volume 2b of 2

Research, Development, Test & Evaluation, Army

RDT&E – Volume II, Budget Activity 4B

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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:

<u><i>Budget Activity</i></u>	<u><i>OSDPE / Project</i></u>	<u><i>Project Title</i></u>
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
 FY 2025 President's Budget
 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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					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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Mar 2024

(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)

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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Program Element Table of Contents (by Budget Activity then Line Item Number)

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69	04	0604035A	Low Earth Orbit (LEO) Satellite Capability.....	Volume 2b - 1
70	04	0604036A	Multi-Domain Sensing System (MDSS) Adv Dev.....	Volume 2b - 10
71	04	0604037A	Tactical Intel Targeting Access Node (TITAN) Adv Dev.....	Volume 2b - 24
72	04	0604100A	Analysis Of Alternatives.....	Volume 2b - 32
73	04	0604101A	Small Unmanned Aerial Vehicle (SUAV) (6.4).....	Volume 2b - 38
74	04	0604103A	Electronic Warfare Planning and Management Tool (EWPMT).....	Volume 2b - 48
75	04	0604113A	Future Tactical Unmanned Aircraft System (FTUAS).....	Volume 2b - 55
76	04	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor.....	Volume 2b - 70
77	04	0604115A	Technology Maturation Initiatives.....	Volume 2b - 80
78	04	0604117A	Maneuver - Short Range Air Defense (M-SHORAD).....	Volume 2b - 140
79	04	0604119A	Army Advanced Component Development & Prototyping.....	Volume 2b - 161
80	04	0604120A	Assured Positioning, Navigation and Timing (PNT).....	Volume 2b - 162
81	04	0604121A	Synthetic Training Environment Refinement & Prototyping.....	Volume 2b - 192
82	04	0604134A	Counter Improvised-Threat Demonstration, Prototype Development, and Testing.....	Volume 2b - 235
83	04	0604135A	Strategic Mid-Range Fires.....	Volume 2b - 246
84	04	0604182A	Hypersonics.....	Volume 2b - 264

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85	04	0604386A	Biotechnology for Materials - Dem/Val.....	Volume 2b - 290
86	04	0604403A	Future Interceptor.....	Volume 2b - 298
88	04	0604531A	Counter - Small Unmanned Aircraft Systems Advanced Development.....	Volume 2b - 304
90	04	0604541A	Unified Network Transport.....	Volume 2b - 321
91	04	0305251A	Cyberspace Operations Forces and Force Support.....	Volume 2b - 348

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Army Advanced Component Development & Prototyping	0604119A	79	04.....	Volume 2b - 161
Assured Positioning, Navigation and Timing (PNT)	0604120A	80	04.....	Volume 2b - 162
Biotechnology for Materials - Dem/Val	0604386A	85	04.....	Volume 2b - 290
Counter - Small Unmanned Aircraft Systems Advanced Development	0604531A	88	04.....	Volume 2b - 304
Counter Improvised-Threat Demonstration, Prototype Development, and Testing	0604134A	82	04.....	Volume 2b - 235
Cyberspace Operations Forces and Force Support	0305251A	91	04.....	Volume 2b - 348
Electronic Warfare Planning and Management Tool (EWPMT)	0604103A	74	04.....	Volume 2b - 48
Future Interceptor	0604403A	86	04.....	Volume 2b - 298
Future Tactical Unmanned Aircraft System (FTUAS)	0604113A	75	04.....	Volume 2b - 55
Hypersonics	0604182A	84	04.....	Volume 2b - 264
Low Earth Orbit (LEO) Satellite Capability	0604035A	69	04.....	Volume 2b - 1
Lower Tier Air Missile Defense (LTAMD) Sensor	0604114A	76	04.....	Volume 2b - 70
Maneuver - Short Range Air Defense (M-SHORAD)	0604117A	78	04.....	Volume 2b - 140
Multi-Domain Sensing System (MDSS) Adv Dev	0604036A	70	04.....	Volume 2b - 10
Small Unmanned Aerial Vehicle (SUAV) (6.4)	0604101A	73	04.....	Volume 2b - 38
Strategic Mid-Range Fires	0604135A	83	04.....	Volume 2b - 246

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Technology Maturation Initiatives	0604115A	77	04.....	Volume 2b - 80
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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 0604035A / Low Earth Orbit (LEO) Satellite Capability
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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	-	34.213	38.851	21.935	-	21.935	17.350	17.522	17.775	21.082	Continuing	Continuing
<i>BX7: 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

A. Mission Description and Budget Item Justification

The United States Army Tactical Space Strategy provides tactical land component forces with space-based capabilities required to close the top three Large Scale Combat Operations (LSCO) gaps and counter adversarial surveillance and reconnaissance systems that affect friendly maneuver forces. National, DoD, commercial space-based, and High Altitude (HA) sensor data will be integrated into army and Joint ground architectures to provide resilient communications, assured Positioning, Navigation, and Timing (PNT), all domain sensing capabilities (including space, high altitude, aerial and terrestrial sensors, data transport, data fusion, data analytics), automated Processing Exploitation and Dissemination (PED) required in the targeting process (target recognition, machine learning and advanced algorithm development), and provide command and control (C2) of non-kinetic fires for counter ISR capabilities to enable maneuver force operations. These capabilities will enable rapid and responsive all-domain targeting applications required to engage and defeat A2/AD forces and enable force projection and freedom of maneuver in contested Multi-Domain Operations and continue to inform the Army and Joint Services Family of Integrated Targeting Cells (FIT-C).

The LEO Satellite Capability is now called the LEO Battle Management Command, Control (BMC2) and Ground Infrastructure. The BMC2 and Ground Infrastructure will provide prototyping, experimentation, and risk reduction activities for ground architecture, supporting wide-area, responsive, and deep-area sensing required for Beyond-Line-of-Sight (BLOS) targeting and C2 of non-kinetic fires for counter ISR operations, significantly reducing Sensor to Shooter (S2S) timelines and enabling freedom of maneuver for operational forces. It will enable Warfighters at echelon to conduct C2 of counter surveillance and reconnaissance operations and to dynamically task, receive and disseminate data to directly support live-fire S2S demonstrations and assessments including Assured Positioning, Navigation, and Timing/s (APNT/S) Cross Functional Team (CFT) Campaign of Learning and Army Futures Command (AFC) Project Convergence- Capstone exercise.

FY2025 base funding in the amount of \$ 21.935 million provides prototyping, experimentation, and risk reduction activities for the Army as it continues to develop and field prototypes to close the all domain sensing capability gap and provide C2 of counter adversarial surveillance and reconnaissance systems. Complimentary AI/ ML technologies are assessed via various prototyping and ground station (FIT-C) architecture efforts. These Advanced Component Development and Prototypes efforts enable ground stations to dynamically task, receive, and disseminate data to directly support live-fire, Warfighting function system of system demonstrations and assessments, enabling wide-area, responsive, and deep-area sensing and force maneuver. Additionally, this funding supports C2 architecture prototyping and experimentation of counter ISR capabilities, along with navigation warfare (NAVWAR) technology integration and Positioning, Navigation and Timing (PNT) technology development and assessments, including experimentation and prototyping in denied, degraded, intermittent, or limited (DDIL) operating environments.

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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 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</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	35.509	38.851	22.457	-	22.457
Current President's Budget	34.213	38.851	21.935	-	21.935
Total Adjustments	-1.296	0.000	-0.522	-	-0.522
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.296	-			
• Adjustments to Budget Years	-	-	-0.522	-	-0.522

Change Summary Explanation

Army approved minor reduction.

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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 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</i>				Project (Number/Name) BX7 / <i>Low Earth Orbit (LEO) Satellite Capability</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>BX7: 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
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Name of this Project from 'Low Earth Orbit (LEO) Satellite Capability' to 'Battle Management Command and Control (BMC2) and Ground Infrastructure for FY22 and beyond.'

A. Mission Description and Budget Item Justification

The United States Army Tactical Space Strategy provides tactical land component forces with space-based capabilities required to close the top three Large Scale Combat Operations (LSCO) gaps and counter adversarial surveillance and reconnaissance systems that affect friendly maneuver forces. National, DoD, commercial space-based, and High Altitude (HA) sensor data will be integrated into army and Joint ground architectures to provide resilient communications, assured Positioning, Navigation, and Timing (PNT), all domain sensing capabilities (including space, high altitude, aerial and terrestrial sensors, data transport, data fusion, data analytics), automated Processing Exploitation and Dissemination (PED) required in the targeting process (target recognition, machine learning and advanced algorithm development), and provide command and control (C2) of non-kinetic fires for counter ISR capabilities to enable maneuver force operations. These capabilities will enable rapid and responsive all-domain targeting applications required to engage and defeat A2/AD forces and enable force projection and freedom of maneuver in contested Multi-Domain Operations and continue to inform the Army and Joint Services Family of Integrated Targeting Cells (FIT-C).

The LEO Satellite Capability is now called the LEO Battle Management Command, Control (BMC2) and Ground Infrastructure. The BMC2 and Ground Infrastructure will provide prototyping, experimentation, and risk reduction activities for ground architecture, supporting wide-area, responsive, and deep-area sensing required for Beyond-Line-of-Sight (BLOS) targeting and C2 of non-kinetic fires for counter ISR operations, significantly reducing Sensor to Shooter (S2S) timelines and enabling freedom of maneuver for operational forces. It will enable Warfighters at echelon to conduct C2 of counter surveillance and reconnaissance operations and to dynamically task, receive and disseminate data to directly support live-fire S2S demonstrations and assessments including Assured Positioning, Navigation, and Timing/s (APNT/S) Cross Functional Team (CFT) Campaign of Learning and Army Futures Command (AFC) Project Convergence- Capstone exercise

FY2025 base funding in the amount of \$21.935 million provides prototyping, experimentation, and risk reduction activities for the Army as it continues to develop and field prototypes to close the all domain capability gap and provide C2 of counter adversarial surveillance and reconnaissance systems. Complimentary AI/ML technologies are assessed via various prototyping and ground station (FIT-C) architecture efforts. These Advanced Component Development and Prototypes efforts enable ground stations to dynamically task, receive, and disseminate data to directly support live-fire, Warfighting function system of system demonstrations and assessments, enabling wide-area, responsive, and deep-area sensing and force maneuver. Additionally, this funding supports C2 architecture prototyping and experimentation of counter ISR capabilities, along with navigation warfare (NAVWAR) technology integration and Positioning, Navigation and Timing (PNT) technology development and assessments, including experimentation and prototyping in denied, degraded, intermittent, or limited (DDIL) operating environments.

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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 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</i>	Project (Number/Name) BX7 / <i>Low Earth Orbit (LEO) Satellite Capability</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: LEO Satellite Capability</p> <p>Description: The United States Army Tactical Space Strategy provides tactical land component forces with space-based capabilities required to close the top three Large Scale Combat Operations (LSCO) gaps and counter adversarial surveillance and reconnaissance systems that affect friendly maneuver forces. National, DoD, commercial space-based, and High Altitude (HA) sensor data will be integrated into army and Joint ground architectures to provide resilient communications, assured Positioning, Navigation, and Timing (PNT), all domain capabilities (including space, high altitude, aerial and terrestrial sensors, data transport, data fusion, data analytics), automated Processing Exploitation and Dissemination (PED) required in the targeting process (target recognition, machine learning and advanced algorithm development), and provide command and control (C2) of non-kinetic fires for counter ISR capabilities to enable maneuver force operations. These capabilities will enable rapid and responsive all-domain targeting applications required to engage and defeat A2/AD forces and enable force projection and freedom of maneuver in contested Multi-Domain Operations and continue to inform the Army and Joint Services Family of Integrated Targeting Cells (FIT-C).</p> <p>The LEO Satellite Capability is now called the LEO Battle Management Command, Control (BMC2) and Ground Infrastructure. The BMC2 and Ground Infrastructure will provide prototyping, experimentation, and risk reduction activities for ground architecture, supporting wide-area, responsive, and deep-area sensing required for Beyond- Line-of-Sight (BLOS) targeting and C2 of non-kinetic fires for counter ISR operations, significantly reducing Sensor to Shooter (S2S) timelines and enabling freedom of maneuver for operational forces. It will enable Warfighters at echelon to conduct C2 of counter surveillance and reconnaissance operations and to dynamically task, receive and disseminate data to directly support live-fire S2S demonstrations and assessments including Assured Positioning, Navigation, and Timing/s (APNT/S) Cross Functional Team (CFT) Campaign of Learning and Army Futures Command (AFC) Project Convergence-Capstone exercise.</p> <p>FY 2024 Plans: Battle Management and Control (BMC2) and ground infrastructure continues the demonstration and validation of ground architecture, evaluating the ability to provide wide-area, responsive, and deep-area sensing required for Beyond Line of Sight (BLOS) targeting and force maneuver, significantly reducing Sensor-to-Shooter (S2S) timelines. Ground architecture is evaluated through multiple assessment events including the Assured Position, Navigation, Timing and Space (APNT/S) Cross Functional Team (CFT) Campaign of Learning and Army Futures Command's Project Convergence. These provide a realistic operational environment to evaluate the integrated Intelligence, Surveillance and Reconnaissance (ISR), Positioning, Navigation and Timing (PNT), BMC2, and communications data to identify and locate targets of interest in denied and contested environments actionable by the tactical warfighter. This is executed through the S2S demonstration and experimentation plan which began with the first Positioning, Navigation and Timing (PNT) Assessment Exercise (PNTAX) in FY19. PNTAX provides the Army's sole large scale, open air, threat informed Radio Frequency/Global Positioning System denied environment for assessments and experiments</p>	34.213	38.851	21.935

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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 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</i>	Project (Number/Name) BX7 / <i>Low Earth Orbit (LEO) Satellite Capability</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>necessary to ensure evolution of Multi-Domain Operations and Joint All Domain Command and Control (JADC2) capabilities. Further, APNT/S CFT conducts multiple CONUS-based live-fire exercises along with follow-on embedded experimentation in exercises across US Army Europe- African Command (USEUR-AF) and US Army Pacific Command (USARPAC), culminating with a FY 2024 Project Convergence exercise. Critical to this overall effort are Soldier touchpoints, prototyping and ground architecture development, Artificial Intelligence and machine learning integration, S2S demonstrations to inform space, high altitude, aerial and terrestrial based sensor development, space-based telemetry, Alternative Navigation and radio frequency sensing. This demonstration and experimentation cycle is extremely important as it is the Army's mechanism to ensure current and future funding is correctly applied against the most critical requirements. It provides an iterative framework for rapid concept of operations and tactics, techniques, and procedures development, evaluation and revision and for rapid technology insertion.</p> <p>FY 2025 Plans: Battle Management and Control (BMC2) and ground infrastructure continues the demonstration and validation of ground architecture, evaluating the ability to provide wide-area, responsive, and deep-area sensing required for Beyond Line of Sight (BLOS) targeting and force maneuver, significantly reducing Sensor-to-Shooter (S2S) timelines. Ground architecture is evaluated through multiple assessment events including the Assured Position, Navigation, Timing and Space (APNT/S) Cross Functional Team (CFT) Campaign of Learning and Army Futures Command's Capstone Exercise. These provide a realistic operational environment to evaluate the integrated Intelligence, Surveillance and Reconnaissance (ISR), Positioning, Navigation and Timing (PNT), BMC2, and communications data to identify and locate targets of interest in denied and contested environments actionable by the tactical warfighter. This is executed through the S2S demonstration and experimentation plan which began with the first Positioning, Navigation and Timing (PNT) Assessment Exercise (PNTAX) in FY19. PNTAX provides the Army's sole large scale, open air, threat informed Radio Frequency/Global Positioning System denied environment for assessments and experiments necessary to ensure evolution of Multi-Domain Operations and Joint All Domain Command and Control (JADC2) capabilities.</p> <p>Further, APNT/S CFT conducts multiple CONUS-based live-fire exercises along with follow-on embedded experimentation in exercises across US Army Europe- African Command (USEUR-AF) and US Army Pacific Command (USARPAC), culminating with a FY 2025 Capstone exercise. Critical to this overall effort are Soldier touchpoints, prototyping and ground architecture development, Artificial Intelligence and machine learning integration, all-domain targeting demonstrations to inform space, high altitude, aerial and terrestrial based sensor development, space-based telemetry, Alternative Navigation and radio frequency sensing. This demonstration and experimentation cycle is extremely important as it is the Army's mechanism to ensure current and future funding is correctly applied against the most critical requirements. It provides an iterative framework for rapid concept of operations and tactics, techniques, and procedures development, evaluation and revision and for rapid technology insertion.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Resource requirements decrease in FY25 because the majority of the planned materiel development of the S2S forward prototyping efforts (ATHENA) complete in FY24. The prototyping effort continues throughout the FYDP utilizing the materiel</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 2040 / 4	R-1 Program Element (Number/Name) PE 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</i>	Project (Number/Name) BX7 / <i>Low Earth Orbit (LEO) Satellite Capability</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
investment to date by experimenting with PED and AI/ML technologies to inform All domain sensing and Long Range precision effects capability development." FY25 increase \$.044M due to inflation adjustment.			
Accomplishments/Planned Programs Subtotals	34.213	38.851	21.935

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
• 0603766A: <i>Tactical Electronic Surveillance System - Adv Dev</i>	72.364	65.567	90.265	-	90.265	63.649	48.625	53.954	49.333	Continuing	Continuing

Remarks
Development by Project BX7 'LEO Battle Command and Control (BMC2) and Ground Infrastructure' is in conjunction and complement Project CC5 'LEO ISR'. ref. PE 0603766A.CC5

D. Acquisition Strategy
The Army signed a Memorandum of Agreement (MOA) with the Mission Partner on November 19, 2019. This relationship has shown promise to build and deliver capacity for the Army. The MOA will allow the Army to leverage orbit experimental ISR satellites that will accelerate the Army's development of Concept of Operations (CONOPs), Tactics, Techniques and Procedures (TTPs), and refine requirements necessary to mitigate the deep-sensing gap, shorten the S2S timeline and improve situational awareness for Warfighters at both the operational and tactical levels.

This funding will enable the Army to utilize on-orbit demonstrations and numerous large-scale exercises within United States European Command (EUCOM) and U.S. Indo-Pacific Command (INDOPACOM) areas of responsibility (AORs). These demonstrations will help define the Army's tactical requirements, CONOPs, and TTPs for leveraging on-demand/direct link theater access, at echelon, to space-based ISR capabilities with trained/certified Soldiers. This will turn previously "opportunistic" collection into "assured" collection to support dynamic targeting and enhanced situational awareness. It will enable ground stations to dynamically task, receive and disseminate data to directly support live-fire S2S demonstrations and assessments including Assured Position, Navigation, Timing (APNT) Cross Functional Team (CFT) Campaign of Learning and AFC Project Convergence. Existing Mission Partner contracts and Aviation & Missile Technology Consortium (AMTC) 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 2040 / 4	R-1 Program Element (Number/Name) PE 0604035A / Low Earth Orbit (LEO) Satellite Capability	Project (Number/Name) BX7 / Low Earth Orbit (LEO) Satellite Capability
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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			
Prototype Development and Engineering Services Support	C/FFP	Multiple : Multiple	3.214	7.750	Oct 2022	6.600	Dec 2023	4.200	Dec 2024	-		4.200	0.000	21.764	-
Subtotal			3.214	7.750		6.600		4.200		-		4.200	0.000	21.764	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			
LEO Satellite Infrastructure Capabilities Development	C/FPIF	Multiple : Multiple	25.808	22.098	Jan 2023	27.280	Jan 2024	13.535	Jan 2025	-		13.535	0.000	88.721	Continuing
Subtotal			25.808	22.098		27.280		13.535		-		13.535	0.000	88.721	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			
LEO Infrastructure Test and Evaluation	C/CPIF	Multiple : Multiple	4.000	4.365	Jan 2023	4.971	Jan 2024	4.200	Jan 2025	-		4.200	0.000	17.536	-
Subtotal			4.000	4.365		4.971		4.200		-		4.200	0.000	17.536	N/A

Project Cost Totals	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
	33.022	34.213	38.851	21.935	-	21.935	0.000	128.021	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 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</i>	Project (Number/Name) BX7 / <i>Low Earth Orbit (LEO) Satellite Capability</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
BMC2 and Ground Infrastructure																												

Note
LEO activities transitioned to this PE 0604035A Project BX7 in FY2022 from previous PE 1206308A, Project FE5 Space And Missile Defense Integration.

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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 0604035A / <i>Low Earth Orbit (LEO) Satellite Capability</i>	Project (Number/Name) BX7 / <i>Low Earth Orbit (LEO) Satellite Capability</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BMC2 and Ground Infrastructure	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: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0604036A / Multi-Domain Sensing System (MDSS) 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	-	47.915	191.394	239.135	-	239.135	248.360	99.282	39.879	1.000	Continuing	Continuing
BY9: Multi-Domain Sensing System Adv Dev	-	47.915	-	-	-	-	-	-	-	-	Continuing	Continuing
DD6: HADES Platform, Payloads/PED, and Integration	-	-	191.394	239.135	-	239.135	248.360	99.282	39.879	1.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

PE 0604036A / Project BY9 was established in Fiscal Year (FY) 2022 to support sensor prototyping for initiation of the Army's Multi-Domain Sensing System (MDSS), a layered approach of Aerial Intelligence, Surveillance and Reconnaissance (A-ISR) systems which allows for the best ability to achieve Multi-Domain Operations (MDO) capable deep sensing. The MDSS family of systems, including High Accuracy Detection and Exploitation System (HADES), High Altitude Extended Range Long Endurance, Intelligence Observation System (HELIOS), High Altitude Platform-Deep Sensing (HAP-DS), Aerial GEOINT Systems (ARGOS), and High Efficiency Radios Frequency (RF) Management & Exploitation System (HERMES), is comprised of a variety of platform/sensor combinations and MDO-capable, platform agnostic, scalable sensor programs that will provide for technical insertion into Unmanned Aerial Systems (UAS), medium altitude manned systems, and unmanned stratospheric A-ISR systems. These capabilities are enabled by emerging Artificial Intelligence/Machine Learning (AI/ML) processing and automated target recognition, autonomous sensor cross-cueing, sensor data correlation and resilient Joint All-Domain Command and Control (JADC2) compliant communications which shorten the sensor to shooter kill chain.

PE 0604036A / Project DD6 is the Army's first Program of Record (PoR) in the MDSS family of systems. HADES provides advanced aerial intelligence sensing capabilities for MDO against peer and near-peer adversaries, addressing Army deep sensing needs in all phases of operations and throughout the depth of the future battlefield. Highly mobile, long endurance converged deep sensing through the collection of Communications Intelligence (COMINT), Electronics Intelligence (ELINT), and Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI) data. Subsequent increment upgrades can host Electronic Warfare (EW), RF-enabled Cyber, and Launched Effects (LE). Platform performance and a modular system open architecture (MOSA) increases flexibility in meeting emerging threats along with global deployment within hours vs. days/weeks.

Fiscal Year 2025 base dollars in the amount of \$239.135 million, justified on R-2A for Project DD6 of PE 0604036A, supports the system level prototyping of the HADES system. Funds support the acquisition of the HADES prototype aircraft and payloads and begin Non-Recurring Engineering (NRE) and design of both the aircraft and the payload for future integration and testing of the system.

The total cost of the HADES Middle Tier of Acquisition (MTA) effort is \$540.4 million RDT&E from FY24 to FY27. The remainder of the HADES MTA is fully funded across the Future Years Defense Program.

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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 0604036A / <i>Multi-Domain Sensing System (MDSS) 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	47.915	191.394	244.743	-	244.743
Current President's Budget	47.915	191.394	239.135	-	239.135
Total Adjustments	0.000	0.000	-5.608	-	-5.608
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-5.608	-	-5.608

Change Summary Explanation

Fiscal Year (FY) 2025 decrease results in a reduced investment in aircraft spares for the HADES 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 0604036A / Multi-Domain Sensing System (MDSS) Adv Dev				Project (Number/Name) BY9 / Multi-Domain Sensing System Adv Dev			
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
BY9: Multi-Domain Sensing System Adv Dev	-	47.915	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

604036A / Project BY9 was established in Fiscal Year (FY) 2022 to support sensor prototyping for initiation of the Army's MDSS, a layered approach of Aerial Intelligence, Surveillance and Reconnaissance (A-ISR) systems which allows for the best ability to achieve Multi-Domain Operations (MDO) capable deep sensing. The MDSS family of systems, including High Accuracy Detection and Exploitation System (HADES), High Altitude Extended Range Long Endurance, Intelligence Observation System (HELIOS), High Altitude Platform-Deep Sensing (HAP-DS), Aerial GEOINT Systems (ARGOS), and High Efficiency Radios Frequency (RF) Management & Exploitation System (HERMES), is comprised of a variety of platform/sensor combinations and MDO-capable, platform agnostic, scalable sensor programs that will provide for technical insertion into Unmanned Aerial Systems (UAS), medium altitude manned systems, and unmanned stratospheric A-ISR systems. These capabilities are enabled by emerging Artificial Intelligence/Machine Learning (AI/ML) processing and automated target recognition, autonomous sensor cross-cueing, sensor data correlation and resilient Joint All-Domain Command and Control (JADC2) compliant communications which shorten the sensor to shooter kill chain.

0604036A BY9 has no funding request in FY 2025.

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

	FY 2023	FY 2024	FY 2025
Title: SAR/MTI Development and Prototyping	31.334	-	-
Description: SAR/MTI development and prototyping to expand sensor performance to address MDSS requirements and ability to exploit near-peer threats.			
Title: Prototype Component Acquisition	0.536	-	-
Description: Acquisition of prototype components, auxiliary equipment, associated software, and related items.			
Title: Architecture Development	0.859	-	-
Description: Development of the MDSS integrated systems architecture to ensure end-to-end compatibility and sensor fusion.			
Title: SIGINT Development and Prototyping	12.065	-	-
Description: ELINT/COMINT (SIGINT) development, prototyping, and demonstration to expand sensor performance and sensitivity to address MDSS requirements and ability to exploit near-peer threats.			
Title: Engineering Support	0.096	-	-

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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 0604036A / <i>Multi-Domain Sensing System (MDSS) Adv Dev</i>	Project (Number/Name) BY9 / <i>Multi-Domain Sensing System Adv Dev</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Description: Engineering Support for MDSS development and prototype demonstration efforts for Project Director Sensors-Aerial Intelligence (PD SAI)			
Title: Program Management	2.635	-	-
Description: Program Management support for MDSS development and prototype demonstration efforts for Project Director Sensors-Aerial Intelligence (PD SAI)			
Title: Secure Sensor System Integration Lab (SIL)	0.390	-	-
Description: Establishing and maintaining a system integration lab for the payload.			
Accomplishments/Planned Programs Subtotals	47.915	-	-

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
• 0604036A: <i>Multi-Domain Sensing System (MDSS) Adv Dev</i>	47.915	191.394	239.135	-	239.135	248.360	99.282	39.879	1.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

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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 0604036A / Multi-Domain Sensing System (MDSS) Adv Dev				BY9 / Multi-Domain Sensing System Adv Dev							
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
Engineering Support	C/CPFF	ACC APG : APG, MD	2.214	0.096	Feb 2023	-		-		-		-	0.000	2.310	-
Subtotal			2.214	0.096		-		-		-		-	0.000	2.310	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
SAR/MTI Development and Prototyping	C/IDIQ	DMEA : Sacramento, CA	26.320	31.334	Mar 2023	-		-		-		-	0.000	57.654	-
SIGINT Development and Prototyping	SS/FFP	ACC APG : APG, MD	18.064	12.065	Feb 2023	-		-		-		-	0.000	30.129	-
Prototype Component Acquisition	Various	ACC APG : APG, MD	-	0.536	Feb 2023	-		-		-		-	0.000	0.536	-
Architecture Development	MIPR	AVMC : Redstone, AL	1.796	0.859	Jun 2023	-		-		-		-	0.000	2.655	-
Secure Sensor SIL	MIPR	APG ACC : APG MD	-	0.390	Feb 2023	-		-		-		-	0.000	0.390	-
Subtotal			46.180	45.184		-		-		-		-	0.000	91.364	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
Program Management	RO	Various : APG, MD	2.154	2.635	Feb 2023	-		-		-		-	0.000	4.789	-
Subtotal			2.154	2.635		-		-		-		-	0.000	4.789	N/A
Project Cost Totals			50.548	47.915		-		-		-		-	0.000	98.463	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 0604036A / Multi-Domain Sensing System (MDSS) Adv Dev		Project (Number/Name) BY9 / Multi-Domain Sensing System Adv Dev	

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
SIGINT Development and Prototyping																												
Architecture Development																												
SAR/MTI Development and Prototyping																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604036A / <i>Multi-Domain Sensing System (MDSS) Adv Dev</i>	Project (Number/Name) BY9 / <i>Multi-Domain Sensing System Adv Dev</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SIGINT Sensor Evaluation	2	2021	2	2022
SIGINT Development and Prototyping	4	2021	4	2023
Architecture Development	3	2021	4	2023
SAR/MTI Development and Prototyping	2	2021	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 0604036A / Multi-Domain Sensing System (MDSS) Adv Dev				Project (Number/Name) DD6 / HADES Platform, Payloads/PED, and 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
DD6: HADES Platform, Payloads/PED, and Integration	-	-	191.394	239.135	-	239.135	248.360	99.282	39.879	1.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

PE 0604036A / Project DD6 is the Army's first PoR in the Multi-Domain Sensing System (MDSS) family of systems. High Accuracy Detection and Exploitation System (HADES) provides advanced aerial intelligence sensing capabilities for MDO against peer and near-peer adversaries, addressing Army deep sensing needs in all phases of operations and throughout the depth of the future battlefield. Highly mobile, long endurance converged deep sensing through the collection of COMINT, ELINT, and SAR/MTI data. Subsequent increment upgrades can host EW, RF-enabled Cyber, and LE. Platform performance and a MOSA increases flexibility in meeting emerging threats along with global deployment within hours vs. days/weeks.

Fiscal Year 2025 base dollars in the amount of \$239.135 million supports system level prototyping of the HADES system. Funds support the acquisition of the HADES prototype aircraft and payloads, NRE and design of both the aircraft and the payloads for future integration and testing of the system.

The total cost of the HADES Middle Tier of Acquisition (MTA) effort is \$540.4 million RDT&E from FY24 to FY27. The remainder of the HADES MTA is fully funded across the Future Years Defense Program.

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

	FY 2023	FY 2024	FY 2025
Title: Prototype Acquisition and System Integration	-	129.594	151.134
Description: HADES prototype platforms, components, and system integration efforts associated with platform procurement and Mission Equipment Package (MEP) integration to create the HADES system.			
FY 2024 Plans: Funds the acquisition of the initial platform from the Original Equipment Manufacturer (OEM) and military specific avionics for Prototype 1, as well as begin Non-Recurring Engineering (NRE) and Recurring Engineering (RE) associated with shaping the aircraft and integrating the payload by a Lead Systems Integrator (LSI).			
FY 2025 Plans: Funds the acquisition of the platform for Prototype 2 from the OEM and military specific avionics, as well as NRE and RE associated with modifications to the platform and integrating payloads by a LSI.			
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 0604036A / <i>Multi-Domain Sensing System (MDSS) Adv Dev</i>	Project (Number/Name) DD6 / <i>HADES Platform, Payloads/PED, and Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 increase is due to the complexity of integrating two (2) different aircraft configurations.			
<p>Title: Payload Acquisition and Integration Support</p> <p>Description: HADES payload, Processing, Exploitation and Detection (PED) Equipment, and integration support associated with developing, testing, and supporting payload architecture into the HADES MEP.</p> <p>FY 2024 Plans: Acquisition of payload A-kits and payload materials related to ELINT, COMINT, and SAR MTI radar Mission Equipment, Non-Recurring Engineering (NRE) specific to sensor architecture and Recurring Engineering (RE) for design and integration of sensors into the platform, and initial testing materials required.</p> <p>FY 2025 Plans: Acquisition ELINT, COMINT, and SAR MTI radar Mission Equipment, NRE specific to sensor architecture and RE for design and integration of sensors into a HADES platform.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increase is due to the complexity of maintaining and establishing of two (2) different MEP configurations.</p>	-	43.618	65.284
<p>Title: Program Management</p> <p>Description: Support required for Program Manager Fixed Wing (PM FW) and Project Director Sensors Aerial Intelligence (PD SAI) for platform and payload acquisition and integration.</p> <p>FY 2024 Plans: Program Management support for prototype acquisition and payload acquisition and integration support for Program Manager Fixed Wing (PM FW) and Project Director Sensors Aerial Intelligence (PD SAI).</p> <p>FY 2025 Plans: Program Management support for prototype acquisition and payload acquisition and integration support for PM FW and PD SAI.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increase is due to increase in engineering and logistics required as a result of complexities to support multiple configurations.</p>	-	18.182	22.717
Accomplishments/Planned Programs Subtotals	-	191.394	239.135

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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 0604036A / <i>Multi-Domain Sensing System (MDSS) Adv Dev</i>	Project (Number/Name) DD6 / <i>HADES Platform, Payloads/PED, and Integration</i>

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
• A12411: <i>HADES PLATFORM AND INTEGRATION</i>	-	-	0.000	-	0.000	-	131.227	163.725	344.923	0.000	639.875
• A12412: <i>HADES PAYLOADS AND PED</i>	-	-	0.000	-	0.000	26.932	80.324	130.284	147.616	0.000	385.156

Remarks

D. Acquisition Strategy

Program office shall utilize the MTA authority for Rapid Prototyping including soldier touchpoints throughout the process to help refine the requirements. HADES requirements are identified in the HADES Abbreviated Capability Description Document (A-CDD) approved by the Army Requirements Oversight Council (AROC) on 26 August 2020 and signed by the Commanding General, Army Futures Command (AFC) on 18 September 2020.

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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 0604036A / Multi-Domain Sensing System (MDSS) Adv Dev	Project (Number/Name) DD6 / HADES Platform, Payloads/PED, and Integration
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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			
Prototype Acquisition and System Integration	TBD	TBD : TBD	-	-		129.594	Feb 2024	151.134	Mar 2025	-		151.134	Continuing	Continuing	-
Payload Acquisition and Integration Support	Various	Various : Various	-	-		43.618	Jan 2024	65.284	Jan 2025	-		65.284	Continuing	Continuing	-
Subtotal			-	-		173.212		216.418		-		216.418	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	RO	Various : Redstone Arsenal, AL; APG, MD	-	-		18.182	Dec 2023	22.717	Dec 2024	-		22.717	Continuing	Continuing	-
Subtotal			-	-		18.182		22.717		-		22.717	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	-	191.394	239.135	-	239.135	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 0604036A / Multi-Domain Sensing System (MDSS) Adv Dev		Project (Number/Name) DD6 / HADES Platform, Payloads/PED, and 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
Prototype Acquisition and System Integration																												
Payload Acquisition and Integration 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 0604036A / <i>Multi-Domain Sensing System (MDSS) Adv Dev</i>	Project (Number/Name) DD6 / <i>HADES Platform, Payloads/PED, and Integration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prototype Acquisition and System Integration	2	2024	4	2029
Payload Acquisition and Integration Support	2	2024	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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) 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	-	0.863	10.626	4.317	-	4.317	4.129	4.107	4.153	4.194	Continuing	Continuing
BY4: <i>Tactical Intelligence Targeting Access Node</i>	-	0.863	10.626	4.317	-	4.317	4.129	4.107	4.153	4.194	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Tactical Intelligence Targeting Access Node (TITAN) is a key enabler of the Army Modernization Priorities in support of Army Cross Functional Teams.

TITAN is a scalable and expeditionary intelligence ground station that supports commanders across the entire Multi-Domain Operations (MDO)/Joint All Domain Operations (JADO) battlefield framework with capabilities tailored to echelon. TITAN leverages Space, High Altitude, Aerial and Terrestrial layer sensors to provide targetable data to fires networks as well as multi-discipline intelligence support to targeting and Situation Awareness/Situation Understanding (SA/SU) in support of mission command. This funding will provide development and prototyping of Critical Radio Frequency (RF) technologies and integration of Space Force's new Space-Based ISR capabilities into the TITAN POR.

TITAN is the future Army Intelligence, Surveillance, and Reconnaissance (ISR) ground station that will consolidate the sensor processing capabilities in the current Distributed Common Ground System-Army (DCGS-A) Operational-Intelligence Ground Station (OGS), Tactical-Intelligence Ground Station (TGS), the Advanced Miniaturized Data Acquisition System Dissemination Vehicle (ADV), and the Remote Ground Terminal (RGT). Additionally, TITAN will have access to sensor data of the future Tactical Space Layer assets, National assets, the Multi-Domain Sensing Systems (MDSS) as well as commercial overhead sensors. Thus, the TITAN ground station will be able to conduct deep sensing operations with the abilities to Task, Collect, Process, Exploit, and Disseminate (TCPED) information from Space, High Altitude, Aerial, and Terrestrial Layer sensors in support of Long Range Precision Fires (LRPF) operations.

The total cost of the TITAN Middle Tier of Acquisition effort is \$489.7 million RDTE (including funds in PE 0605148A) from FY22 to FY26.

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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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) 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	0.863	10.626	14.308	-	14.308
Current President's Budget	0.863	10.626	4.317	-	4.317
Total Adjustments	0.000	0.000	-9.991	-	-9.991
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-9.991	-	-9.991

Change Summary Explanation

Realignment of \$9.991M funding to support Space Based GMTI from TITAN PE 0604037A to TENCAP PE 0604766A.

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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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>				Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</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
BY4: <i>Tactical Intelligence Targeting Access Node</i>	-	0.863	10.626	4.317	-	4.317	4.129	4.107	4.153	4.194	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Intelligence Targeting Access Node (TITAN) directly addresses the U.S. Army Combined Arms Center's (USACAC) Multi-Domain Operations (MDO) Gap #1: Lack of echelons above corps (EAC) multi-domain deep sensing, analysis, and processing, exploitation, and dissemination (PED) for indications and warning (I&W) and anti-access/area denial (A2/AD) targeting. Furthermore, TITAN indirectly addresses MDO Gap #2: No theater detect, decide, deliver, assess (D3A) and convergence of Long Range Precision Fires (LRPF) to disintegrate A2/AD and MDO Gap #3: Lack of EAC LRPF capacity to dis-integrate A2/AD and shape the deep fight. TITAN supports these MDO gaps by providing the sensor data receipt and control, analysis, exploitation, and dissemination functions needed to enable LRPF.

The FY25 RDTE Dollars in the amount of \$4.308M will fund continued support efforts to prototype high altitude, aerial and terrestrial sensor data feed, processing and AI/ML operational platforms in the Prototype Maturation Phase (PMP).

The total cost of the TITAN Middle Tier of Acquisition effort is \$489.7 million RDTE (including funds in PE 0605148A) from FY22 to FY26.

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

	FY 2023	FY 2024	FY 2025
Title: Development and Prototyping of Critical RF Technologies	0.313	-	-
Description: Fund initial Prototyping and Advanced Development of TITAN critical technologies on a representative platform. Development and prototyping of critical RF technologies and technology which currently does not exist or needs significant enhancements to meet TITAN requirements. Fund technology maturation and prototyping of critical TITAN RF technologies including Multi-Link Antennas and CMOSS implementations. Multi-link RF systems will support the simultaneous ingest of multiple sensor data streams in a tactical configuration/footprint Prototype high altitude, aerial and terrestrial sensor data feeds.			
Title: Development and Prototyping of Critical Automated Processing Technologies	0.550	-	-
Description: Fund technology maturation of critical TITAN processing technologies including hyper-computing solutions, AI/ML algorithms to enhance targeting automation, stimulation capabilities and the generation of ML training data. Fund the generation of new training data to aid in automated targeting. Funding will be used to integrate other technology transitioned from the research and development centers across the army to increase the accuracy and precision of TITAN. Existing modeling and simulation tools will be enhanced to account for the additional sensor modalities (EO/IR/SAR/FMV) that TITAN needs to process, which will allow the PM to automate more of the testing at the same time allowing units to run their own training exercises to maintain proficiency.			

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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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: Integration Space Based ISR</p> <p>Description: Fund initial efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance capabilities into TITAN program of record.</p> <p>FY 2024 Plans: Fund initial efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance capabilities into TITAN program of record.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to Integration Space Based ISR effort realignment to TENCAP.</p>	-	10.000	-
<p>Title: Development and Prototyping of Critical RF Technologies (PMP)</p> <p>Description: Fund continued maturation, Prototyping, and Advanced Development of TITAN critical technologies on a representative platform. Development and prototyping of critical RF technologies, which currently do not exist or need significant enhancements, to meet TITAN requirements. Fund technology maturation and prototyping of critical TITAN RF technologies, including Multi-Link Antennas and CMOSS implementations. Multi-link RF systems will support the simultaneous ingest of multiple sensor data streams, in a tactical ground configuration/footprint, for high altitude, aerial, and terrestrial sensor data feeds. CMOSS implementations support Space, Weight and Power-Cooling (SWaP-C) reductions in an open architecture solution with modularity.</p> <p>FY 2024 Plans: Continued maturation of multi-link antenna tech and CMOSS implementations on TITAN platform.</p> <p>FY 2025 Plans: Continued maturation and implementation of multi-link antenna technology, maturation and prototyping of evolving National modernization architecture elements, and implement developing CMOSS solutions on the TITAN prototypes during Prototype Maturation Phase.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased to support RF Technologies requirements initiated during TITAN Prototype development in PMP.</p>	-	0.626	4.317
Accomplishments/Planned Programs Subtotals	0.863	10.626	4.317

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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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>
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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
• BY5: <i>Tactical Intelligence Targeting Access Node EMD</i>	103.987	132.136	157.036	-	157.036	48.739	35.961	39.605	40.001	Continuing	Continuing
• K57311: <i>TITAN GROUND STATION</i>	-	-	0.000	-	0.000	262.448	216.673	328.297	331.574	0.000	1,138.992

Remarks

0605148A BY5 funding supports development, integration and system engineering of TITAN prototypes.

D. Acquisition Strategy

The TITAN program acquisition strategy is to leverage Middle-Tier of Acquisition (MTA) for Rapid Prototyping (RP). This strategy allows the program to rapidly develop and field a capability that addresses gaps for multi-domain operations. TITAN's MTA RP approval in 3QFY22 was based on an Abbreviated Capabilities Development Document (A-CDD) with an Army Requirements Oversight Council (AROC) decision, which was approved in 1QFY22. The capabilities will be refined through Soldier touchpoints and demonstrations/exercises and inform final TITAN requirements and Concept of Operations (CONOPS). Demonstrating the objective capability in an operational environment will inform a decision point to transition to an MTA Rapid Fielding (RF) effort or tailored Milestone C (MS C) for production. TITAN's open-system architecture approach ensures the system will be tailorable and scalable, with the ability to provide increased intelligence capabilities, additional sensor data and processing throughput over time to keep pace with new technology and changing threat.

An Other Transaction Authority (OTA) contract was awarded under the 10 U.S.C. 2371b and the 2016 National Defense Authorization Act (NDAA), Section 815, for TITAN Rapid Prototyping. This innovative approach enables acceleration of the TITAN Ground Station capabilities to the Warfighter. The TITAN OTA approach is a multi-phased contract vehicle designed to scope each phase separately based on maturing requirements and informed by risk reduction efforts in prior phases. The initial phase, Ground Station Modernization, was competitive risk-reduction effort between two vendors to build system-level designs and mature a Software (SW) baseline. The Competitive Prototyping Phase (CPP) was awarded in 3QFY22 and is focused on competitive prototyping between both vendors. The CPP includes further SW baseline refinement to ensure functionality and then begin Hardware (HW) integration within a shelter and on a representative vehicle platform for the Advanced variant. At the conclusion of Competitive Prototyping, both vendors will be evaluated against technical feasibility and ability to meet TITAN requirements, which will inform the up-select to one vendor. The selected vendor will move on to the final prototyping phase, Prototype maturation, which includes increasing capability of vendor prototypes to inform final TITAN requirements and support the transition decision out of MTA RP to either MTA RF or MS C. Multiple Soldier Touchpoints and Capability demonstrations in the operational force, to ensure usability and inform requirements and CONOPS, will highlight the OTA phases for Rapid Prototyping. The TITAN program includes two variants, Advanced and Basic, with Advanced featuring direct downlink (DDL) access to space data and enhanced storage capabilities, and Basic tailored for lower echelons and more expeditionary focus. Future Federal Acquisition Regulation (FAR) based contracts will support both production and sustainment.

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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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>						Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>			
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
Development and Prototyping of Critical RF Technologies	C/FP	Contractors (Palantir and Raytheon) : PEO IEW&S (APG) and Contractor Facilities	15.721	0.313	Jan 2023	-		-		-		-	0.000	16.034	-
Development and Prototyping of Critical RF Technologies in Prototype Maturation Phase	C/TBD	Contractor (Pending Selection) : TBD	-	-		0.626	Jan 2024	4.317	Jan 2025	-		4.317	Continuing	Continuing	Continuing
Subtotal			15.721	0.313		0.626		4.317		-		4.317	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
Development and Prototyping of Critical Automated Processing Technologies	C/FP	Contractors (Palantir and Raytheon) : Various: APG, Ft. Liberty, JBLM, YPG, CTR FAC	12.626	0.550	Jan 2023	-		-		-		-	0.000	13.176	-
Integration Space Based ISR	TBD	Contractor (Pending Selection) : TBD	-	-		10.000	Jan 2024	-		-		-	0.000	10.000	-
Subtotal			12.626	0.550		10.000		-		-		-	0.000	23.176	N/A
Project Cost Totals			28.347	0.863		10.626		4.317		-		4.317	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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</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
OTA: Competitive Prototyping Phase (1x Advanced per vendor)																												
Vendor Upselect					▲ 1																							
OTA: Prototype Maturation Phase																												
Prototype Development Testing																												
Army Requirements Oversight Council									▲ 2																			
Joint Requirements Oversight Council													▲ 3															
Operational Assessment Complete																	▲ 4											
TITAN MTA RF/MS C Decision																	▲ 5											
TITAN MTA RF/MS C Contract																												
Follow-on Contract for Future Prototyping/Software Pathw...																												

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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 0604037A / <i>Tactical Intel Targeting Access Node (TITAN) Adv Dev</i>	Project (Number/Name) BY4 / <i>Tactical Intelligence Targeting Access Node</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDD	2	2020	2	2020
Analysis of Alternatives	3	2020	1	2021
AoA SAG	1	2021	1	2021
AROC	1	2022	1	2022
OTA: Ground Station Modernization Phase	1	2021	1	2022
Phase 1 Technology Demonstrations/Design Reviews	1	2021	1	2022
MTA: Rapid Prototyping Decision Point	3	2022	3	2022
OTA: Competitive Prototyping Phase (1x Advanced per vendor)	3	2022	2	2024
Vendor Upselect	2	2024	2	2024
OTA: Prototype Maturation Phase	2	2024	2	2026
Prototype Development Testing	2	2024	2	2026
Army Requirements Oversight Council	2	2025	2	2025
Joint Requirements Oversight Council	4	2025	4	2025
Operational Assessment Complete	3	2026	3	2026
TITAN MTA RF/MS C Decision	3	2026	3	2026
TITAN MTA RF/MS C Contract	3	2026	1	2034
Follow-on Contract for Future Prototyping/Software Pathways (R&D)	3	2026	1	2034

Note
Schedule Detail notes.

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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 0604100A / <i>Analysis Of Alternatives</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	-	10.270	11.095	11.234	-	11.234	11.247	11.367	11.491	11.607	0.000	78.311
EC7: <i>Analysis Of Alternatives</i>	-	10.270	11.095	11.234	-	11.234	11.247	11.367	11.491	11.607	0.000	78.311

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funding for analytical support of Analysis of Alternatives. Analyses of Alternatives are statutory requirements for Major Defense Acquisition Programs and regulatory for all other programs. Based on Department of Defense Instruction (DoDI) 5000.02, Analyses of Alternatives are required to be completed for a new start program prior to its first Milestone Decision. The PE provides analytical capability for Pre-Milestone A programs that emerge outside the normal budget or POM cycles. Normally these programs are without program managers and require analysis to support Congressional, Defense and Army Senior Leader's requirement and acquisition needs and priorities. The Analyses of Alternatives support the preparation of the Capability Development Document, Key Performance Parameters and Thresholds values and tradeoff analysis. The cited work is consistent with the Army Science and Technology priority focus areas and the Army Modernization Strategy and Guidance. The Army is projecting to start work on multiple Analyses of Alternatives beginning in Fiscal Year (FY) 2022, and will assess and fund the highest Congressional, Defense and Army Senior Leader's priorities during the year of execution.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	10.659	11.095	11.211	-	11.211
Current President's Budget	10.270	11.095	11.234	-	11.234
Total Adjustments	-0.389	0.000	0.023	-	0.023
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.389	-			
• Adjustments to Budget Years	-	-	0.023	-	0.023

Change Summary Explanation

Minor increase in FY25 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 0604100A / <i>Analysis Of Alternatives</i>				Project (Number/Name) EC7 / <i>Analysis Of Alternatives</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
EC7: <i>Analysis Of Alternatives</i>	-	10.270	11.095	11.234	-	11.234	11.247	11.367	11.491	11.607	0.000	78.311
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for analytical support of Analysis of Alternatives. Analyses of Alternatives are statutory requirements for Major Defense Acquisition Programs and regulatory for all other programs. Based on Department of Defense Instruction (DoDI) 5000.02, Analyses of Alternatives are required to be completed for a new start program prior to its first Milestone Decision. The Project provides analytical capability for Pre-Milestone A programs that emerge outside the normal budget or POM cycles. Normally these programs are without program managers and require analysis to support Congressional, Defense and Army Senior Leader's requirement and acquisition needs and priorities. The Analyses of Alternatives support the preparation of the Capability Development Document, Key Performance Parameters and Thresholds values and tradeoff analysis. The cited work is consistent with the Army Science and Technology priority focus areas and the Army Modernization Strategy and Guidance. The Army is projecting to start work on multiple Analyses of Alternatives beginning in Fiscal Year (FY) 2025, and will assess and fund the highest Congressional, Defense and Army Senior Leader's priorities during the year of execution.

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

	FY 2023	FY 2024	FY 2025
Title: Analysis of Alternatives	10.270	11.095	5.617
<p>Description: This Project provides funding for analytical support for efforts such as: Long Range Precision Munition, Directed Energy Maneuver-Short Range Air Defense, Vehicle Protection Systems, Common Tactical Truck, and Ship to Shore Logistics Vessel. In addition, several Analyses of Alternatives started in FY 2023 and scheduled for FY 2024 will continue into FY 2025 will require analysis funding to include XM30 Mechanized Infantry Combat Vehicle, Integrated Tactical Network, Maneuver Support Vessel - Heavy, Next Generation Main Battle Tank, Lower Tier Air and Missile Defense Sensor, and Project Convergence.</p> <p>FY 2024 Plans: FY 2024 funding continues to support the analysis for new start programs that do not yet have a program manager assigned and to augment program manager funds where requirement decisions drive changes in scope or increased fidelity to achieve Congressional, Defense and Army Senior Leader's priority intent and interest. The analysis initiation, scope, and fidelity are determined in accordance with the U.S. Army Futures Command processes prior to the Materiel Development Decision and synchronized to support JROC, AROC and Acquisition Executive/Program decisions.</p> <p>FY 2025 Plans: This Project provides funding for analytical support for efforts such as: Long Range Precision Munition, Directed Energy Maneuver-Short Range Air Defense, Vehicle Protection Systems, Common Tactical Truck, and Ship to Shore Logistics Vessel. In addition, several Analyses of Alternatives started in FY 2023 and scheduled for FY 2024 will continue into FY 2025 will require</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 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
analysis funding to include XM30 Mechanized Infantry Combat Vehicle, Integrated Tactical Network, Maneuver Support Vessel - Heavy, Next Generation Main Battle Tank, Lower Tier Air and Missile Defense Sensor, and Project Convergence. FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to alignment of efforts within the project for greater visibility by executing organization.				
Title: Analysis of Alternatives - DEVCOM Analysis Center Description: The project conducts engineering mission effectiveness, engineering performance analyses, and provides cost-benefit trade-offs for defined alternative systems, items and components; These analyses support decisions for high priority AFC S&T programs and other critical Army studies. Several studies continue into FY2024/2025 from FY23 such as the Next Generation Combat Vehicle Optionally Manned Fighting Vehicle (NGCV OMFV) and the Integrated Air and Missile Defense (IAMD) Systems. FY 2025 Plans: Will continue analyses for new start programs that do not yet have an assigned Program Management Office. Will conduct technical analyses to inform Program requirement decisions that drive changes in system designs to achieve Army, Department of Defense, and Congressional priorities. Will conduct analyses with The Research and Analysis Center (TRAC) in accordance with a coordinated schedule, scope of study objectives as determined by Army Futures Command processes prior to Materiel Development Decisions. Will synchronize and prioritize Analyses of Alternatives and trade studies to support JROC, AROC and Acquisition Executive/Program decisions. FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to alignment of efforts within the project for greater visibility by executing organization.		-	-	5.617
Accomplishments/Planned Programs Subtotals		10.270	11.095	11.234
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 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</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
<i>Identify Candidates for AoA Funding</i>																												

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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 0604100A / <i>Analysis Of Alternatives</i>	Project (Number/Name) EC7 / <i>Analysis Of Alternatives</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Identify Candidates for FY19 AoA funding	4	2018	3	2019
Issue FY19 AoA Funding	1	2020	4	2020
Identify Candidates for FY20 AoA funding	4	2019	3	2020
Issue FY 20 AoA Funding	1	2020	4	2020
Identify Candidates for FY21 AoA funding	4	2020	3	2021
Issue FY 21 AoA Funding	1	2021	4	2021
Identify Candidates for FY22 AoA funding	4	2021	3	2022
Issue FY 22 AoA Funding	1	2022	4	2022
Identify Candidates for AoA Funding	1	2023	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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</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	-	1.373	5.144	1.800	-	1.800	1.803	1.822	1.843	1.861	Continuing	Continuing
BR6: <i>Small Unmanned Aircraft System (6.4)</i>	-	1.373	5.144	1.800	-	1.800	1.803	1.822	1.843	1.861	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Rucksack Portable Uncrewed Aircraft System (RPUAS) Family of Small Uncrewed Aircraft System (FoSUAS) requirements are transitioning to the Joint Small Uncrewed Aircraft System sUAS Capability Development Document (J-sUAS CDD) to solve current and emergent operational gaps. These systems provide battalion and below ground maneuver elements with critical situational awareness and enhanced force protection. The system provides an organic and responsive reconnaissance and targeting capability with real-time Full Motion Video and sensor data which is also available to inter-operable digital data linked systems, such as the One System Remote Video Terminal and manned platforms. The RPUAS FoSUAS includes the Short Range Reconnaissance (SRR), the Medium Range Reconnaissance (MRR), and the Long Range Reconnaissance (LRR). Each system includes aircraft, ground control equipment, handheld ground control station and Robotics Autonomous Command and Control (RAC2) software.

The Short-Range Reconnaissance (SRR) capability utilizes RQ-28A SRR for first generation fielding which provides platoons 30 minute flight endurance, 3 km operational range, an EO/IR Payload, and sub 3 lb target weight. SRR is currently prototyping the second generation air vehicle FY2022-FY2025 which offers modular payloads, day & night obstacle avoidance, target recognition & automated following, and common software which will be used across all Group I and II UAS.

Long Range Reconnaissance (LRR) System will provide organic maneuver battalions an uncrewed air vehicle designed to support Reconnaissance, Surveillance, and Target Acquisition (RSTA) efforts. The system will have an aircraft weight of less than 55 lbs, a range of 30-60 km and endurance of 5-8 hours. System will include Assured Positioning, Navigation and Timing (APNT), data links to optimize the modular mission payloads (Electro-Optical/Infra-Red (EO/IR), laser targeting/designating) and kinetic architectures in a contested environment.

The Joint Tactical Autonomous Aerial Resupply System (JTAARS) is an autonomous aerial cargo delivery system, organic to the maneuver commander, that will provide options for rapid and agile sustainment of highly mobile tactical combat forces, operating in a widely dispersed manner in the tactical support and close areas. JTAARS will enable maneuver by reducing the tactical force's dependence on ground lines of communication and sustainment, reducing threats to manned convoys and manned aerial systems, lightening Soldier load, and shrinking the supply chain. JTAARS will provide a lift capability of 125 lbs over 13 km one way (26 km round trip).

The total cost of the SRR Middle Tier of Acquisition effort is \$28.2 million of RDTE from FY2020 to FY2025. The SRR program is fully funded across the Future Years Defense Program.

Justification: FY 2025 RDTE Base funding of \$1.800 million to investigate GPS Denied Navigation systems, resilient APNT, advanced low probability of detect/intercept data-links for both SRR and LRR. In addition, interfaces for common mission payloads (communications relay, electronic warfare payloads, and lethal munition payloads).

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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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</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	1.425	5.144	1.796	-	1.796
Current President's Budget	1.373	5.144	1.800	-	1.800
Total Adjustments	-0.052	0.000	0.004	-	0.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.052	-			
• Adjustments to Budget Years	-	-	0.004	-	0.004

Change Summary Explanation

Increase 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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</i>				Project (Number/Name) BR6 / <i>Small Unmanned Aircraft System (6.4)</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
BR6: <i>Small Unmanned Aircraft System (6.4)</i>	-	1.373	5.144	1.800	-	1.800	1.803	1.822	1.843	1.861	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Rucksack Portable Uncrewed Aircraft System (RPUAS) Family of Small Uncrewed Aircraft System (FoSUAS) requirements are transitioning to the Joint Small Uncrewed Aircraft System sUAS Capability Development Document (J-sUAS CDD) to solve current and emergent operational gaps. These systems provide battalion and below ground maneuver elements with critical situational awareness and enhanced force protection. The system provides an organic and responsive reconnaissance and targeting capability with real-time Full Motion Video and sensor data which is also available to inter-operable digital data linked systems, such as the One System Remote Video Terminal and manned platforms. The RPUAS FoSUAS includes the Short Range Reconnaissance (SRR), the Medium Range Reconnaissance (MRR), and the Long Range Reconnaissance (LRR). Each system includes aircraft, ground control equipment, handheld ground control station and Robotics Autonomous Command and Control (RAC2) software.

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The total cost of the SRR Middle Tier of Acquisition effort is \$28.2 million of RDTE from FY2020 to FY2025. The SRR program is fully funded across the Future Years Defense 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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</i>	Project (Number/Name) BR6 / <i>Small Unmanned Aircraft System (6.4)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Title: System Engineering Program Management</p> <p>Description: System Engineering Program Management (SEPM) support during development and integration of components for SRR, LRR, and JTAARS air vehicles.</p> <p>FY 2024 Plans: System Engineering and Program Management support of advanced component development activities for SRR. LRR.</p> <p>FY 2025 Plans: System Engineering and Program Management support of advanced component development activities for SRR, LRR. JTAARS SEPM efforts will be completed in FY24.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to JTAARS SEPM completion.</p>		0.083	0.385	0.182
<p>Title: SRR Component Development and Integration</p> <p>Description: Engineering to develop and to integrate new, advanced components into SRR.</p> <p>FY 2024 Plans: Advanced component development efforts for SRR.</p> <p>FY 2025 Plans: Advanced component development and integration efforts for SRR.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease is due to completion of advanced component development for SRR.</p>		0.595	0.688	0.345
<p>Title: LRR Component Development and Integration</p> <p>Description: Title should be JTAARS Demonstration and Experimentation. Initial RDT&E funding for JTAARS in FY24 provides coverage for 3 (ea) prototypes systems to support the demonstration and testing effort. Funding in FY2025 for JTAARS is in the 6.5 SUAV RDTE line.</p> <p>FY 2024 Plans: Advanced component development efforts for LRR</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		-	2.913	-

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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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</i>	Project (Number/Name) BR6 / <i>Small Unmanned Aircraft System (6.4)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Decrease is due to completion of JTAARS Demonstration and Experimentation in FY2024 (LRR Component Development and Integration) and integration, test and evaluation of advanced components.				
<p>Title: LRR Component Development/Integration</p> <p>Description: Engineering to develop integrate and embed artificial intelligence enabled capabilities in advanced LRR flight controls, communications data links components, modular mission payload interface and resilient assured position navigation and timing.</p> <p>FY 2025 Plans: Advanced component development efforts for LRR</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY2025 increase is due to LRRs first year of effort.</p>		-	-	1.273
<p>Title: SRR Component Test and Evaluation</p> <p>Description: Testing to evaluate components for the SRR Tranche 2 air vehicle.</p> <p>FY 2024 Plans: Integration, test, and evaluation of advanced components for the SRR system.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY25 funding decrease is due to the completion of integration, test, and evaluation of advanced components for the Tranche 2 SRR System.</p>		0.695	0.790	-
<p>Title: LRR Component Test and Evaluation</p> <p>Description: Title should be JTAARS Demonstration and Experimentation Test efforts. Initial funding for JTAARS in FY2024 provides system test in preparation for the Demonstration and Experimentation efforts.</p> <p>FY 2024 Plans: Integration, test, and evaluation of advanced components for the LRR system.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease is due to completion of this portion of the JTAARS Demonstration and Experimentation Test and the completion of initial LRR component tests.</p>		-	0.368	-
Accomplishments/Planned Programs Subtotals		1.373	5.144	1.800

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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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</i>	Project (Number/Name) BR6 / <i>Small Unmanned Aircraft System (6.4)</i>

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
• BR7: <i>Small Unmanned Aircraft System (6.5)</i>	6.292	31.284	37.876	-	37.876	34.788	13.733	13.771	13.908	Continuing	Continuing
• A12511: <i>SHORT RANGE RECONNAISSANCE</i>	6.725	20.769	69.573	-	69.573	20.591	20.575	20.533	20.739	Continuing	Continuing
• A12513: <i>LONG RANGE RECONNAISSANCE</i>	-	-	0.000	-	0.000	-	17.847	43.526	43.785	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Short Range Reconnaissance utilizes Middle Tier Acquisition pathway for rapid prototyping. SRR Tranche 1 successfully transitioned to a Major Capability Acquisition pathway at Production Decision. The SRR Tranche 2 is in rapid prototyping and is anticipated to follow Tranche 1 by off-ramping into a Full Rate Production decision in FY2025.

The Long Range Reconnaissance completed an Acquisition Shaping Panel in fourth quarter FY2023. Prototypes will be evaluated from up to 4 vendors in 2 phases that include Soldier Touch Points and Technical evaluations. The final selected system will then undergo Developmental Testing (DT) that will include Engineering Flight Tests, Radio/Antenna Characterization, follow on SW/HW DT and cyber testing.

The Joint Tactical Autonomous Aerial Resupply System (JTAARS) also completed an Acquisition Shaping Panel in fourth quarter FY2023 with direction from the Shaping Panel to conduct the FY2024 JTAARS assessment. The results of the demonstration will be briefed in FY2025 to determine prototyping or production.

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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 0604101A / Small Unmanned Aerial Vehicle (SUAV) (6.4)				BR6 / Small Unmanned Aircraft System (6.4)							
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
System Engineering Program Management	Various	Various : Various	0.205	0.083	Oct 2022	0.385	Oct 2023	0.182	Oct 2024	-		0.182	Continuing	Continuing	Continuing
Subtotal			0.205	0.083		0.385		0.182		-		0.182	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
SRR Component development and Integration	Various	ACC Redstone : Redstone Arsenal	0.976	0.595	Feb 2023	0.688	Feb 2024	0.345	Feb 2025	-		0.345	Continuing	Continuing	Continuing
JTAARS Demonstration & Experimentation	Various	ACC Redstone : Redstone Arsenal, AL	-	-		2.913	Jan 2024	-		-		-	Continuing	Continuing	Continuing
LRR Component Development and Integration	TBD	TBD : TBD	-	-		-		1.273	Jan 2025	-		1.273	0.000	1.273	-
Subtotal			0.976	0.595		3.601		1.618		-		1.618	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
SRR Component Test and Evaluation	Various	ACC Redstone : Redstone Arsenal	1.073	0.695	Aug 2023	0.770	Aug 2024	-		-		-	Continuing	Continuing	Continuing
LRR Component Test and Evaluation	Various	ACC Redstone : Redstone Arsenal	-	-		0.388	Jul 2024	-		-		-	Continuing	Continuing	Continuing
Subtotal			1.073	0.695		1.158		-		-		-	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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</i>	Project (Number/Name) BR6 / <i>Small Unmanned Aircraft System (6.4)</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
Systems Engineering Program Management (SEPM)	[Redacted]																											
Test and Evaluation	[Redacted]																											
SRR Tranche 2 Component Integration	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]			
LRR Component Development Award	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]			
LRR Payload Integration	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]			
JTAARS Demonstration Experimentation	[Redacted]				[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 0604101A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.4)</i>	Project (Number/Name) BR6 / <i>Small Unmanned Aircraft System (6.4)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Systems Engineering Program Management (SEPM)	2	2018	4	2030
Test and Evaluation	4	2018	4	2030
SRR Tranche 2 Component Integration	2	2023	4	2025
LRR Component Development Award	4	2024	4	2025
LRR Payload Integration	2	2025	4	2026
JTAARS Demonstration Experimentation	2	2024	2	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 0604103A / <i>Electronic Warfare Planning and Management Tool (EWPMT)</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	-	-	2.260	2.004	-	2.004	1.628	1.753	1.002	1.012	Continuing	Continuing
DG4: NAVWAR SA	-	-	2.260	2.004	-	2.004	1.628	1.753	1.002	1.012	Continuing	Continuing

A. Mission Description and Budget Item Justification

Adversaries, in recognition of Joint and Coalition force Positioning, Navigation, and Timing (PNT) dependencies, are aggressively developing and fielding counter-PNT technologies that significantly reduce the Army's ability to access the electromagnetic spectrum (EMS) to conduct military operations. The Army is actively pursuing Navigation Warfare Situational Awareness (NAVWAR-SA) capabilities to provide soldiers with PNT overmatch by countering the effects of jamming and denying adversary access to PNT services. NAVWAR-SA is a system of systems approach to detecting, geolocating, and determining the impact area of Global Positioning System (GPS) in a contested environment and the effects on PNT on the battlefield.

NAVWAR-SA provides commanders and soldiers with indications and warnings of PNT jamming to: provide immediate notification to individual PNT users that their navigation and timing may be compromised by jamming or spoofing; detect, identify, and locate sources of PNT interference; allow command and control (C2) systems to display areas affected by interference with actionable information necessary to implement measures to mitigate or eliminate the threat. NAVWAR-SA supports Multi-Domain Operations (MDO) as an enabler to precision fires, movement and maneuver, force tracking, and a host of data networks that tie personnel and weapon systems together into a joint or coalition force.

Approved Requirements: Abbreviated Capabilities Development Document (A-CDD) for NAVWAR-SA, 25 March 2021

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	0.000	2.260	0.000	-	0.000
Current President's Budget	0.000	2.260	2.004	-	2.004
Total Adjustments	0.000	0.000	2.004	-	2.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	2.004	-	2.004

Change Summary Explanation

Increase in FY25 due to transition, integration and demonstration of the Navigation Warfare Situational Awareness (NAVWAR-SA) Plexus software.

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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 0604103A / <i>Electronic Warfare Planning and Management Tool (EWPMT)</i>				Project (Number/Name) DG4 / NAVWAR SA			
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
DG4: NAVWAR SA	-	-	2.260	2.004	-	2.004	1.628	1.753	1.002	1.012	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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Fiscal Year (FY) 2025 funds in the amount of \$2.004 million continues the transition and integration of the Navigation Warfare Situational Awareness (NAVWAR-SA) software.

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

	FY 2023	FY 2024	FY 2025
Title: NAVWAR SA	-	2.260	2.004
Description: The integration of Navigation Warfare Situational Awareness (NAVWAR-SA) Plexus software into the Electromagnetic Warfare Planning and Management Tool (EWPMT) includes the development of Application Program Interfaces (API) and testing. The Tactical Navigation Warfare (NAVWAR) Plexus preserves the effectiveness of Maneuvers and Fires missions by enabling the Commander to understand when Global Positioning System (GPS) jammers are present, where they are located, and what areas they are impacting.			
FY 2024 Plans: - Initiate transition and integration of NAVWAR-SA software into EWPMT software baseline, develop API, and test.			
FY 2025 Plans: Continue software integration effort and demonstration.			
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 0604103A / <i>Electronic Warfare Planning and Management Tool (EWPMT)</i>	Project (Number/Name) DG4 / NAVWAR SA

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Fiscal Year (FY) 2025 decrease of \$0.256 Million is due to completion of most of the software integration effort and concentration on the demonstration.			
Accomplishments/Planned Programs Subtotals	-	2.260	2.004

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
• AV8: <i>Navigation Warfare</i> <i>(NAVWAR) Advanced Technology</i>	1.949	6.029	3.988	-	3.988	6.036	5.352	10.955	15.494	0.000	49.803

Remarks

D. Acquisition Strategy
 The Navigation Warfare Situational Awareness (NAVWAR-SA) acquisition strategy utilizes a mix of competitive Federal Acquisition Regulation contracts and Other Transaction Authority agreements to accelerate critical NAVWAR-SA technology development of an operationally relevant system to Army forces and Army Special Operations Forces (ARSOF) with tactically relevant, near-real-time indications and warning of signal integrity issues, adversary jamming or spoofing activity and other PNT interference or integrity issues. This approach leverages commercial and government technical solutions to enable rapid prototyping and experimentation of systems and assess operational feedback and Soldier touchpoints of developmental solutions to validate military utility. This will include the assessment of current Army spectrum visualization tools, mounted and dismounted Assured PNT (APNT) system receivers and electromagnetic warfare support (ES) capabilities. The NAVWAR-SA strategy will utilize the buy, try, and decide process to accelerate the development of these critical enabling technologies and streamline the process of transitioning and fielding a scalable, interoperable and agile capability. This process will also inform a follow on NAVWAR-SA Capabilities Development Document (CDD).

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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 0604103A / <i>Electronic Warfare Planning and Management Tool (EWPMT)</i>				Project (Number/Name) DG4 / NAVWAR SA							

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 & Technical Support	Various	PM Positioning, Navigation & Timing : Aberdeen Proving Ground, MD	-	-	-			0.130	Feb 2025	-		0.130	0.000	0.130	Continuing
Subtotal			-	-	-			0.130		-		0.130	0.000	0.130	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			
Contract -Fielding, Training, Support & Product Improvement	C/CPFF	TBD : TBD	-	-		1.000	Apr 2024	1.546	Dec 2024	-		1.546	0.000	2.546	Continuing
Subtotal			-	-	1.000			1.546		-		1.546	0.000	2.546	N/A

Remarks
Fiscal Year (FY) 2025 funds in the amount of \$1.546 Million for the continued transition and integration of the Navigation Warfare Situational Awareness (NAVWAR-SA) software.

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			
Technical and Engineering Support	Various	Various : Variou	-	-		1.260	Nov 2023	0.328	Dec 2024	-		0.328	0.000	1.588	Continuing
Subtotal			-	-	1.260			0.328		-		0.328	0.000	1.588	N/A

Remarks
FY25 funds in the amount of \$0.328 Million provides subject matter expertise to facilitate with completion of NAVWAR-SA integration effort and demonstration.

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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 0604103A / <i>Electronic Warfare Planning and Management Tool (EWPMT)</i>	Project (Number/Name) DG4 / NAVWAR SA	

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-SA Transition Initiation & Integration																												
NAVWAR-SA Demonstration					▲ 1																							
NAVWAR-SA prototyping and operational assessments																												

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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 0604103A / <i>Electronic Warfare Planning and Management Tool (EWPMT)</i>	Project (Number/Name) DG4 / NAVWAR SA

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NAVWAR-SA Transition Initiation & Integration	1	2024	3	2025
NAVWAR-SA Demonstration	3	2025	3	2025
NAVWAR-SA prototyping and operational assessments	3	2025	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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</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	-	134.719	53.143	127.870	-	127.870	186.027	164.255	164.446	124.539	Continuing	Continuing
DH3: <i>Air Launched Effects (ALE)</i>	-	-	-	97.369	-	97.369	185.526	163.754	163.945	124.038	0.000	734.632
EX8: <i>Future Unmanned Aircraft System (FUAS)</i>	-	134.719	53.143	30.501	-	30.501	0.501	0.501	0.501	0.501	Continuing	Continuing

Note
In Fiscal Year (FY) 2025, Project DH3 / Air Launched Effects (ALE) is a new effort realigned within PE 0604113A / Future Tactical Unmanned Aircraft System (FTUAS). Funding realigned from project EX8 / Future Unmanned Aircraft System (FUAS).

A. Mission Description and Budget Item Justification

The Future Uncrewed Aircraft System (FUAS) is a critical system in the cross-domain capabilities concept that will employ multi-domain operation (MDO) capabilities at all echelons and allow ground-based forces to project power from land into other domains to defeat highly capable enemies, secure terrain, and consolidate gains.

FUAS encompasses an array of capabilities from platoon Soldiers to Division Commanders. The Army Requirements Oversight Council (AROC) approved the FUAS Initial Capabilities Document (ICD) on 6 Mar 2019. The FUAS ICD includes requirements for the Future Tactical Uncrewed Aircraft Systems (FTUAS) Program, Launched Effects (LE), and Scalable Control Interface (SCI). Current FTUAS development efforts are based on requirements from the AROC approved Abbreviated Capability Development Document (A-CDD) signed 12 August 2021. Manned, optionally-manned, and uncrewed systems will penetrate defense-in-depth environments by employing LE with teaming and swarming effects to detect, decoy, jam radar and communications, conduct cyber-attack, spoof and jam Global Positioning System (GPS), and kinetic engagement.

The Future Vertical Lift Cross Functional Team (FVL CFT) FUAS line of effort is comprised of multiple components, including the FTUAS and LE. FTUAS replaces the RQ-7Bv2 Shadow systems in the Brigade Combat Teams (BCT) with transformational capabilities. FTUAS provides the BCT commander a runway independent, expeditionary reconnaissance, surveillance, and target acquisition (RSTA) capability through vertical takeoff and landing (VTOL) and on the move (OTM) command and control. FTUAS enhances survivability in a multi-domain operations (MDO) environment through assured position, navigation, and timing (APNT) solutions; Type-1 encrypted datalinks; and a modular open systems approach (MOSA) that facilitates system upgrades at the pace of technology. FTUAS mitigates operation and support costs through organic sustainment capability. Additionally, FTUAS provides enhanced transportability, rapid deployability, expeditionary maneuver, and mobility for adaptive and agile operations. Based on an A-CDD update scheduled for Army Requirements Oversight Council validation 2QFY24, one FTUAS system consists of 6 air vehicles and payloads, 6 control stations, and ancillary equipment - representing a significantly reduced logistics footprint compared to the Shadow system. The aircraft subsystem includes the airframe, propulsion, avionics, communications, navigation, and software systems; aircraft-specific ground support equipment including power generation, transportation, or command and control equipment; aircraft software. The system also requires engineering, logistics, and programmatic support.

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>
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Launched Effects (LE) will provide Army formations the ability to retain their asymmetric advantage in reach, protection, and lethality in the execution of Joint All-Domain Operations (JADO). The expanded lethal and non-lethal airborne capabilities of LE will provide more seamless real-time integration of multiple warfighting functions in the execution of joint attack, reconnaissance, and security operations that create multiple dilemmas for the enemy. Current effort based on approved May 2020 A-CDD (updated LE A-CDD pending approval in 2QFY24).

The total cost of the LE Middle Tier of Acquisition effort is \$80.1 million RDT&E from FY22 to FY24. The remainder of the LE MTA is fully funded across the Future Years Defense Program.

The FTUAS Program will continue to capture funding/reporting on the current program element. The total cost of the FTUAS Middle Tier of Acquisition effort is \$137.7 million RDT&E from FY22 to FY25. The remainder of the FTUAS MTA is fully funded across the Future Years Defense Program.

Through FY24, LE shared a Program Element (PE) with FTUAS (0604113A/DH3). Beginning in FY25, LE established its own PE (0604113A/EX8) to capture LE funding and reporting.

Justification:
Fiscal Year (FY) 2025 RDT&E PE 0604113A Base funding of \$97.369 million will be utilized to support LE-Short Range and LE-Medium Range Middle Tier of Acquisition (MTA) rapid prototyping efforts.
Fiscal Year (FY) 2025 FTUAS RDT&E PE 0604113A Base funding of \$30.501 million will be utilized for FTUAS SEPM, System Integration, and Test activities.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	134.719	53.143	41.961	-	41.961
Current President's Budget	134.719	53.143	127.870	-	127.870
Total Adjustments	0.000	0.000	85.909	-	85.909
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	85.909	-	85.909

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

Project: EX8: *Future Unmanned Aircraft System (FUAS)*

Congressional Add: *Program Increase: Acceleration of Future Tactical Unmanned Aircraft System (FTUAS) Increment 1*

	FY 2023	FY 2024
	16.000	-

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2023	FY 2024
Congressional Add: <i>Program Increase: Protected Bandwidth Efficient Common DataLink (BE-CDL) Mode 303</i>	15.000	-
Congressional Add: <i>Program Increase: Micro-Integrated Transponder With Embedded Crypto</i>	8.000	-
Congressional Add Subtotals for Project: EX8	39.000	-
Congressional Add Totals for all Projects	39.000	-

Change Summary Explanation

FY2025 funding increase from the previous PB to the current PB reflects Middle-Tier Acquisition execution of additional Launched Effects prototyping and updated strategy for Launched Effects requirements documentation.

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) DH3 / <i>Air Launched Effects (ALE)</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
DH3: <i>Air Launched Effects (ALE)</i>	-	-	-	97.369	-	97.369	185.526	163.754	163.945	124.038	0.000	734.632
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year (FY) 2025, Project DH3 / Air Launched Effects (ALE) is a new effort realigned within PE 0604113A / Future Tactical Unmanned Aircraft System (FTUAS). Funding realigned from project EX8 / Future Unmanned Aircraft System (FUAS).

A. Mission Description and Budget Item Justification

Launched Effects (LE) will provide Army formations the ability to retain their asymmetric advantage in reach, protection, and lethality in the execution of Joint All-Domain Operations (JADO). The expanded lethal and non-lethal airborne capabilities of LE will provide more seamless real-time integration of multiple warfighting functions in the execution of joint attack, reconnaissance, and security operations that create multiple dilemmas for the enemy. Updated strategy based on updated Launched Effects requirements document pending approval in 2QFY24.

Through FY24, LE shared a Program Element (PE) with FTUAS (0604113A/EX8). Beginning in FY25, LE established its own PE (0604113A/DH3) to capture LE funding and reporting.

Justification:

Fiscal Year (FY) 2025 RDT&E PE 0604113A Base funding of \$97.369 million will be utilized to support LE-Short Range and LE-Medium Range Middle Tier of Acquisition (MTA) rapid prototyping efforts.

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

	FY 2023	FY 2024	FY 2025
Title: LE System Development	-	-	97.369
Description: Launched Effects (LE) will provide Army formations the ability to retain their asymmetric advantage in reach, protection, and lethality in the execution of Joint All-Domain Operations (JADO). The expanded lethal and non-lethal airborne capabilities of LE will provide more seamless real-time integration of multiple warfighting functions in the execution of joint attack, reconnaissance, and security operations that create multiple dilemmas for the enemy. Updated strategy based on updated Launched Effects requirements document pending approval in 2QFY24.			
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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) DH3 / <i>Air Launched Effects (ALE)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY2025 RDTE funds will be utilized to execute Launch Effects System Development to include system integration, system test and evaluation, systems engineering and program management and transportation.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Increase in funding is for Middle-Tier Acquisition execution of additional Launched Effects prototyping to address multiple size variants and payload capabilities.			
Accomplishments/Planned Programs Subtotals	-	-	97.369

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
• A00511: <i>Air Launched Effects</i>	-	-	20.040	-	20.040	20.040	20.040	20.040	95.961	0.000	176.121

Remarks

D. Acquisition Strategy

The LE rapid prototyping effort is comprised of prototype development activities for the air vehicle, payloads, and mission system architecture as well as supporting experiments, simulations, and demonstrations conducted in parallel and/or sequential timelines which facilitate rapid prototyping to field mature, high Technological Readiness Level (TRL) Commercial Off The Shelf (COTS)/Non-Developmental Items (NDI) technologies and capabilities as a residual capability, while Science & Technology (S&T) efforts continue the maturation of emerging technologies required to fully realize required capabilities.

PM UAS is currently executing Rapid Prototyping of the LE-Medium Range (LE-MR) under the Middle Tier of Acquisition (MTA) pathway and is on track to transition to a Rapid Fielding MTA in FY2025. LE-MR will continue rapid prototyping until FY27 to integrate additional capabilities.

In FY2025, PM UAS will initiate Rapid Prototyping of the LE-Short Range (LE-SR) under the MTA pathway. This rapid prototyping effort involves the competitive selection of mature technologies to support two Lines of Effort (LOEs). LOE 1 focuses on providing an initial capability to Army air and ground units. LOE 2 focuses on integrating additional capabilities.

These efforts align with the LE strategy to acquire capability through an incremental approach that allows rapid prototyping and procurement of available capabilities while continuing to transition emerging S&T efforts.

The LE contracting strategy is accomplished through multiple Other Transaction Authority (OTA) awards to assess and develop vendor technologies to rapidly prototype LE air vehicle, payloads and system architecture.

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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 0604113A / Future Tactical Unmanned Aircraft System (FTUAS)				DH3 / Air Launched Effects (ALE)							
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
Systems Engineering and Program Management	Option/TBD	TBD : TBD	-	-		-		6.148	Mar 2025	-		6.148	0.000	6.148	Continuing
Subtotal			-	-		-		6.148		-		6.148	0.000	6.148	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
Launch Effects Development & Integration	C/TBD	TBD : TBD	-	-		-		82.367	Mar 2025	-		82.367	0.000	82.367	Continuing
Subtotal			-	-		-		82.367		-		82.367	0.000	82.367	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
System Test and Evaluation	Option/TBD	TBD : TBD	-	-		-		8.854	Mar 2025	-		8.854	0.000	8.854	Continuing
Subtotal			-	-		-		8.854		-		8.854	0.000	8.854	N/A
Project Cost Totals			-	-		-		97.369		-		97.369	0.000	97.369	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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) DH3 / <i>Air Launched Effects (ALE)</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
LE-Medium Range MTA Rapid Prototyping	[Blue bar spanning FY 2023 Q4 to FY 2027 Q3]																											
A-CDD	[Grey bar spanning FY 2023 Q1 to FY 2024 Q4]																											
LE Medium Range MTA Rapid Fielding Decision Point	[Blue bar spanning FY 2025 Q1 to FY 2028 Q4]																											
LE Medium Range MTA Rapid Fielding	[Blue bar spanning FY 2025 Q2 to FY 2029 Q4]																											
LE-Short Range MTA Rapid Prototyping Decision Point	[Blue bar spanning FY 2025 Q3 to FY 2028 Q4]																											
LE-Short Range MTA Rapid Prototyping	[Blue bar spanning FY 2025 Q4 to FY 2029 Q4]																											
LE-Short Range MTA Rapid Fielding Decision Point	[Blue bar spanning FY 2026 Q1 to FY 2029 Q4]																											
LE-Short Range MTA Rapid Fielding	[Blue bar spanning FY 2026 Q2 to FY 2030 Q4]																											
LE-Long Range MTA Rapid Prototyping Decision Point	[Blue bar spanning FY 2027 Q3 to FY 2030 Q4]																											
LE-Long Range MTA Rapid Prototyping	[Blue bar spanning FY 2027 Q4 to FY 2031 Q4]																											

Note
A dedicated Program Element 0604113A / Future Tactical Unmanned Aircraft System (FTUAS) Project: DH3 has been identified to capture LE funding/reporting. All funding prior to FY25 will be captured jointly on Program Element: 0604113A Project: EX8

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) DH3 / <i>Air Launched Effects (ALE)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LE-Medium Range MTA Rapid Prototyping	2	2022	1	2028
A-CDD	2	2024	2	2024
LE Medium Range MTA Rapid Fielding Decision Point	2	2025	2	2025
LE Medium Range MTA Rapid Fielding	2	2025	1	2030
LE-Short Range MTA Rapid Prototyping Decision Point	2	2025	2	2025
LE-Short Range MTA Rapid Prototyping	2	2025	1	2030
LE-Short Range MTA Rapid Fielding Decision Point	4	2026	4	2026
LE-Short Range MTA Rapid Fielding	4	2026	3	2031
LE-Long Range MTA Rapid Prototyping Decision Point	1	2028	1	2028
LE-Long Range MTA Rapid Prototyping	1	2028	4	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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>				Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</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
EX8: <i>Future Unmanned Aircraft System (FUAS)</i>	-	134.719	53.143	30.501	-	30.501	0.501	0.501	0.501	0.501	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is shared by Future Tactical Unmanned Aircraft System (FTUAS) and Launched Effects (LE) Middle Tier of Acquisition Rapid Prototyping (MTA RP) execution.

FTUAS development efforts are based on requirements from the AROC approved Abbreviated Capability Development Document (A-CDD) signed 12 August 2021.

The FTUAS will replace the RQ-7Bv2 Shadow systems in the Brigade Combat Teams (BCTs). Key capabilities of the FTUAS include vertical take-off and landing (VTOL), runway independence, enhanced transportability, rapid deployability, expeditionary maneuver, and mobility for adaptive and agile operations. Based on an A-CDD update scheduled for Army Requirements Oversight Council validation 2QFY24, one FTUAS system will consist of 6 air vehicles and 6 payloads, 6 control stations, and ancillary equipment - representing a significantly reduced logistics footprint than the Shadow system. The aircraft subsystem will include the airframe, propulsion, avionics, communications, navigation, and software systems; aircraft-specific ground support equipment including power generation, transportation, or command and control equipment; aircraft software; and required engineering, logistics, programmatic support.

With the ability to either air or ground launch, LE extends tactical and operational reach, lethality, and protection to the advanced team as an attributable or optionally recoverable aerial capability that detects, identifies, locates, and reports threats; represents a credible decoy; disrupts threat communication, targeting and acquisition systems; and delivers lethal and non-lethal effects against those threats across cross-domain capabilities. Current LE efforts are based on requirements from AROC approved A-CDD signed 28 May 2020.

Beginning in FY2025, a dedicated Program Element 0604113A / Future Tactical Unmanned Aircraft System (FTUAS) Project: DH3 has been identified to capture LE funding/reporting. All funding prior to this will be captured jointly on this PE/Project.

FTUAS will continue to capture funding/reporting on the current program element. The total cost of the FTUAS Middle Tier of Acquisition effort is \$137.7 million RDT&E from FY22 to FY25. The remainder of the FTUAS MTA is fully funded across the Future Years Defense Program.

The total cost of the LE Middle Tier of Acquisition effort is \$80.1 million RDT&E from FY22 to FY24. The remainder of the LE MTA is fully funded across the Future Years Defense Program.

Justification: Fiscal Year (FY) 2025 FTUAS RDT&E PE 0604113A Base funding of \$30.501 million will be utilized for FTUAS SEPM, System Integration, and Test activities.

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Title: Air Launched Effects (ALE) Systems Integration</p> <p>Description: LE Systems Integration of the components to address the requirements from the approved A-CDD dated May 2020.</p> <p>FY 2024 Plans: Continue to fund the ALE Small Prototype (Increment 1A) integration of proposed material solution approaches integration of prototype ALE onto a launch platform(s), fund required testing in support of platform integration, and fund additional activities in support of ALE requirements refinement and revision. Fund capstone User Evaluation to evaluate the ALE-Prototype.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: 0604113A /EX8 Future Unmanned Aircraft System (FUAS) funding allocated for ALE is decreased in FY25 due to 0604113A /DH3 Air Launched Effects (ALE) being established and these funds being allocated to the new line.</p>		24.860	19.439	-
<p>Title: Air Launched Effects (ALE) Systems Engineering/Program Management</p> <p>Description: SEPM</p> <p>FY 2024 Plans: Funding for SEPM aligns with current ALE strategy</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: 0604113A /EX8 Future Unmanned Aircraft System (FUAS) funding allocated for ALE is decreased in FY25 due to 0604113A /DH3 Air Launched Effects (ALE) being established and these funds being allocated to the new line.</p>		5.617	5.528	-
<p>Title: Future Tactical Unmanned Aircraft System (FTUAS) System Engineering/Program Management</p> <p>Description: SEPM</p> <p>FY 2024 Plans: Align to FTUAS acquisition strategy.</p> <p>FY 2025 Plans: Funding for SEPM aligns with current FTUAS strategy.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Rapid Prototyping effort completes in FY25 as the program transitions to production.</p>		4.283	2.818	2.440
<p>Title: Future Tactical Unmanned Aircraft System (FTUAS) System Integration</p>		60.959	10.808	24.585

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: The FTUAS is a runway independent Group 3 uncrewed aircraft system that provides Brigade Combat Teams with improved reconnaissance, surveillance and target acquisition capability.</p> <p>FY 2024 Plans: Continue to fund competitive prototypes, development / integration, and test of required FTUAS systems.</p> <p>FY 2025 Plans: Continue funding developmental test of FTUAS systems, integrate test findings, and provide manufacturing representative systems for unit operational assessment.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Program conducts developmental testing FY24 into FY25. In FY25, system integration effort increases as the program addresses test findings and conducts integration to provide manufacturing representative systems for unit operational assessment.</p>			
<p>Title: Future Tactical Unmanned Aircraft System (FTUAS) Test and Evaluation</p> <p>FY 2024 Plans: FTUAS will conduct developmental and qualification testing for the Increment 2 system.</p> <p>FY 2025 Plans: Continue conducting developmental and qualification testing for FTUAS.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Developmental testing begins in FY24 and extends into FY25 as it completes. The Rapid Prototyping effort completes in FY25 as the program transitions to production.</p>	-	14.550	3.476
Accomplishments/Planned Programs Subtotals	95.719	53.143	30.501

	FY 2023	FY 2024
<p>Congressional Add: Program Increase: Acceleration of Future Tactical Unmanned Aircraft System (FTUAS) Increment 1</p> <p>FY 2023 Accomplishments: Acceleration of Future Tactical Unmanned Aircraft Systems (FTUAS) Increment 1 \$16M funds above threshold reprogrammed to Low Altitude Stalking and Strike Ordnance Directed Requirement</p>	16.000	-
<p>Congressional Add: Program Increase: Protected Bandwidth Efficient Common DataLink (BE-CDL) Mode 303</p>	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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</i>

	FY 2023	FY 2024
FY 2023 Accomplishments: Award Protected Bandwidth Efficient Common DataLink (BE-CDL) Mode 303 Scope.		
Congressional Add: Program Increase: Micro-Integrated Transponder With Embedded Crypto	8.000	-
FY 2023 Accomplishments: Award Micro-Integrated Transponder With Embedded Crypto Scope.		
Congressional Adds Subtotals	39.000	-

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>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>
• A01311: <i>Future Tactical Unmanned Aircraft System (TUAS)</i>	-	53.453	129.019	-	129.019	147.695	147.829	124.672	125.920	0.000	728.588

Remarks

Program Element A01311 Future Tactical Unmanned Aircraft System (FTUAS) is an Aircraft Procurement line the Army will utilize to procure FTUAS systems and mature material to maintain program schedule.

D. Acquisition Strategy

FTUAS is being developed under a Middle Tier Acquisition (MTA) effort in accordance with the FTUAS Acquisition Decision Memorandum (ADM) dated 22 August 2022. The intent of the FTUAS MTA-RP effort is to meet the full complement of the August 2021 A-CDD requirements as the Program of Record. This multi-year development effort, commenced in 4QFY22 upon award to five vendors. It progresses through major design reviews, including a Systems Requirements Review (SRR), Preliminary Design Review (PDR), Critical Design Review (CDR), and Production Readiness Review (PRR); additionally, all developmental testing is conducted under the Rapid Prototyping effort. Prototyping completion and First Unit Issued (FUI) are scheduled for FY25.

FTUAS will request follow-on acquisition pathway decision authority in FY25. FTUAS will use FY24 APA to acquire required material in advance of a production decision so the program can produce fieldable aircraft on the program schedule. However, if a mark of the APA is upheld, the fielding schedule moves right by at least 12 months.

The FTUAS modular open systems approach (MOSA) requires vendor design compatibility with government and commercial interfaces and standards, allowing rapid integration of emergent technologies. MOSA provides for continual upgrading of FTUAS with performance, survivability, and sustainment technologies - pacing the multi-domain operations (MDO) threat.

Sustainment of the program includes three years of Interim Contractor Logistics Support (ICS) transitioning to organic Army capabilities.

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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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</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			
Systems Engineering and Program Management (SEPM)	Various	PM TUAS : Redstone Arsenal	9.343	4.283	Mar 2023	2.000	Feb 2024	2.440	Mar 2025	-		2.440	Continuing	Continuing	-
Subtotal			9.343	4.283		2.000		2.440		-		2.440	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			
Air Launched Effects (ALE) Systems Integration	Various	PM TUAS : Redstone Arsenal	62.100	30.477	Nov 2022	24.967	Mar 2024	-		-		-	Continuing	Continuing	-
Future Tactical Unmanned Aircraft System (FTUAS)	Various	PM TUAS : Redstone Arsenal	84.989	99.959	Jun 2023	11.626	Feb 2024	24.585	Dec 2024	-		24.585	Continuing	Continuing	-
Subtotal			147.089	130.436		36.593		24.585		-		24.585	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	AMTC, ATEC, RTC, and ACC : Redstone	-	-		14.550	Dec 2023	3.476	Dec 2024	-		3.476	Continuing	Continuing	-
Subtotal			-	-		14.550		3.476		-		3.476	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			156.432	134.719	53.143	30.501	-	30.501	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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</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				
FTUAS Competitive Prototyping																																
	FTUAS CP																															
FTUAS Developmental Test & Evaluation																																
FTUAS Acquisition Pathway Decision																	2 ▲ FTUAS Pathway Decision															
FTUAS Production																																
FTUAS Operational Assessment																	FTUAS OA															
FTUAS Fielding																																
FTUAS Operational Demo																	1 ▲ FTUAS Operational 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 0604113A / <i>Future Tactical Unmanned Aircraft System (FTUAS)</i>	Project (Number/Name) EX8 / <i>Future Unmanned Aircraft System (FUAS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FTUAS Competitive Prototyping	1	2023	2	2025
FTUAS Developmental Test & Evaluation	2	2024	2	2025
FTUAS Acquisition Pathway Decision	3	2025	3	2025
FTUAS Production	3	2025	4	2034
FTUAS Operational Assessment	4	2025	1	2026
FTUAS Fielding	4	2026	4	2035
FTUAS Operational Demo	2	2025	2	2025

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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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor
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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	-	366.637	816.663	149.463	-	149.463	122.785	124.002	128.507	123.399	Continuing	Continuing
EX2: Lower Tier Air Missile Defense (LTAMD) Capability	-	366.637	816.663	149.463	-	149.463	122.785	124.002	128.507	123.399	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

The Lower Tier Air Missile Defense Sensor (LTAMDS) is a next generation radar intended to sense and track Tactical Ballistic Missiles and Air Breathing Threats; expand the lower tier air and missile defense battlespace and provide 360-degree sensing capability, surveillance, and fire control.

The LTAMDS program competitively selected Raytheon as the prime vendor in 1st Quarter (Q) Fiscal Year (FY) 2020 to build six (6) prototype sensors under the Middle Tier of Acquisition Rapid Prototyping (MTA-RP) authority. The LTAMDS Radar Set (RS) replaces the baseline PATRIOT RS (AN/MPQ-65A) in an Integrated Air and Missile Defense Battle Command System (IBCS) enabled PATRIOT Battalion mitigating risk associated with threat advances, decreasing Operations and Support (O&S) costs, and growing obsolescence. Additionally, the LTAMDS capability maximizes the inherent PAC-3 MSE Interceptor capabilities to engage threats at greater ranges in addition to addressing critical capability gaps, providing modernized technology, and increasing reliability and maintainability.

LTAMDS will exit the Middle Tier of Acquisition (MTA) Rapid Prototyping pathway in 1Q FY2024 and will enter Major Capability Acquisition (MCA) at Milestone C. FY2025 funds will be used to fund LTAMDS remaining activities that prepare LTAMDS for a Milestone C decision.

LTAMDS will complete Early Operational Capability 2 (EOC 2) Full Sector Operational Assessment with an Integrated Fires test campaign and complete Development Test & Evaluation (DTE). Funding in FY2025 also supports continued software development to counter evolving threats; digital modeling and simulation efforts; critical capabilities; integration activities with the IBCS; sensor enhancements as part of the Pre-Planned Product Improvement (P3I) effort; integration with the PATRIOT family of interceptors (PAC-2 GEM-T, PAC-3, PAC-3 MSE) in support of Integrated Fires and Multi-domain Operations; AMD survivability efforts; and will complete Large Tactical Power System (LTPS) testing.

FY2025 will fund testing activities for the Pre-Planned Product Improvement (P3I) effort to include completion of Qualification Testing and beginning of Developmental Test/Operational Test (DT/OT).

FY2025 funding in the amount of \$30.285 million is in support of the Pacific Defense Initiative.

The total cost of the LTAMDS Middle Tier of Acquisition effort is \$1,578 million RDT&E from FY 2019 to FY 2024.

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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 0604114A / <i>Lower Tier Air Missile Defense (LTAMD) Sensor</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	380.147	816.663	118.939	-	118.939
Current President's Budget	366.637	816.663	149.463	-	149.463
Total Adjustments	-13.510	0.000	30.524	-	30.524
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-13.510	-			
• Adjustments to Budget Years	-	-	30.524	-	30.524

Change Summary Explanation

\$30M realigned from PROC to RDTE in FY 2025 to support Pacific Deterrence Initiative efforts.

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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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor				Project (Number/Name) EX2 / Lower Tier Air Missile Defense (LTAMD) Capability			
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
EX2: Lower Tier Air Missile Defense (LTAMD) Capability	-	366.637	816.663	149.463	-	149.463	122.785	124.002	128.507	123.399	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

The Lower Tier Air Missile Defense Sensor (LTAMDS) is a next generation radar intended to sense and track Tactical Ballistic Missiles and Air Breathing Threats; expand the lower tier air and missile defense battlespace and provide 360-degree sensing capability, surveillance, and fire control.

The LTAMDS program competitively selected Raytheon as the prime vendor in 1st Quarter (Q) Fiscal Year (FY) 2020 to build six (6) prototype sensors under the Middle Tier of Acquisition Rapid Prototyping (MTA-RP) authority. The LTAMDS Radar Set (RS) replaces the baseline PATRIOT RS (AN/MPQ-65A) in an Integrated Air and Missile Defense Battle Command System (IBCS) enabled PATRIOT Battalion mitigating risk associated with threat advances, decreasing Operations and Support (O&S) costs, and growing obsolescence. Additionally, the LTAMDS capability maximizes the inherent PAC-3 MSE Interceptor capabilities to engage threats at greater ranges in addition to addressing critical capability gaps, providing modernized technology, and increasing reliability and maintainability.

LTAMDS will exit the Middle Tier of Acquisition (MTA) Rapid Prototyping pathway in 1Q FY2024 and will enter Major Capability Acquisition (MCA) at Milestone C. FY2025 funds will be used to fund LTAMDS remaining activities that prepare LTAMDS for a Milestone C decision.

LTAMDS will complete Early Operational Capability 2 (EOC 2) Full Sector Operational Assessment with an Integrated Fires test campaign and complete Development Test & Evaluation (DTE). Funding in FY2025 also supports continued software development to counter evolving threats; digital modeling and simulation efforts; critical capabilities; integration activities with the IBCS; sensor enhancements as part of the Pre-Planned Product Improvement (P3I) effort; integration with the PATRIOT family of interceptors (PAC-2 GEM-T, PAC-3, PAC-3 MSE) in support of Integrated Fires and Multi-domain Operations; AMD survivability efforts; and will complete Large Tactical Power System (LTPS) testing.

FY2025 will fund testing activities for the Pre-Planned Product Improvement (P3I) effort to include completion of Qualification Testing and beginning of Developmental Test/Operational Test (DT/OT).

FY2025 funding in the amount of \$30,285 million is in support of the Pacific Defense Initiative.

The total cost of the LTAMDS Middle Tier of Acquisition effort is \$1,578 million RDT&E from FY 2019 to FY 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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor	Project (Number/Name) EX2 / Lower Tier Air Missile Defense (LTAMD) Capability

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Title: Lower Tier Missile Defense Sensor</p> <p>Description: Provides the required sensing capabilities in the lower tier portion of the air and missile defense battlespace and expands the battlespace for the PAC-3 MSE interceptor.</p> <p>FY 2024 Plans: MTA Rapid Prototyping Program:</p> <ul style="list-style-type: none"> - Continue Environmental Qualification, Government Development, and Operational Testing - Complete Primary Sector Operational Assessment - Complete Full Sector (360 degree) CVT - Continue Large Tactical Power System (LTPS) development, conduct prototype vendor down-select, and begin Government Testing - Continue development of critical Program Protection / Anti-Tamper capabilities - Continue P3I sensor enhancements for inclusion into Full Rate Production Configuration - Support AMD Survivability efforts - Continue MCA walk-up activities to include required entry criteria, system verification, development of appropriate milestone documentation, and initiation of contract award activities. <p>Early Operational Capability:</p> <ul style="list-style-type: none"> - Fund three (3) sensors in FY 2024 to support the Pacific Deterrence initiative (PDI) to provide an Early Operational Capability. - Fund two (2) sensors to support LTAMDS testing culminating with Initial Operational Test and Evaluation (IOT&E) in FY 2026/2027 <p>Integration:</p> <ul style="list-style-type: none"> - Conduct an Operational Assessment with as part of the Integrated Fires Test Campaign - Continue integration with IBCS - Continue integration with PATRIOT family of interceptors (PAC-2, GEM-T, PAC-3, PAC-3 MSE) - Continue digital modeling and simulation activities <p>FY 2025 Plans: Program Activities:</p> <ul style="list-style-type: none"> - Continue Government Development, Testing and Evaluation - Complete Full Sector Operational Assessment - Complete Large Tactical Power System (LTPS) development and Government Testing - Continue development of critical Program capabilities 	366.637	816.663	149.463

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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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor	Project (Number/Name) EX2 / Lower Tier Air Missile Defense (LTAMD) Capability
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Continue P3I sensor enhancements for inclusion into Full Rate Production Configuration - Support AMD Survivability efforts - Continue MS C walk-up activities. - Complete Qualification Testing - Begin P3I DT/OT <p>Integration:</p> <ul style="list-style-type: none"> - Conduct an Operational Assessment as part of the Integrated Fires FY2025 Test Campaign - Continue integration with IBCS - Continue integration with PATRIOT family of interceptors (PAC-2 GEM-T, PAC-3, PAC-3 MSE) - Continue digital modeling and simulation activities <p>Early Operational Capability</p> <ul style="list-style-type: none"> - Continue support of Guam Defense Systems (GDS) activities. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Decrease in funding associated with transition from Rapid Prototyping to Production associated with Milestone C Decision.</p>			
Accomplishments/Planned Programs Subtotals	366.637	816.663	149.463

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>
• C12101: Lower Tier Air and Missile Defense Sensor	13.460	6.625	516.838	-	516.838	640.309	708.150	1,080.267	1,091.070	Continuing	Continuing

Remarks

D. Acquisition Strategy
On 25 September 2018, the Army Acquisition Executive (AAE) approved the execution of the LTAMDS Middle Tier Acquisition (MTA) (Sec. 804) for rapid prototyping.

The Army conducted a Sense-Off in 3Q FY 2019 with multiple vendors to demonstrate advanced sensor capabilities with a follow-on competitive source selection informing the LTAMDS Product Office Other Transaction Authority (OTA) award to a single vendor. In 1Q FY 2020, Raytheon was selected to deliver six (6) prototypes in support of the FY18 NDAA language to achieve an Early Operational Capability (EOC) no later than 1Q FY 2024. LTAMDS prototype builds are currently in progress supporting Contractor Verification Testing (CVT) and USG Developmental and Operational Testing.

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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 0604114A / <i>Lower Tier Air Missile Defense (LTAMD) Sensor</i>	Project (Number/Name) EX2 / <i>Lower Tier Air Missile Defense (LTAMD) Capability</i>
<p>LTAMDS will exit the MTA pathway in 1Q FY2024 and will enter the MCA pathway at MS C. In 2Q FY2024, LTAMDS Product Office plans to award a contract for three (3) RDT&E funded assets and associated sparing to meet Pacific Deterrence Initiative mission and two (2) RDT&E funded assets to support LTAMDS testing culminating with Initial Operational Test and Evaluation (IOT&E) in FY 2026/2027.</p> <p>The LTAMDS program is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.</p>		

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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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor	Project (Number/Name) EX2 / Lower Tier Air Missile Defense (LTAMD) Capability
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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 Program Management	MIPR	Various : Redstone Arsenal, AL	25.015	4.780	Oct 2022	4.950	Nov 2023	4.753	Nov 2024	-		4.753	Continuing	Continuing	-
Systems Engineering and Technical Assistance (SETA)	Various	Systems Engineering and Technical Assistance : Huntsville, AL	30.009	7.655	Oct 2022	7.930	Feb 2024	7.960	Feb 2025	-		7.960	Continuing	Continuing	-
Subtotal			55.024	12.435		12.880		12.713		-		12.713	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			
Product Development Support	C/Various	University Affiliated Research Center (UARC); MIT; The Federally Funded Research and Development Center (FFRDC) : Various	29.349	12.880	Oct 2022	13.920	Nov 2023	12.090	Nov 2024	-		12.090	Continuing	Continuing	-
OGA Integration (LTPS/IBCS)	C/Various	Various : Various	34.319	54.430	Dec 2022	37.970	Dec 2023	19.950	Dec 2024	-		19.950	Continuing	Continuing	-
Pre-Planned Product Improvements	Various	Raytheon : Various	59.556	212.930	Jan 2023	67.063	Feb 2024	30.235	Feb 2025	-		30.235	Continuing	Continuing	-
PDI / GDS	TBD	Raytheon : Various	-	-		613.670	Nov 2023	30.285	Mar 2025	-		30.285	Continuing	Continuing	-
Subtotal			123.224	280.240		732.623		92.560		-		92.560	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			
Product Development	C/Various	Army Laboratories, S3I System	11.374	8.930	Dec 2022	10.550	Dec 2023	10.020	Dec 2024	-		10.020	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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor	Project (Number/Name) EX2 / Lower Tier Air Missile Defense (LTAMD) Capability	

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
Production Representative Unit Manufacturing	[Redacted]				Production Representative Unit Manufacturing																							
Qualification Testing		[Redacted]			Qualification Testing																							
Developmental Test & Evaluation			[Redacted]		Developmental Test & Evaluation																							
Production Contract (PDI/MOTE)					[Redacted]				Production Contract																			
IOT&E															[Redacted]													
Operational Assessment / Integrated Fires FY23 Campaign			[Redacted]		OA / IF FY23 Campaign																							
Operational Assessment / Integrated Fires FY24 Campaign							[Redacted]		OA / IF FY24 Campaign																			
P3I Effort	[Redacted]																											
Large Tactical Power System (LTPS) Prototyping	[Redacted]				LTPS Prototyping																							
Operational Assessment / Integrated Fires FY25 Campaign															[Redacted]		OA / IF FY25 Campaign											

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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 0604114A / Lower Tier Air Missile Defense (LTAMD) Sensor	Project (Number/Name) EX2 / Lower Tier Air Missile Defense (LTAMD) Capability

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Concept Definition	4	2017	4	2019
Select Single Vendor	1	2020	1	2020
Production Representative Unit Manufacturing	1	2020	4	2023
Qualification Testing	2	2023	4	2024
Developmental Test & Evaluation	3	2023	1	2025
Production Contract (PDI/IOTE)	2	2024	4	2026
IOT&E	3	2026	1	2027
Operational Assessment / Integrated Fires FY23 Campaign	4	2023	1	2024
Operational Assessment / Integrated Fires FY24 Campaign	4	2024	1	2025
P3I Effort	4	2022	4	2029
Large Tactical Power System (LTPS) Prototyping	4	2022	2	2025
Operational Assessment / Integrated Fires FY25 Campaign	4	2025	1	2026

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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 0604115A / Technology Maturation Initiatives
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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	-	209.220	281.314	252.000	-	252.000	257.310	260.051	262.885	265.513	0.000	1,788.293
AX3: Technology Maturation Initiatives	-	161.343	281.314	252.000	-	252.000	257.310	260.051	262.885	265.513	0.000	1,740.416
AX8: Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)	-	22.552	-	-	-	-	-	-	-	-	0.000	22.552
AX9: Adv Mobility Experimental Prototype Adv Tech	-	14.678	-	-	-	-	-	-	-	-	0.000	14.678
AY2: Army Operational Fires	-	10.647	-	-	-	-	-	-	-	-	0.000	10.647

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Technology Maturation Initiative (TMI), which matures and integrates component technologies into early system and sub-system experimental prototypes for demonstration in relevant environments and tactical/operational scenarios. The Technology Maturation Initiative takes emerging Science and Technology (S&T) Technology Readiness Level (TRL) 6 products to a goal of TRL 7, integrating them into technology demonstrators and experimental prototypes that meet existing Program of Record (PoR) requirements and reduce the risk of technology insertion for future acquisition programs. This Initiative streamlines the development and insertion of mature technologies that support advanced ground systems; aviation systems; command, control, communication and reconnaissance systems and equipment; precision and hypersonic weapons; navigation and situational awareness systems; and Soldier equipment. It provides the Army an improved mechanism for incorporating innovative technologies and advanced capabilities in the early stages of acquisition program planning, and more closely aligns high-priority S&T products and Programs of Record modernization plans.

This PE also provides a tiered evaluation and feasibility application of innovation and disruptive technologies to Army capability gaps at any stage in a technology's lifecycle. The project will partner with academia, small, non-traditional companies, and the defense industrial base to incubate ideas, stage pilot evaluations and to ensure more rapid integration and prototyping of the best, most innovative solutions into Army systems. Project teams comprised of both Science and Technology Subject Matter Experts (SMEs) and PoR technical leads to develop the project concept, execute the program, fabricate and evaluate the prototype, and develop the acquisition plan for incorporating the technology into the PoR upon successful evaluation of the prototype.

Through the Army's Technology Maturation Board, Army senior leadership approves Technology Maturation Initiative projects prior to budget year programming based on priority and opportunity, ensuring that demonstrations have a high potential for filling capability gaps, and the project's plan for transitioning to Army PoRs. Approved Technology Maturation Initiative projects are typically 2-4 years in duration and are budgeted under Projects AX3, AX8, AX9, and AY2.

The cited work is consistent with the Under Secretary of Defense, 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
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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 0604115A / <i>Technology Maturation Initiatives</i>
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Work in this Project is performed by Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	219.742	281.314	256.495	-	256.495
Current President's Budget	209.220	281.314	252.000	-	252.000
Total Adjustments	-10.522	0.000	-4.495	-	-4.495
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.502	-			
• SBIR/STTR Transfer	-8.020	-			
• Adjustments to Budget Years	-	-	-4.495	-	-4.495

Change Summary Explanation

Decrease in funding to focus efforts on approved Secretary of the Army Technology Maturation Initiatives.

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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 0604115A / <i>Technology Maturation Initiatives</i>				Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</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>AX3: Technology Maturation Initiatives</i>	-	161.343	281.314	252.000	-	252.000	257.310	260.051	262.885	265.513	0.000	1,740.416
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the Technology Maturation Initiative (TMI), which matures and integrates component technologies into early system and sub-system experimental prototypes for demonstration in relevant environments and tactical/operational scenarios. The focus is to improve technology transition to Programs of Record (PoR) supporting 3 categories of projects: (1) Super system projects that prototype, integrate, and demonstrate emerging technologies that fill requirements across traditional PEO/PoR boundaries. (2) Technology Product Prototyping projects that mature technologies from S&T BA3 that have demonstrated at TRL6, but are experimental prototypes with higher risk (but potentially greater impact) than the baseline approach currently taken by a PoR, (3) Emerging / Disruptive Technology Opportunity projects (from S&T, industry, or non-traditional sources) that require out-of-cycle funding to prototype and evaluate disruptive impact against PoR requirements (threshold or objective).

This Initiative streamlines the development and insertion of mature technologies that support advanced ground systems; aviation systems; command, control, communication and reconnaissance systems and equipment; precision and hypersonic weapons; navigation and situational awareness systems; and Soldier equipment. It provides the Army an improved mechanism for incorporating innovative technologies and advanced capabilities in the early stages of acquisition program planning, and more closely aligns high-priority S&T products and Programs of Record modernization plans.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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

	FY 2023	FY 2024	FY 2025
Title: Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	2.543	7.851	-
Description: This effort leverages the technologies developed under the IVAS (Integrated Vision Augmented System) program and applies them for use on Air and Ground vehicle platforms. Air: This architecture will enable better situational awareness for the air crew (pilots and rear crew) and passenger warfighters in the air platform with augmented reality data system for displaying 360-degree sensors, pilotage and targeting sensors, blue/red force tracking data, communications, mission data, and vehicle flight data. Ground Vehicle: This architecture will enable better situational awareness for the crew (commander, gunner, driver, and vehicle crew) and passenger warfighters in the ground platform with augmented reality data system for displaying 360-degree			

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
sensors, driver, commander, and targeting sensors, blue/red force tracking data, communications, mission data, and vehicle data. The system will interface to the Advanced Targeting and Lethality Aided System (ground system) and other architecture systems.				
<p>FY 2024 Plans: Evaluate system readiness for operational testing and fielding for legacy air and ground platforms and soldier end users. Finalize and deliver B-kit advanced processing components, artificial reality software applications for user experiences, supporting Interface Control Documents, and A-kit and B-kit baseline architecture to transition partners. Demonstrate IVAS platform integration, computing, and control features, and enhanced crew situational awareness, pilotage, targeting, and mission features for soldiers wearing the IVAS and helmet mounted displays.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in funding due to effort conclusion in FY24.</p>				
<p>Title: Universal MDO Fire Control and SA Systems</p> <p>Description: This effort supports experimental prototypes to demonstrate high priority capability to provide mid to large caliber weapon platforms a real time 360-degree situational awareness (SA) and sensor input to the targeting / firing control systems. This effort will prototype a common architecture and interface kit containing infrared/radio frequency (IR/RF) sensors to ensure interoperability and sustainment across platforms. This effort is needed to enable a timely start of common architecture and interface definitions and interface hardware development that supports a platform agnostic prototype demonstration of 360-degree sensing system for fire control and SA across dynamic battlefield conditions. The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.</p> <p>FY 2024 Plans: Build upon the FY 2023 sub-system and algorithm prototyping and integrate/fabricate full Universal 360 vision and data systems and architecture with an iterated prototype on Main Battle Tank (MBT) and on a second Ground Combat Systems platform to evaluate scalability of the Universal 360 architecture. Incorporate the Integrated Visual Augmentation System (IVAS) Ground hardware, software, and architecture/interface baseline, the vehicle crew helmet mounted display, and the Advanced Targeting and Lethality Aided System algorithms into the vehicle targeting systems, and the full 360 degree multi-spectral sensors and the vehicle data systems to the Universal 360 system. Complete Universal 360 system assessment on two PEO-GCS platforms (including MBT) and complete the technical data package on the scalable data/sensor architecture for transition to PEO-GCS platforms.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease in funding due to effort conclusion in FY24.</p>		23.630	32.650	-
<p>Title: Anubis Software Defined Chipset for M-Code and Advanced PNT Applications</p>		24.546	16.490	-

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: This effort supports experimental prototypes to demonstrate M-Code Global Positioning System (GPS) receiver capability on a commercially available System on Chip (SoC). This effort will prototype mounted, dismounted, and munition GPS receiver reference designs to be used for testing and evaluation and then insertion into Army Programs of Record. This effort will also include security certification through Space Force to handle the required encryption keys. The cited work is consistent with the Army Modernization Strategy.</p> <p>FY 2024 Plans: Continue the security certification process with Space Force and enable M-Code capability on core SoC components. Complete fabrication of prototypes. Complete integration testing of GPS receivers for selected form factor (mounted, dismounted, or munition) and complete user evaluations.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to this effort concluding in FY24 and transitioning to PEO IEWS, JPEO A&A, and PEO Soldier.</p>			
<p>Title: Target Seeking (TS) - Extended Range (ER) Seeker (TS-ER)</p> <p>Description: The TS-ER Seeker will combine advances made by the Strategic Capabilities Office, Defense Advanced Research Projects Agency, Air Force, and Army in the fields of airframes, electronics, and seeker technologies to enable: extended range performance from 70km to 150km by integrating with advanced airframes; decrease risk of performance against red force countermeasures from medium to low by improving Automatic Target Recognition capability; improve munition terminal effects against armored targets and Integrated Air Defense Systems by enhancing munition accuracy. These seeker technologies will be integrated with the XM1155 Extended Range Artillery Projectile, with the requirement to prosecute moving or relocated targets in Global Positioning System denied environments at extended ranges (150km in accordance with the Cannon Delivered Area Effects Munition (C-DAEM) draft Capabilities Development Document). Enhanced seeker technologies will be critical in enabling munition performance at these ranges with high target location error.</p> <p>FY 2024 Plans: Complete integration of algorithms and software into the electronics architecture, along with system integration into the chosen test vehicle platform. Complete modeling and simulation, and hardware-in-the-loop activities to validate the performance of the system against a range of use cases and inform the test events. Complete a succession of range tests, with increasing complexity and culminating with a closed loop demonstration to ensure the various design aspects achieve the program requirements for transition C-DAEM Program of Record in FY 2025.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to this effort concluding in FY24 and transitioning to C-DAEM Program of Record.</p>	17.170	20.087	-
<p>Title: Autonomous Operations for Unmanned Aerial Systems (UAS)</p>	12.236	33.167	29.061

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Autonomous Operations for Uncrewed Aerial Systems (UAS) will provide Army aircraft reconnaissance, targeting and weapon options to engage and defeat threat targets at standoff. It will provide crewed and uncrewed aircraft capabilities to operate dispersed as part of the larger collaborative lethality network or as autonomous contributors for reconnaissance, surveillance, and target acquisition (RSTA).</p> <p>FY 2024 Plans: Continue to transition products to enable autonomous operations for RSTA missions using 5 or more ALE collaborating under a single human supervisor while operating in contested environments. Down-select candidate technologies and complete integration to the PM UAS Family of Systems Architecture and Requirements Specification for various Programs of Record. Refine autonomy software, message sets, and platform integration, and demonstrate in laboratory and live-fly test events. Perform testing to optimize communications waveforms, link budgets and other requirements for operationally relevant environments and mature all software and hardware components for Airworthiness Release.</p> <p>FY 2025 Plans: Continue technology maturation for CONOPS, execute additional demonstration flight tests, and coordinate actions with Off-Board Survivability (OBS) to integrate software between the systems. Submit final reports and complete integration to the PM UAS Family of Systems Architecture and Requirements Specification for various Programs of Record.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding decrease in FY 2025 is due to change in focus from development, testing, and integration to finalization of required integration to complete transition of technology to a Program of Record and includes multiple testing events.</p>			
<p>Title: Air Launched Effects (ALE) Off-board Survivability</p> <p>Description: This effort will develop a new variant of the LE Family of Systems focused on protection of the crewed helicopter fleet in contested environments. The effort will mature multispectral payloads that offload survivability and targeting functions from crewed platforms.</p> <p>FY 2024 Plans: Continue to implement multiple survivability and targeting payloads using off-board ALE platforms to relay critical information to manned systems for battlespace situation awareness and tactics execution. Will focus on maturation for the chosen payloads. Will focus on payload SWaP optimization and aircraft integration, including Hardware and Software in the Loop testing with the digital twin as well as live-fly testing.</p> <p>FY 2025 Plans:</p>	27.489	32.307	33.212

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Continue technology maturation for OBS CONOPS and execute initial flight tests for both EW and IR payloads. Execute additional flight tests for each payload. Coordinate actions with Autonomy TMI to integrate software between the systems. Submit final reports, and complete integration to the PM UAS Family of Systems Architecture and Requirements Specification for various Programs of Record.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding increase in FY 2025 is due to change in focus from design, development, and integration to finalization of required integration to complete transition of technology to a Program of Record and includes multiple testing events.</p>				
<p>Title: Tactical Analytics Architecture (TA2)</p> <p>Description: This effort will prototype Artificial Intelligence (AI) software/algorithms and hardware for AI-Enabled Command and Control (C2) Common Operating Picture (COP) / decision-support for Multi-Domain Operations at multiple echelons. Increased speed and accuracy of decision making will be demonstrated thru integration of AI-enabled decision support technologies that are emerging from Science and Technology programs and existing C2 systems used across warfighting functions and domains.</p> <p>FY 2024 Plans: Continue the development of SW prototype COP services that integrate data, information and knowledge-sharing across echelon and function including Maneuver, Integrated Air and Missile Defense, Fires, Intel, Logistics, etc. Unify secure data persistence with tactical data fabric in an initial operational capability to ingest multitudes of other Warfighter functional data sources across the network to facilitate increased speed and accuracy of decision making. Introduce common DevSecOps and AI machine learning operations to influence design and obtain operational data in the environment.</p> <p>FY 2025 Plans: Integrate and demonstrate the TA2 prototype AI-based algorithms into program of record Command & Control, Movement & Maneuver, Fires, Intel, and Logistics systems; to deliver AI-enabled decision support tools, data science platform environment tools, and data fabric capabilities to include Soldier definable visualizations / workflows, through a unified and secure tactical data fabric capable of cloud deployment. Demonstrate integrated high payoff target selection capability enhancements, sensor to shooter enhancements, and synchronization of fires data to Sustainment services supporting predictive combat power decision support capabilities. Transition modularized TA2 software technologies to the Command Post Computing Environment (CPCE), Distributed Common Ground Station - Army (DCGS-A) Intel Apps (IA), Tactical Intelligence Targeting Access Node (TITAN), and Joint Targeting Integrated Command & Coordination Suite (JTIC2S) PORs.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding decrease is due to drawdown of development as each effort transitions to respective programs of record.</p>		21.582	27.156	25.480
<p>Title: Tactical Navigation Warfare (NAVWAR) Plexus</p>		8.267	13.402	9.652

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Tactical Navigation Warfare (NAVWAR) Plexus supports the technology maturation and integration of NAVWAR Situational Awareness technologies into Electronic Warfare and field artillery systems. This effort incorporates NAVWAR sensors, data fusion algorithms, and decision-making software to maintain Army Fires capabilities in Global Positioning System degraded and denied environments. NAVWAR sensor interfaces will be modernized to comply with open system standards and their data will be processed through fusion algorithms to produce a real time Common Operating Picture (COP) of the NAVWAR environment. This COP will be distributed to the Fires Command and Control system to optimize the performance of field artillery in degraded environments.</p> <p>FY 2024 Plans: Complete Electronic Warfare Planning Management Tool (EWPMT) NAVWAR algorithm work, prototype, evaluation and transition to EWPMT Program of Record (PoR). Begin PLASMA-X sensor/Position, Navigation and Timing data fusion processor work. Start integration of the NAVWAR algorithm to Advanced Field Artillery Tactical Data System (AFATDS). Modernize and transition sensor/client interface to the Mounted Mission Command PoR.</p> <p>FY 2025 Plans: Will demonstrate sensor and workflow transfer of situational awareness to guide decisions driven by NAVWAR situational understanding. Will provide mature NAVWAR interface implementation details to utilize in component programs. Will optimize integration and utilization of NAVWAR sensor data. Will demonstrate duration of a fires mission planning and execution in NAVWAR degraded environment.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding decrease represents accomplishment of bulk of maturation efforts of components followed by finalization, integration, and demonstration.</p>			
<p>Title: Assured Navigation for Future Tactical Unmanned Aerial Systems (FTUAS)</p> <p>Description: This effort will build on previous Defense Advanced Research Projects Agency (DARPA) All Source Positioning and Navigation (ASPN), and Seeker Cost Transformation (SECTR) vision based navigation technology efforts, as well as the Army Aviation and Missile Center's (AvMC) current efforts under the Future Vertical Lift Cross Functional Team (FVL CFT) and Program Executive Office Aviation's efforts focused on low altitude vision based navigation (VBN) to deliver a full government owned navigation system in small size, weight, and power (SWaP) for tactical Unmanned Aerial Systems. DARPA SECTR is a production prototype that has been demonstrated in cross country flight and currently works at altitudes of 1000+feet. This effort will extend the technology to all operational altitudes, and miniaturize and ruggedize the technology. This effort will be part of an overall Assured Position Navigation and Timing (APNT) solution that will enable the use of FTUAS and Air Launched Effects in Global Positioning System (GPS) denied environments.</p>	5.492	7.774	5.708

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i> Mature and complete final optimization of low altitude VBN algorithms and software. Evaluate progress of prototype sensor package and processing module and finalize miniaturized prototype design. Integrate vision based navigation software with the sensor package and processing module for the ruggedized prototype. Demonstrate low altitude VBN prototype providing APNT at below 1000 ft. and assess progress for prototype design and testing activities.</p> <p><i>FY 2025 Plans:</i> Will optimize low altitude vision-based navigation algorithms and software. Will integrate miniaturized prototype onto target platform. Will perform flight testing and evaluate prototype in GPS denied environments and in varying operational conditions. Will demonstrate final prototype solution. Will deliver production prototypes.</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The funding decrease reflects refined target areas of interest and focused technological advancements as this effort completes its maturation.</p>			
<p><i>Title:</i> Common Hypersonic Glide Body (CHGB) Seeker Integration</p> <p><i>Description:</i> The Army Long Range Hypersonic Weapon (LRHW) Common Hypersonic Glide Body (CHGB) Seeker Integration activities are leveraging development efforts that were executed with prior year 6.3 Science and Technology (S&T) funding, supporting Seeker Component Development. The 6.3 S&T CHGB Seeker Component Development will continue through FY 2027, and will transition mature technologies to the 6.4 CHGB Seeker Integration efforts. Per the TMI Board decision in May 2021, the TMI program will fund these 6.4 CHGB Seeker Integration efforts in FY 2023. Starting in FY 2024, the RCCTO Transition Partner, Program Executive Office Missiles and Space, will continue CHGB Seeker Integration efforts to support the development timeline for implementation into future LRHW batteries.</p>	7.500	-	-
<p><i>Title:</i> Reconfigurable Aperture Precision Targeting Radar (RAPTR) for Vehicle and Dismount Exploitation Radar (VADER) (RADER)</p> <p><i>Description:</i> The current RADAR sensor (VADER) was designed for counterinsurgency operations limiting the effectiveness against near-peer threats. This effort will mature wide-band, multi-function RF, aperture technology developed under Army Science and Technology (S&T) to deliver an advanced payload that significantly increases range, accuracy and survivability of current airborne surveillance radar systems to the High Accuracy Detection and Exploitation System (HADES) program. This effort will integrate an advanced payload into a digital radar with an open architecture radar backend to facilitate integration of advanced algorithms and advanced operational modes to the HADES system.</p> <p><i>FY 2024 Plans:</i></p>	10.888	13.267	10.379

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Complete maturation of advanced radar modes for Common Open Architecture-compliant back-end. Continue maturation of Common Open Architecture-compliant back-end in preparation for integration of advanced modes and dual-band Active Electronically Scanned Array for FY 2025 Airborne Radar Testbed for evaluations.</p> <p>FY 2025 Plans: Mature advanced radar modes based on testbed demonstration. Develop test plan and integrate engineering prototype for flight test evaluation. Conduct flight demonstrations in relevant environments for evaluation of advanced radar modes. Deliver open architecture processor system with integrated third party modes.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease is due to with project progression to finalizing prototype, performing prototype evaluation, and performance validation.</p>				
<p>Title: Lethality Smart Systems (LSS)</p> <p>Description: The Lethality Smart Systems (LSS) is the next generation weapon targeting sensor for use on the Next Generation Squad Weapon (NGSW) which provides additional situational awareness and lethality by wirelessly interfacing to other Soldier devices. This effort will mature and prototype the LSS weapon sight system to evaluate improved reliability, achieving weapon shock requirements of the NGSW and implement interoperability between the latest version of the Intra Soldier Wireless (ISW) protocol to both the Enhanced Night Vision Goggle -Binocular (ENVG-B) and Integrated Visual Augmentation System (IVAS). Additionally, LSS will provide improved system interfacing and capabilities at a reduced Size, Weight and Power (SWaP).</p> <p>FY 2024 Plans: Conduct Soldier Touch Points and developmental test activities to collect Soldier feedback and engineering data to further refine the LSS design and maturation/risk reduction opportunities. Integrate and test LSS prototypes with fielded IVAS and ENVG-B to inform ISW Interface Control Documents (ICD). Integrate and test LSS prototypes on NGSW systems to evaluate power/data rail interface and weapon shock survivability performance. Begin building prototype of LSS for integration and testing of improved LSS weapon sight.</p> <p>FY 2025 Plans: Will finalize ISW interface with fielded HUD systems.? Will continue to integrate and assess LSS prototypes on NGSW systems for ongoing power evaluation and system ruggedization.? Will complete maturation and demonstrate final LSS weapon sight prototype.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding decrease is due to the project ramping down for transition to PEO Soldier.</p>		-	6.012	3.321
<p>Title: Lightweight Polymers for Modern Small Caliber Apps - Ammo Casing Only</p>		-	5.701	3.633

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: The Army currently relies on metal for small caliber cartridge casings. Polymer-based casings offer the potential to achieve significant weight reductions that can be applied to future and legacy systems. This effort will mature and prototype lightweight polymers and casing design solutions for use in extreme military operational environments. The polymer-based casings will reduce the tactical weight burden on the warfighter, reduce transit costs, and increase lethality across all operational environments.</p> <p>FY 2024 Plans: Survey, formulate, and refine commercial lightweight polymers for initial cartridge prototyping and iterate polymer-based casing design. Mature and evaluate the adhesives and bonding protocols for joining metallic and polymers components.</p> <p>FY 2025 Plans: Will optimize commercial lightweight polymers and adhesives for lightweight design. Will optimize lightweight cartridge design. Will prototype and evaluate cartridge performance with optimized polymers, adhesives, and cartridge designs</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding decrease is due to the project ramping down for transition to JPEO A&A.</p>			
<p>Title: Optical Threat Detection</p> <p>Description: Optical Threat Detection builds on Army Research Development Technology & Experimentation investments in Pre-Shot technologies to prototype detecting threats beyond their effective weapons range. The effort will mature and prototype an automated operation of the system to utilize onboard sensors and provide cues of potential targets to users for evaluation of the threat. The Optical Threat Detection system will provide a multi-band solution to rapidly locate enemy optical targeting or surveillance systems in support of On-The-Move operations. This effort will incorporate adaptable architecture for integration of future technology (i.e., sensors and algorithms) as new capabilities emerge.</p> <p>FY 2024 Plans: Initiate the design, fabrication and assembly of the baseline prototype sensor system. Perform a Preliminary Design Review and a Critical Design Review to evaluate baseline sensor design in preparation for platform integration to ensure the design will meet mission performance requirements.</p> <p>FY 2025 Plans: Will validate system level performance. Will validate critical design factors, drawings and interface control documentation. Will finalize approaches for modular system configuration. Will demonstrate system and subsystems with prototype hardware and sub-assembly improvements. Will mature GUI through user feedback and manufacturing of components for latest configuration.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>	-	9.743	11.624

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Funding increase is due to efforts to validate critical documentation and system and subsystem demonstrations.				
<p>Title: Solid State High Power Microwave System (SS-HPM)</p> <p>Description: Solid State-High Powered Microwave (SS-HPM) will mature and prototype a mission kit consisting of source and emitter for technical insertion into the Indirect Fire Protection Capability-High Power Microwave (IFPC-HPM) program's prototype system. SS-HPM System will mature solid state technologies intended for Counter-Unmanned Aerial System applications (focusing on groups and swarms) and provide indirect fire protection capabilities with increased range, reliability, and lower costs.</p> <p>FY 2024 Plans: Design, develop, and deliver a solid state HPM source and emitter (mission kit) for technical insertion that is compatible with the IFPC-HPM prototype.</p> <p>FY 2025 Plans: Test and deliver a solid state HPM source and emitter (mission kit) for technical insertion that is compatible with the IFPC-HPM prototype</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding decrease represents the normal progression towards completion of hardware development and testing and the transition of the technology to a Program of Record.</p>		-	9.329	2.076
<p>Title: Collaborative Links for Integrated Fires (CLIF)</p> <p>Description: Complex terrain, clutter, and countermeasures can challenge Cannon Delivered Area Effects Munition (C-DAEM) Armor and supporting Fires System-of-Systems (SoS) solutions, and reduce munition effectiveness. Collaborative Links for Integrated Fires (CLIF) leverages prior algorithm and software efforts to prototype image-based navigation, multi-agent autonomous target recognition (ATR) and optimized munition-target assignment in a Fires SoS solution. This effort will enable more efficient volley fires reducing shoot and move time, rounds to defeat, and the logistics burden while improving fire team capacity. The CLIF approach is modular and enables the rapid integration of new seeker and collaborative modalities to outpace emerging threats.</p> <p>FY 2024 Plans: Conduct design trade studies of technology integration using the Excalibur hit to kill (HTK) modeling simulation environment. Modify and integrate technology solutions into Hardware in the Loop (HWIL) and test subsystems. Complete preliminary design of the collaborative links system and projectiles.</p> <p>FY 2025 Plans:</p>		-	9.474	11.520

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Prototype, integrate, and test Fires SoS solutions. Complete the development of collaborative capabilities integration of software in the loop simulation for HWIL integration. Build of demonstration hardware and evaluate prototype during live fire demonstration for transition to the CDAEM Program of Record.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding increase represents the completion and evaluation of the prototype during live fire demonstration.</p>				
<p>Title: Multi-Network, Multi-Waveform Software Defined Radio</p> <p>Description: This effort leverages commercial 5G radio / data System on a Chip (SoC) technologies to prototype a common software defined radio capable of supporting multiple military waveforms. This replaces multiple radios with a single low Size, Weight, and Power (SWaP) radio for communications across multiple secure military communication networks and systems and hardware commonality across platforms. Prototypes will be evaluated supporting ground and air Army applications. The cited work is consistent with the Army Modernization Strategy and the Army Integrated Tactical Network Capability Sets.</p> <p>FY 2024 Plans: Initiate porting of multiple military communication waveforms to the SoC architecture. Design initial prototype multi-waveform / multi-communication system prototype radios for air and ground applications.</p> <p>FY 2025 Plans: Will complete porting of one military terrestrial and one celestial waveform to at least one radio hardware form factor prototype suitable for user demonstration. Will initiate development of a second tranche of waveforms and at least one additional form factor.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The funding increase represents the ramp up of the project to develop two form factor prototypes for demonstration.</p>		-	10.667	35.288
<p>Title: Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Data architectures, and Power systems</p> <p>Description: This effort will prototype integration of emerging data fabrics across Service, Combatant Commands (CCMD) and sub-organizational commands to allow interchangeable command and control (C2) of remote operations across echelons (allow echelon tasking and ISR sensor data collection/data share) of autonomously operated ground and air system platforms. The system will also expand hybrid power source alternatives that support the platform, mission, and autonomous system power requirements.</p> <p>FY 2024 Plans:</p>		-	26.237	25.013

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Compare Army, USMC and USAF data needs and data fabrics to determine requirements to develop a common data fabric and communications system for remote platform ISR data share and platform tasking. Using emerging Service data fabrics and processing frameworks, develop necessary application programming interfaces to integrate the sharing of data, algorithms, and Machine learning tools; and translate across different architectures and standards for the operation of remotely controlled / autonomous ground systems to seamlessly execute tactical and operational mission sets interchangeably between Army and non-Army organizations within CCMDs. Optimize platform autonomous systems for command and control of the platform and autonomous operations and optimize hybrid power systems designs meeting platform, communications, and autonomous operations, and mission needs.</p> <p>FY 2025 Plans: Prototype common data fabric and communication systems for remote platform ISR data share and platform tasking addressing Army, USMC and USAF data needs. Prototype optimized platform autonomous systems for command and control of the platform and autonomous operations. Prototype hybrid power systems designs meeting platform, communications, and autonomous operations, and mission needs.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding change reflects planned lifecycle of this effort to focus efforts to prototype command and control for autonomous systems.</p>				
<p>Title: Aviation Lightweight Armor</p> <p>Description: This effort builds on previous Army science and technology investments in lightweight spaced armor technology for aviation platforms to increase armor protection against worldwide threats while reducing weight, increasing military operating payload for troops, fuel, and munitions. The effort will prototype an advanced armor kit for Future Long Range Assault Aircraft (FLRAA) compatible with the FLRAA platform design. The prototype armor will be evaluated on the FLRAA mock-up aircraft to validate ballistic performance and compatibility with FLRAA aircraft requirements.</p> <p>FY 2025 Plans: Engage with FLRAA vendor to ensure compatibility of the armor kit with the platform design and performance requirements. Optimize the armor system configuration and conduct preliminary ballistic testing to ensure the armor meets the requirements of the FLRAA aircraft.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin effort approved by the Technology Maturation Board for FLRAA armor.</p>		-	-	3.321
<p>Title: Electro-Magnetic Battlespace Shaping and Protection (EM-BSP)</p> <p>Description: Electro-Magnetic Battlespace Shaping and Protection (EM-BSP) will provide an on-demand denial of the electro-magnetic (EM) spectrum to enemy forces at any location on the battlefield supporting Multi-Domain Operations (MDOs). This</p>		-	-	10.569

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>program will mature and prototype a smoke screen capable of disrupting the EM spectrum to mask, conceal, and preserve combat lethality overmatch. This munition delivered capability will degrade/deny enemy anti-access/area denial systems as well as the enemy's use of the EM spectrum. The overall super-system capability will integrate both hardware and software technology solutions across multiple Programs of Record for combined increased effect. EM-BSP will culminate in a live-fire Technology Readiness Level (TRL) 7 demonstration of the prototype System-of-Systems (SoS).</p> <p>FY 2025 Plans: Begin prototyping activities across multiple Program Executive Offices (PEOs) to support an end-state integrated SoS demonstration. Virtually prototype the SoS architecture. Refine system and subsystem requirements and interfaces. Prototype RF Smoke technology candidates across EM spectrums of interest and initiate design-of-experiment analysis for optimal material payload mix against target sets. Virtually prototype dispense mechanism to aid in RF Smoke material candidate analysis for a Cargo Rocket/Missile application. Define application interfaces, virtually prototype RF Smoke effects model software for battle management of the smoke across Electronic Warfare and artillery fire control systems.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin effort approved by the Technology Maturation Board to support SoS demonstrations in the EM-BSP program.</p>			
<p>Title: Combination Soldier and Logistics Aerial Insertion (Combodrop)</p> <p>Description: Combination Soldier and Logistics Aerial Insertion will provide Commanders with high altitude, high offset capability for precision insertion of personnel and cargo into enemy denied areas with a reduced probability of detection. This effort will prototype common mission planner and navigation software for all personnel and equipment and integrate radios for communication between personnel and cargo equipment for situational awareness and in-flight contingency operations. This effort will culminate with a demonstration in an operational environment.</p> <p>FY 2025 Plans: Complete initial development and integration of preflight mission planning software and mission execution software. Develop User Interfaces to provide command and control (C2) capabilities and display mission critical situational awareness information for cargo aerial delivery platforms. Conduct initial evaluation of C2 radios for communications between personnel and cargo systems.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin effort approved by the Technology Maturation Board to develop C2 capabilities for cargo aerial delivery platforms.</p>	-	-	2.595
<p>Title: Containerized Weapon System - Counter UAS</p> <p>Description: This effort will prototype the ability to counter threat Group 3 small Unmanned Aircraft Systems (sUAS) that operate at higher altitudes with significant standoff range. Leveraging existing investments in the Containerized Weapon System (CWS),</p>	-	-	8.926

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>this project will optimize the operator's Fire Control Station to enable Group 3 sUAS engagement. The operator's Fire Control Station will provide single operator, automated slew-to-cue, and improved Target Verification System. All of which enhance the weapons suite to enable the targeting and defeat of Group 3 sUAS. This effort will culminate in a live-fire experimentation of the prototype system in FY26.</p> <p>FY 2025 Plans: Optimize Fire Control Station for single operator and incorporate the target Illumination Verification System (TIVS) into the Fire Control System and utilize AI to increase the probability of hit with minimal operator input. Begin verification of the dual-safe APKWS proximity fuse through the Safety Review Board process and obtain limited release approval from the Ignition System Safety Review Board (ISSRB).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin effort approved by the Technology Maturation Board for integration of the target TIVS.</p>			
<p>Title: Expeditionary Field Artillery Sensor (ExFAS)</p> <p>Description: Expeditionary Field Artillery Sensor (ExFAS) will provide and medium range sensor enabling greater survivability and accuracy for the entire network of field artillery sensors against complex, evolving Rocket, Artillery, and Mortar (RAM) threats. This project will mature and prototype state of the art, dual/multi-band, short-medium range CTA (Counter Target Acquisition) system designed to cover required ranges, while also enabling key survivability and accuracy improvement features through dual/multi-band hardware. Additional technology maturation, including resource optimization techniques, perused within the ExFAS effort will inform and provide risk reduction for of the field artillery radar sensor modernization effort. The effort will culminate with in a live-fire demonstration and component qualification testing.</p> <p>FY 2025 Plans: Will evaluate fires radar open system architecture, and dual wideband technology through model and simulation and digital engineering framework to determine initial design. Will perform analysis of design concepts through realistic virtual prototype. Will develop a physical prototype based on the design concept. Will mature the virtual prototype of the design and validate digital engineering performance alongside of a physical prototype.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin effort approved by the Technology Maturation Board to evaluate open architecture and development of a physical prototype for ExFAS.</p>	-	-	2.175
<p>Title: Iron Sense</p> <p>Description: Partnering with the Army PEO-IEW&S Tactical Exploitation of National Capabilities (TENCAP) and leveraging prior work from PE 0603766A / Tactical Electronics Surveillance Systems - Adv Dev, this effort is a TMI Technology Prototyping Effort</p>	-	-	9.936

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
(prototyping higher risk / higher impact technologies to validate functionality) for transition to Army TENCAP fielding of capability. This effort Addressing the ongoing requirements to ensure that the Army's ability to exploit National and Commercial space based ISR and communications, to close the deep-sensing gap in Multi-Domain operations, and to enable rapid targeting of threats / pace the threat. FY 2025 Plans: FY25 will leverage National Investments and advances in Signal Intelligence (SIGINT), Electronics Warfare, and Cyber capabilities to prototype increased capability for use and advancement of Army Warfighter Capability. FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin effort approved by the Technology Maturation Board to prototype increased capability for Army Warfighter Capability.			
Title: Critical Common Electronics for Scalable Unmanned Aircraft Systems FY 2025 Plans: Assess commercial technologies for optimizing systems enabling critical common electronics, components, and algorithms for Army UAS platforms. Fabricate initial component prototypes to assess performance and interoperability of the systems. FY 2024 to FY 2025 Increase/Decrease Statement: Increase to begin start effort approved by the Technology Maturation Board and Army Senior Leadership for the assessments of commercial technology for optimizing critical common electronics, components and algorithms for Army UAS platforms.	-	-	8.511
Accomplishments/Planned Programs Subtotals	161.343	281.314	252.000

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

N/A

Remarks

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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</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			
Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	TBD	DEVCOM C5ISR : Fort. Belvoir, VA	-	-		7.851		-		-		-	0.000	7.851	-
IVAS - Design Platform Augmented Reality (AR) Architecture	TBD	C5ISR Fort Belvoir, VA; : TBD	5.021	-		-		-		-		-	0.000	5.021	-
IVAS - AR Architecture Implementation, Integration, and Fabrication	TBD	C5ISR Fort Belvoir, VA; : TBD	11.449	2.028		-		-		-		-	0.000	13.477	-
IVAS - Systems Engineering - Interfaces, Head Pose Tracking, Position, Navigation, Timing, Power	TBD	C5ISR Fort Belvoir, VA; : TBD	10.459	-		-		-		-		-	0.000	10.459	-
IVAS - Software Engineering - AR User Experiences	TBD	C5ISR Fort Belvoir, VA; : TBD	6.292	-		-		-		-		-	0.000	6.292	-
IVAS - Capability Demonstration	TBD	C5ISR Fort Belvoir, VA; : TBD	4.169	0.514		-		-		-		-	0.000	4.683	-
IVAS - Software/Hardware Integration - IVAS and Pilot / Crew Helmet Mounted Displays	TBD	C5ISR Fort Belvoir, VA; : TBD	4.254	-		-		-		-		-	0.000	4.254	-
Universal 360 MDO Fire Control and SA Systems	TBD	DEVCOM C5ISR : Ft. Belvoir, VA	-	-		32.650		-		-		-	0.000	32.650	-
Universal 360 MDO Sensor Prototypes	TBD	C5ISR Ft. Belvoir : TBD	0.758	2.474		-		-		-		-	0.000	3.232	-
Universal 360 MDO Common Architecture & Data Framework	TBD	C5ISR Ft. Belvoir : TBD	2.602	1.440		-		-		-		-	0.000	4.042	-

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</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			
Mature AI software architecture & prototype ATR	TBD	C5ISR Ft. Belvoir : TBD	1.305	2.317		-		-		-		-	0.000	3.622	-
Mature & Demonstrate Crew Station, Crew HMD, Troop HMD, and Fire Control	TBD	C5ISR Ft. Belvoir : TBD	4.055	5.073		-		-		-		-	0.000	9.128	-
Platform Prototyping, Integration & Demonstration	TBD	C5ISR Ft. Belvoir : TBD	2.360	12.326		-		-		-		-	0.000	14.686	-
Anubis: COTS-based M-Code GPS Receiver	TBD	DEVCOM-ARL : TBD	10.599	24.547		16.490		-		-		-	0.000	51.636	-
Target Seeking - Extended Range (ER) Seeker (TS-ER)	TBD	PEO Ammo : Picatinny Arsenal, NJ	-	17.170		20.087		-		-		-	0.000	37.257	-
Autonomous Operations for Unmanned Aerial Systems (UAS)	TBD	DEVCOM AvMC : TBD	-	12.236		33.167		29.061		-		29.061	0.000	74.464	-
Air Launched Effects (ALE) Off-board Survivability	TBD	DEVCOM AvMC : TBD	-	27.489		32.307		33.212		-		33.212	0.000	93.008	-
Artificial Intelligence (AI) Enabled Operations / TA2	TBD	AFC : TBD	-	21.582		27.156		25.480		-		25.480	0.000	74.218	-
Tactical NAVWAR Plexus	TBD	DEVCOM C5ISRC : TBD	-	8.267		13.402		9.652		-		9.652	0.000	31.321	-
Assured NAV for FTUAS	TBD	TBD : TBD	-	5.492		7.774		5.708		-		5.708	0.000	18.974	-
Common Hypersonic Glide Body (CHGB) Seeker Integration	C/Variou	RCCTO : Various : Various	-	7.500		-		-		-		-	0.000	7.500	-
Reconfigurable Aperture Precision Targeting Radar (RAPTR) for Vehicle and Dismount Exploitation Rada	TBD	DEVCOM C5ISR : TBD	-	10.888		13.267		10.379		-		10.379	0.000	34.534	-

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</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			
Lethality Smart System (LSS)	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		6.012		3.321		-		3.321	0.000	9.333	-
Lightweight Polymers for Modern Small Caliber Apps	TBD	DEVCOM ARL : TBD	-	-		5.701		3.633		-		3.633	0.000	9.334	-
Optical Threat Detection	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		9.743		11.624		-		11.624	0.000	21.367	-
Solid State High Power Microwave System	TBD	RCCTO : Various	-	-		9.329		2.076		-		2.076	0.000	11.405	-
Collaborative Links for Integrated Fires	TBD	PEO Ammo : Picatinny Arsenal, NJ	-	-		9.474		11.520		-		11.520	0.000	20.994	-
Multinetwork - 5G Capability	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		10.667		35.288		-		35.288	0.000	45.955	-
Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Da	TBD	TBD : TBD	-	-		26.237		25.013		-		25.013	0.000	51.250	-
Aviation Lightweight Armor	TBD	DEVCOM AvMC : Ft. Eustis, VA	-	-		-		3.321		-		3.321	0.000	3.321	-
Electro-Magnetic Battlespace Shaping and Protection (EM-BSP)	TBD	JPEO A&A : Various	-	-		-		10.569		-		10.569	0.000	10.569	-
Combination Soldier and Logistics Aerial Insertion	TBD	DEVCOM SC : Natick, MA	-	-		-		2.595		-		2.595	0.000	2.595	-
Containerized Weapon System - Counter UAS	TBD	DEVCOM AvMC : Redstone Arsenal, AL	-	-		-		8.926		-		8.926	0.000	8.926	-
Expeditionary Field Artillery Sensor (ExFAS)	TBD	DEVCOM C5ISR : Aberdeen Proving Ground, MD	-	-		-		2.175		-		2.175	0.000	2.175	-
Iron Sense	TBD	PEO IEWS : Various	-	-		-		9.936		-		9.936	0.000	9.936	-

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</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 Vision Augmented System (IVAS) for Air and Gr...																													
AIR IVAS Mid-Point Prototype with Soldier Touch Point 1	▲ 1																												
Ground IVAS Mid-Point Vehicle Prototype for crew with So...	▲ 2																												
Wireless crew sensor/data share prototype - Soldier Touc...	▲ 3																												
Fabricate full IVAS for Air system for vehicle																													
Optimize IVAS Air Architecture post Soldier Touch Point 1																													
Optimize IVAS Ground Architecture post Soldier Touch Point#																													
Fabricate full IVAS for Ground system for vehicle																													
Demo/Evaluation: 4QFY23 Full prototype/Soldier Touch Po...																						▲ 5							
IVAS - AR Architecture Definition and Integration																													
Final Platform Architecture Integration (w/ Optimized Us...																													
IVAS - AR Processing Ruggedization, SWAP reduction and P...																													
AR Processing Ruggedization, SWAP reduction and Platform																													

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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				
IVAS - AR User Experience Development																																
Extensions to IVAS API/SDKs	█																															
Enhanced 'SEE' and 'Worldview' Visualizations and Rendering	█																															
Air/Ground Vehicle Tailored User Experience Development	█																															
IVAS - Line-of-Sight (LOS) Tracking and Helmet Mounted Display																																
Integration/Demo of Hybrid LOS Tracker w/ WFOV Aviation HMD	█																															
Enhanced HDTS Integration/Demo	█																															
Ground platform readiness for operational testing and fielding					█																											
Air platform readiness for operational testing and fielding					█																											
IVAS System integration evaluation																									16							
Universal 360 MDO Fire Control and SA Systems																																
U360 Sensor Maturation	█																															
U360 Architecture	█																															
Demonstration					█																											

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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
Aided Target Recognition	[Bar]				[Bar]																							
Vehicle Integration	[Bar]				[Bar]																							
U360 Soldier Touch Point -Virtual Prototype #1		4																										
U360 Soldier Touch Point -Virtual Prototype and U360 Dem...				6																								
U360 Soldier Touch Point -Virtual Prototype #2				11																								
U360: Vehicle Excursion-Demonstrate Full 360																												
Anubis Software Defined Chipset for M-Code and Advanced ...																												
M-Code Functionality and Software Implementation:	[Bar]				[Bar]																							
Security Certification	[Bar]				[Bar]																							
CMOSS Card Reference Design																												
CMOSS Card Demonstration								9																				
IVAS Module Reference Design																												
NavWar Module Reference Design																												

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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
NavWar Module Benchtop Demonstration																												
NavWar Module Live Fire Demonstration																												
Target Seeking - Extended Range (ER) Seeker (TS-ER)																												
Form Factor Electronics Spin and Gun Hardening																												
Algorithms and Software Integration																												
S/HwIL Synthetic Scene Generation Maturation																												
S/HwIL Hardware Upgrades																												
Seeker Technology Maturation Demonstration																												
Integrated Flight M&S Evaluation																												
Seeker Hardware and Aperture Integration																												
Captive Carry Test																												
Gun Hardness Test																												
Seeker Performance Improvements																												

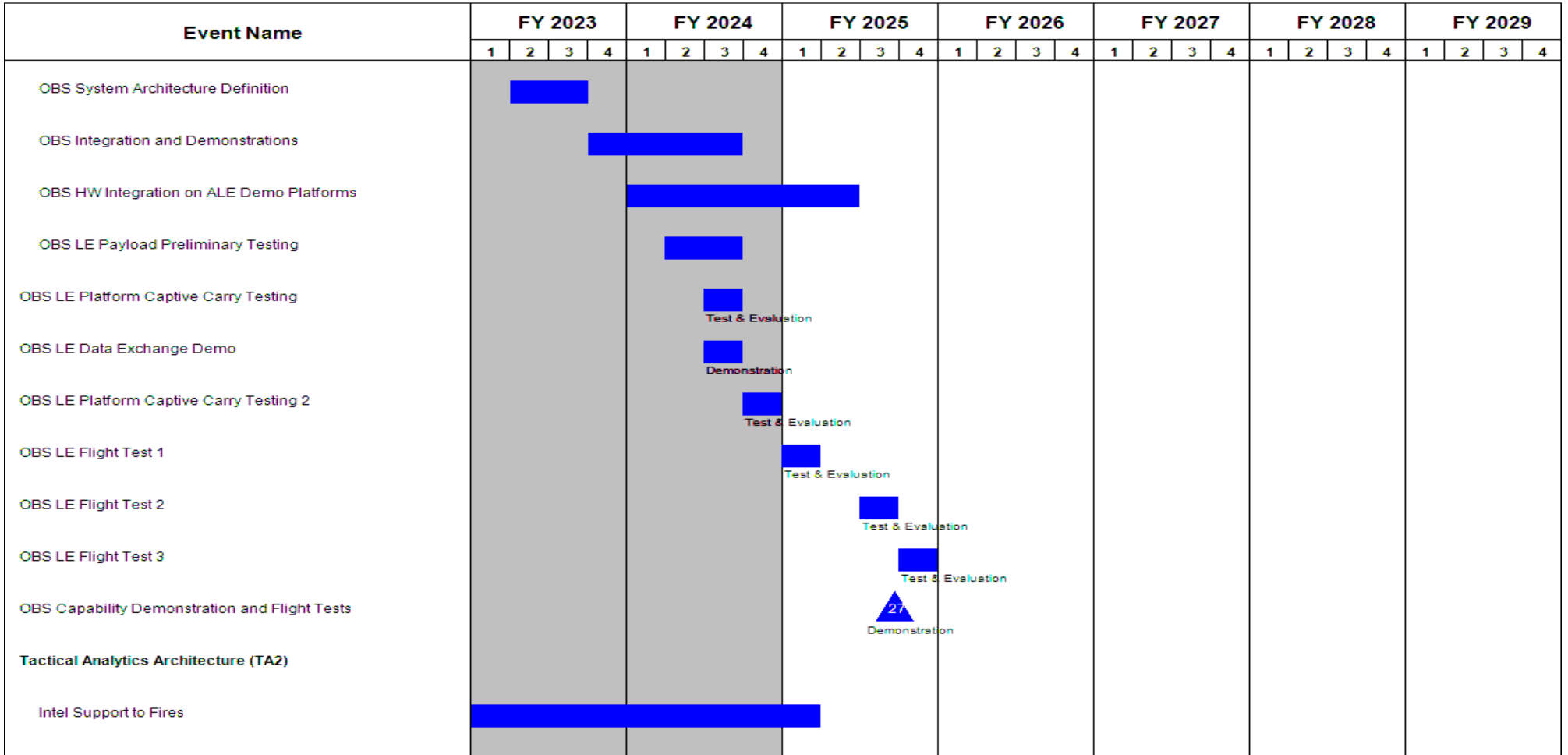
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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</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
AUR GFT w/ Open Loop Seeker Test					▲ 15 Test & Evaluation				▲ 20 Demonstration																			
AUR GFT w/ Closed Loop Seeker Demonstration																												
Autonomous Operations for Unmanned Aircraft Systems Sys Demo																												
UAS - Autonomous Operations Component Maturation																												
UAS - Autonomous Operations Demonstration/A-Team Collabor...																												
UAS - Autonomous Operations UAS Flight Testing 1																												
UAS - Common Mission Systems Architecture Development fo...																												
UAS - Autonomous Operations HW/SW in the Loop Testing																												
UAS - Autonomous Operations UAS Flight Testing 2																												
UAS - ALE Data Exchange Demonstration																												
UAS - Autonomous Operations Demonstration and User Evalu...																												
Air Launched Effects (ALE) Off-board Survivability																												
ALE Off-Board Survivability (OBS) Payload Maturation																												

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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
AI COA Recommender	██████████				██████████				██████████																			
ARCANE Fire +	██████████				██████████				██████████																			
Joint Targeting Integrated Command & Coordination Suite ...	██████████				██████████				██████████																			
Proteus (User Defined Requirements)	██████████				██████████				██████████																			
Artificial Intelligence Development Environment (AIDE)	██████████				██████████				██████████																			
Tactical Navigation Warfare (NAVWAR) Plexus	██████████				██████████				██████████																			
EWPMT NAVWAR COP	██████████				██████████				██████████																			
Sensor/Client Interface Modernization	██████████				██████████				██████████																			
PLASMA-X Integration	██████████				██████████				██████████																			
Fires Command and Control	██████████				██████████				██████████																			
NAVWAR COP Demonstration	██████████				██████████				▲ 23 Demonstration																			
Multi Domain Sensor Fusion Demo	██████████				██████████				▲ 24 Demonstration																			
Integrated NAVWAR Situational Awareness Demo	██████████				██████████				▲ 28 Demonstration																			

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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
MMC Sensor Data Flow																												
NAVWAR Processor Benchtop Tests																												
Assured Navigation (NAV) for Future Tactical Unmanned Ae...																												
Develop hardware agnostic testbed																												
Develop Low Altitude vision-based navigation algorithms																												
Conduct Sensor Trade Study																												
Design and Build Prototype																												
Test Prototype																												
Final Demonstration																												
Common Hypersonic Glide Body (CHGB) Seeker Integration																												
Flight Software Development																												
Hardware Integration																												
Weapon Control and Mission Planning Integration																												

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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
Reconfigurable Aperture Precision Targeting Radar for VA...	<p>Detailed description of the Gantt chart for 'Reconfigurable Aperture Precision Targeting Radar for VA...':</p> <ul style="list-style-type: none"> Architecture Assessment and Evaluation: Blue bar from FY2023 Q2 to FY2026 Q1. Advanced Radar Mode Maturation: Blue bar from FY2023 Q2 to FY2024 Q4. Engineering Prototype Maturation and Evaluation: Blue bar from FY2024 Q1 to FY2026 Q1. Prototype Evaluation and Airborne Testbed: Milestone triangle at FY2025 Q3 labeled '29 Test & Evaluation'. System Flight Testing and Evaluation: Milestone triangle at FY2026 Q3 labeled '39 Test & Demonstration'. 																											
Architecture Assessment and Evaluation																												
Advanced Radar Mode Maturation																												
Engineering Prototype Maturation and Evaluation																												
Prototype Evaluation and Airborne Testbed																												
System Flight Testing and Evaluation																												
Lethality Smart System (LSS)																												
Engineering, Test and Requirements Analysis	<p>Detailed description of the Gantt chart for 'Lethality Smart System (LSS)':</p> <ul style="list-style-type: none"> Engineering, Test and Requirements Analysis: Blue bar from FY2024 Q1 to FY2025 Q2. LSS Soldier Touch Point #1: Milestone triangle at FY2024 Q2 labeled '14 User Experience'. Build, Integrate, Test System Prototypes: Blue bar from FY2024 Q3 to FY2026 Q1. LSS Soldier Touch Point #2: Milestone triangle at FY2025 Q2 labeled '21 User Experience'. LSS Soldier Touch Point #3: Milestone triangle at FY2026 Q1 labeled '35 User Experience'. 																											
Engineering, Test and Requirements Analysis																												
LSS Soldier Touch Point #1																												
Build, Integrate, Test System Prototypes																												
LSS Soldier Touch Point #2																												
LSS Soldier Touch Point #3																												
Light Weight Polymers for Modern Small Caliber Apps - Am...	<p>Detailed description of the Gantt chart for 'Light Weight Polymers for Modern Small Caliber Apps - Am...':</p> <ul style="list-style-type: none"> Task: Blue bar from FY2024 Q1 to FY2025 Q4. Milestone: Triangle at FY2026 Q1 labeled '35 User Experience'. 																											
Light Weight Polymers for Modern Small Caliber Apps - Am...																												

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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
Mature Lightweight Polymer Formulations					█				█																			
Develop Adhesive Selection and Bonding Protocols									█				█															
Prototype of Cartridge Cases #1: Weight Reduction									█				█															
Prototype of Cartridge Cases #2: Weight Reduction and Op...									█				█															
Evaluation of Lightweight Polymer Cartridge Cases																	▲ 36 Test & Evaluation											
Optical Threat Detection																												
Engineering Test and Requirements Analysis					█				█																			
OTD Soldier Touch Point 1					▲ 12 User Experience																							
Build Integrate Test System Prototypes													█															
OTD Soldier Touch Point 2									▲ 22 User Experience																			
Modular and Platform Integration Testing																	█											
Solid High State Power Microwave System																												
Design, Develop and Fabricate SSHP Microwave Source					█																							

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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
Integrate SSHP Microwave Source into IFPC-HPM																												
Evaluate Prototype SSHP System													▲ 37															
Collaborative Links for Integrated Fires (CLIF)																												
CLIF Technologies Modification and Maturation																												
Fires SoS integration, SoS efforts using NA2 to deliver ...																												
CLIF Technology Integration into Hardware in the Loop (H...																												
Build Prototype Projectiles																												
Live Fire Prototype Projectiles													▲ 38															
Multi-network/5G Capability																												
Design of Dismounted and Platform Prototypes																												
Porting of Military Communication Waveforms																												
Fabrication of of Dismounted and Platform prototypes																												
Development of Prototype Management and Provisioning																												

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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
Dismounted/Mounted Phase 1 Application User Touch Point									26 User Experience																			
Dismounted/Mounted Phase 1 Prototype Evaluation									30 Test & Evaluation																			
Dismounted/Mounted Phase 2 Application User Touch Point									40 User Experience																			
Dismounted/Mounted Phase 2 Prototype Evaluation									44 Test & Evaluation																			
Consolidated prototype platform for Joint Common Artific...																												
Compare Army, USMC and USAF data needs and data fabrics ...																												
Develop application programming interfaces to integrate ...																												
Prototype Joint Service Data Fabrics, Prototype Autonomo...																												
Aviation Lightweight Armor																												
Design Integrated Armor Kit																	Design											
Produce and Demonstrate Prototype Armor Kit													Manufacture															
Ballistic Testing																	Demonstration											
Electro-Magnetic Battlespace Shaping and Protection (EM-BSP)																												

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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		
Mature and Prototype RF Smoke Material & Payload for Exp...									Material Solution																					
RF Smoke Effects Model									Material Solution																					
Prototype Electronic Warfare Planning and Management Tool...									Material Solution																					
Prototype Guided Multiple Launch Rocket System (GMLRS) w...									Material Solution																					
EM-BSP System of Systems TRL 7 Capability													Demonstration																	
Combination Soldier and Logistics Aerial Insertion (Comb...																														
AMP and PARANAVSYS Development and Integration									Development																					
PARANAVSYS Jump Evaluation / Soldier Touch Point											31		Demonstration																	
JPADS Communications Development and Integration													Development																	
JPADS Communications HWIL Demonstration															42		Demonstration													
Combodrop Test and Evaluation													Test & Evaluation																	
Combodrop Concept Demonstration																			46		Demonstration									
Containerized Weapon System - Counter UAS																														

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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				
Fire Control Optimization									Technology Maturation																							
Target Illumination Verification System (TIVS) Integration									Technology Maturation																							
Fire Control Demonstration													32 Demonstration																			
APKWS Proximity Fuse Verification													Technology Maturation																			
Ignition System Safety Review Board Full Release of Prox...																					43 Milestone											
Live Fire again Group 3 UAS																					44 Test/Demonstration											
ATEC Safety Confirmation & Milestone C Decision																					45 Milestone											
Expeditionary Field Artillery Sensor (ExFAS)																																
System Design																	Design Review															
System Build																					Design Review											
Testing and Qualification																	Design Review															
Live Fire Demonstration																					48 Demonstration											
Iron Sense																																

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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
Assess Current Capability									██████████																			
Fabricate Prototype Version One									██████████				██████████															
User Evaluation 1													██████															
Optimize Prototype Design Functionality													██████															
Fabricate Prototype Version Two													██████████															
User Evaluation 2																	██████											
Transition to TENCAP																	▲47											
Critical Common Electronics for Scalable Unmanned Airca...																												
Assessment of common commerical propulsion components									██████████																			
Assessment of advancements for on platform communication...									██████████																			
Assessment of advancements for on platform navigation									██████████																			
Assessment of advancements for on platform system processing									██████████																			
Prototype propulsion, communication, navigation, and sys...													██████████															

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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				
Evaluate component performance and interoperability																																
Prototype advanced systems Common Electronics for Unmanned...																																
Evaluation of advanced systems for Common Electronics fo...																																

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

Events	Start		End	
	Quarter	Year	Quarter	Year
Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	1	2023	4	2024
AIR IVAS Mid-Point Prototype with Soldier Touch Point 1	1	2023	1	2023
Ground IVAS Mid-Point Vehicle Prototype for crew with Soldier Touch Point 1	1	2023	1	2023
Fabricate wireless crew sensor/data share prototype for Soldier Touch Point 1	1	2022	4	2022
Wireless crew sensor/data share prototype - Soldier Touchpoint 1.	1	2023	1	2023
Fabricate full IVAS for Air system for vehicle	1	2023	4	2023
Optimize IVAS Air Architecture post Soldier Touch Point 1	1	2023	4	2023
Optimize IVAS Ground Architecture post Soldier Touch Point#1	1	2023	4	2023
Fabricate full IVAS for Ground system for vehicle	1	2023	4	2023
Demo/Evaluation: 4QFY23 Full prototype/Soldier Touch Point#2	4	2023	4	2023
IVAS - AR Architecture Definition and Integration	3	2021	4	2023
Hardware/Software Architecture Definition (SysML digital model-based)	1	2022	4	2022
Partial Platform Architecture Integration (w/ Baseline User Experiences)	3	2022	4	2022
Final Platform Architecture Integration (w/ Optimized User Experiences)	1	2023	4	2023
IVAS - AR Processing Ruggedization, SWAP reduction and Platform Integration	1	2023	4	2023
AR Processing Ruggedization, SWAP reduction and Platform Integration Spiral #1	3	2021	3	2022
AR Processing Ruggedization, SWAP reduction and Platform Integration Spiral #2	3	2022	4	2023
IVAS - AR User Experience Development	3	2021	4	2023
Extensions to IVAS API/SDKs	1	2022	3	2023
Optimized 'SEE' and 'Worldview' Visualizations and Rendering	1	2022	4	2022
Enhanced 'SEE' and 'Worldview' Visualizations and Rendering	1	2023	4	2023
Air/Ground Vehicle Tailored User Experience Development and Demo	3	2022	4	2023

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Events	Start		End	
	Quarter	Year	Quarter	Year
IVAS - Line-of-Sight (LOS) Tracking and Helmet Mounted Display (HMD) Maturation	4	2021	4	2023
Initial Hybrid Optical Inertial LOS Tracker Maturation and Demo	4	2021	4	2022
Integration/Demo of Hybrid LOS Tracker w/ WFOV Aviation HMD	1	2023	4	2023
Helmet Display and Tracking System (HDTs) Integration/Demo w/ AR Architecture	4	2021	4	2022
Enhanced HDTs Integration/Demo	1	2023	3	2023
Ground platform readiness for operational testing and fielding evaluation	1	2024	4	2024
Air platform readiness for operational testing and fielding evaluation	1	2024	4	2024
IVAS System integration evaluation	4	2024	4	2024
Universal 360 MDO Fire Control and SA Systems	2	2022	4	2024
U360 Sensor Maturation	2	2022	1	2024
U360 Architecture	3	2022	2	2024
Aided Target Recognition	4	2022	2	2024
Vehicle Integration	4	2022	4	2024
Vehicle Excursion - Demonstrate Baseline U360	4	2022	4	2022
U360 Soldier Touch Point -Virtual Prototype #1	2	2023	2	2023
U360 Soldier Touch Point -Virtual Prototype and U360 Demonstration on Stryker	4	2023	4	2023
U360 Soldier Touch Point -Virtual Prototype #2	1	2024	1	2024
U360: Vehicle Excursion-Demonstrate Full 360	4	2024	4	2024
Anubis Software Defined Chipset for M-Code and Advanced PNT Applications	3	2022	4	2024
M-Code Functionality and Software Implementation:	3	2022	4	2024
Security Certification	1	2023	3	2024
CMOSS Card Reference Design	2	2023	3	2024
CMOSS Card Demonstration	1	2024	1	2024
IVAS Module Reference Design	3	2023	4	2024
NavWar Module Reference Design	3	2023	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
NavWar Module Benchtop Demonstration	4	2024	4	2024
NavWar Module Live Fire Demonstration	4	2024	4	2024
Target Seeking - Extended Range (ER) Seeker (TS-ER)	1	2023	4	2023
Form Factor Electronics Spin and Gun Hardening	1	2023	4	2023
Algorithms and Software Integration	1	2023	4	2024
S/HWiL Synthetic Scene Generation Maturation	1	2023	4	2023
S/HWiL Hardware Upgrades	1	2023	4	2023
Seeker Technology Maturation Demonstration	4	2023	4	2023
Integrated Flight M&S Evaluation	4	2023	4	2023
Seeker Hardware and Aperture Integration	3	2023	4	2024
Captive Carry Test	2	2024	2	2024
Gun Hardness Test	1	2024	1	2024
Seeker Performance Improvements	1	2024	4	2024
AUR GFT w/ Open Loop Seeker Test	3	2024	3	2024
AUR GFT w/ Closed Loop Seeker Demonstration	4	2024	4	2024
Autonomous Operations for Unmanned Aircraft Systems Sys Demo	1	2023	4	2025
UAS - Autonomous Operations Component Maturation	1	2023	4	2025
UAS - Autonomous Operations Demonstration/A-Team Collaboration	3	2023	4	2023
UAS - Autonomous Operations UAS Flight Testing 1	1	2023	4	2023
UAS - Common Mission Systems Architecture Development for Autonomous Ops	1	2024	2	2024
UAS - Autonomous Operations HW/SW in the Loop Testing	4	2023	2	2024
UAS - Autonomous Operations UAS Flight Testing 2	1	2024	4	2024
UAS - ALE Data Exchange Demonstration	2	2024	4	2024
UAS - Autonomous Operations Demonstration and User Evaluations	4	2025	4	2025
Air Launched Effects (ALE) Off-board Survivability	1	2023	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
ALE Off-Board Survivability (OBS) Payload Maturation	2	2023	3	2024
OBS System Architecture Definition	2	2023	3	2023
OBS Integration and Demonstrations	4	2023	3	2024
OBS HW Integration on ALE Demo Platforms	1	2024	2	2025
OBS LE Payload Preliminary Testing	2	2024	3	2024
OBS LE Platform Captive Carry Testing	3	2024	3	2024
OBS LE Data Exchange Demo	3	2024	3	2024
OBS LE Platform Captive Carry Testing 2	4	2024	4	2024
OBS LE Flight Test 1	1	2025	1	2025
OBS LE Flight Test 2	3	2025	3	2025
OBS LE Flight Test 3	4	2025	4	2025
OBS Capability Demonstration and Flight Tests	3	2025	3	2025
Tactical Analytics Architecture (TA2)	1	2023	4	2025
Intel Support to Fires	1	2023	1	2025
AI COA Recommender	1	2023	2	2025
ARCANE Fire +	1	2023	4	2023
Joint Targeting Integrated Command & Coordination Suite (JTIC2S)	3	2023	4	2025
Proteus (User Defined Requirements)	1	2024	4	2025
Artificial Intelligence Development Environment (AIDE)	1	2025	4	2025
Tactical Navigation Warfare (NAVWAR) Plexus	1	2023	4	2025
EWPMT NAVWAR COP	1	2023	2	2024
Sensor/Client Interface Modernization	3	2023	2	2025
PLASMA-X Integration	1	2024	4	2025
Fires Command and Control	3	2023	2	2025
NAVWAR COP Demonstration	2	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Multi Domain Sensor Fusion Demo	2	2025	2	2025
Integrated NAVWAR Situational Awareness Demo	3	2025	3	2025
MMC Sensor Data Flow	3	2023	1	2025
NAVWAR Processor Benchtop Tests	2	2025	2	2025
Assured Navigation (NAV) for Future Tactical Unmanned Aerial Systems (FTUAS)	1	2023	4	2025
Develop hardware agnostic testbed	1	2023	1	2024
Develop Low Altitude vision-based navigation algorithms	4	2023	4	2024
Conduct Sensor Trade Study	4	2023	2	2024
Design and Build Prototype	2	2024	1	2025
Test Prototype	1	2025	4	2025
Final Demonstration	4	2025	4	2025
Common Hypersonic Glide Body (CHGB) Seeker Integration	1	2023	4	2023
Flight Software Development	1	2023	4	2023
Hardware Integration	1	2023	4	2023
Weapon Control and Mission Planning Integration	1	2023	4	2023
Reconfigurable Aperture Precision Targeting Radar for VADER (RADER)	1	2023	4	2025
Architecture Assessment and Evaluation	2	2023	2	2026
Advanced Radar Mode Maturation	2	2023	4	2024
Engineering Prototype Maturation and Evaluation	1	2024	2	2026
Prototype Evaluation and Airborne Testbed	3	2025	3	2025
System Flight Testing and Evaluation	2	2026	2	2026
Lethality Smart System (LSS)	1	2024	4	2025
Engineering, Test and Requirements Analysis	1	2024	2	2025
LSS Soldier Touch Point #1	2	2024	2	2024
Build, Integrate, Test System Prototypes	2	2024	4	2025

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

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Events	Start		End	
	Quarter	Year	Quarter	Year
LSS Soldier Touch Point #2	1	2025	1	2025
LSS Soldier Touch Point #3	4	2025	4	2025
Light Weight Polymers for Modern Small Caliber Apps - Ammo Casing Only	1	2024	4	2025
Mature Lightweight Polymer Formulations	1	2024	4	2025
Develop Adhesive Selection and Bonding Protocols	1	2024	2	2025
Prototype of Cartridge Cases #1: Weight Reduction	1	2024	4	2024
Prototype of Cartridge Cases #2: Weight Reduction and Operational Environments	2	2024	4	2025
Evaluation of Lightweight Polymer Cartridge Cases	4	2025	4	2025
Optical Threat Detection	1	2024	4	2027
Engineering Test and Requirements Analysis	1	2024	2	2025
OTD Soldier Touch Point 1	1	2024	1	2024
Build Integrate Test System Prototypes	2	2025	4	2026
OTD Soldier Touch Point 2	1	2025	1	2025
Modular and Platform Integration Testing	4	2026	4	2027
Solid High State Power Microwave System	1	2024	4	2025
Design, Develop and Fabricate SSHP Microwave Source	1	2024	4	2024
Integrate SSHP Microwave Source into IFPC-HPM	1	2025	4	2025
Evaluate Prototype SSHP System	4	2025	4	2025
Collaborative Links for Integrated Fires (CLIF)	1	2024	4	2025
CLIF Technologies Modification and Maturation	1	2024	2	2025
Fires SoS integration, SoS efforts using NA2 to deliver reference imagery and other intelligence data to platform	1	2024	4	2025
CLIF Technology Integration into Hardware in the Loop (HWIL) and Subsystem Testing	3	2024	3	2025
Build Prototype Projectiles	3	2025	4	2025
Live Fire Prototype Projectiles	4	2025	4	2025
Multi-network/5G Capability	1	2024	4	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Design of Dismounted and Platform Prototypes	1	2024	2	2024
Porting of Military Communication Waveforms	1	2024	4	2025
Fabrication of of Dismounted and Platform prototypes	3	2024	2	2026
Development of Prototype Management and Provisioning	3	2024	2	2025
Dismounted/Mounted Phase 1 Application User Touch Point	2	2025	2	2025
Dismounted/Mounted Phase 1 Prototype Evaluation	3	2025	3	2025
Dismounted/Mounted Phase 2 Application User Touch Point	2	2026	2	2026
Dismounted/Mounted Phase 2 Prototype Evaluation	2	2026	2	2026
Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Data architectures, and Power systems	1	2024	4	2025
Compare Army, USMC and USAF data needs and data fabrics to determine requirements to develop a common data fabric and comm system	1	2024	4	2024
Develop application programming interfaces to integrate the sharing of data, algorithms, and Machine learning tools;	1	2025	4	2025
Prototype Joint Service Data Fabrics, Prototype Autonomous Operations for Army Platforms, Prototype Platform Hybrid Power Systems	1	2025	4	2025
Aviation Lightweight Armor	1	2025	4	2026
Design Integrated Armor Kit	1	2025	4	2025
Produce and Demonstrate Prototype Armor Kit	1	2026	3	2026
Ballistic Testing	3	2026	4	2026
Electro-Magnetic Battlespace Shaping and Protection (EM-BSP)	1	2025	4	2027
Mature and Prototype RF Smoke Material & Payload for Experimentation	1	2025	4	2025
RF Smoke Effects Model	1	2025	3	2026
Prototype Electronic Warfare Planning and Management Tool (EWPMPT), Advanced Field Artillery Tactical Data System (AFATDS, Fire Control	3	2025	2	2027
Prototype Guided Multiple Launch Rocket System (GMLRS) w/RF Smoke Payload	3	2025	2	2027
EM-BSP System of Systems TRL 7 Capability	3	2026	4	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Combination Soldier and Logistics Aerial Insertion (Combodrop)	1	2025	4	2026
AMP and PARANAVSYS Development and Integration	1	2025	1	2026
PARANAVSYS Jump Evaluation / Soldier Touch Point	3	2025	3	2025
JPADS Communications Development and Integration	1	2026	2	2026
JPADS Communications HWIL Demonstration	2	2026	2	2026
Combodrop Test and Evaluation	2	2026	4	2026
Combodrop Concept Demonstration	4	2026	4	2026
Containerized Weapon System - Counter UAS	1	2025	4	2026
Fire Control Optimization	1	2025	3	2025
Target Illumination Verification System (TIVS) Integration	1	2025	3	2025
Fire Control Demonstration	3	2025	3	2025
APKWS Proximity Fuse Verification	1	2025	2	2026
Ignition System Safety Review Board Full Release of Proximity Use	2	2026	2	2026
Live Fire again Group 3 UAS	2	2026	2	2026
ATEC Safety Confirmation & Milestone C Decision	3	2026	3	2026
Expeditionary Field Artillery Sensor (ExFAS)	1	2025	4	2028
System Design	1	2025	4	2026
System Build	1	2026	4	2027
Testing and Qualification	1	2027	4	2028
Live Fire Demonstration	4	2028	4	2028
Iron Sense	1	2025	4	2027
Assess Current Capability	1	2025	3	2025
Fabricate Prototype Version One	3	2025	4	2026
User Evaluation 1	4	2026	4	2026
Optimize Prototype Design Functionality	1	2027	1	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX3 / <i>Technology Maturation Initiatives</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Fabricate Prototype Version Two	1	2027	3	2027
User Evaluation 2	4	2027	4	2027
Transition to TENCAP	4	2027	4	2027
Critical Common Electronics for Scalable Unmanned Aircraft Systems	1	2025	4	2027
Assessment of common commercial propulsion components	1	2025	3	2025
Assessment of advancements for on platform communications systems	1	2025	3	2025
Assessment of advancements for on platform navigation	1	2025	3	2025
Assessment of advancements for on platform system processing	1	2025	3	2025
Prototype propulsion, communication, navigation, and system processing components	2	2025	1	2026
Evaluate component performance and interoperability	4	2025	2	2026
Prototype advanced systems Common Electronics for Unmanned Aircraft Systems of Army tactical platforms	2	2026	2	2027
Evaluation of advanced systems for Common Electronics for Unmanned Aircraft Systems	2	2027	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX8 / <i>Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)</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>AX8: Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)</i>	-	22.552	-	-	-	-	-	-	-	-	0.000	22.552
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Under the Advanced Targeting and Lethality Automated System (ATLAS) effort, this Project matures and integrates advanced Artificial Intelligence/Machine Learning (AI/ML) algorithms to enable aided target detection/recognition capability for NGCV using next generation, multi-spectral electro-optical and infrared (EO/IR) targeting sensors. AI/ML algorithms are integrated with real-time intelligent fire control and mission planning interfaces to demonstrate automated turret capabilities, and provide overmatch via reduced target acquisition and engagement timelines.

Work in this Project is related to and fully integrated with the efforts funded in PE 0603462A (Next Generation Combat Vehicle Advanced Technology) / Project BF5 (Adv Lethality & Accuracy Sys for Med Cal Adv Tech); and Project BG1 (Sensors for Auto Oper and Survivability Adv Tech).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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

	FY 2023	FY 2024	FY 2025
Title: Advanced Targeting and Lethality Automated System (ATLAS)	22.552	-	-
Description: The ATLAS effort matures, integrates, and demonstrates novel algorithms and sensor enhancements for Next Generation Combat Vehicle (NGCV) manned or unmanned vehicle platforms. It integrates autonomous, wide-area search sensors and gimballed targeting sensors with real-time computer aided detection, recognition, and identification of threats for significantly decreased time to engagement. It integrates target acquisition with intelligent fire control systems to demonstrate an end-to-end engagement system on NGCV platforms, and enable experimentation and soldier touch-points for manned, unmanned, or optionally manned platforms.			
Accomplishments/Planned Programs Subtotals	22.552	-	-

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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX8 / <i>Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)</i>

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 0604115A / <i>Technology Maturation Initia</i> <i>tives</i>	Project (Number/Name) AX8 / <i>Adv Leth and Accuracy Sys for Med</i> <i>Calber (ALAS-MC)</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
Prototype for on move Target ID and evaluation - Soldier...	1																											
<i>User Experience</i>																												
3GEN FLIR B-Kit Evaluation and Design																												
Interface Control Document (ICD) and Algorithm Programmi...																												
Field Data Collections for Algorithm Training																												
Tethered Processing Definition and Integration																												
3GEN FLIR B-Kit algorithm integration and testing																												
<i>Test & Evaluation</i>																												
Vehicle Integration and Demonstration Events (PC22, OTM,...																												
<i>Demonstration</i>																												

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX8 / <i>Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ATLAS	1	2020	4	2022
Optimize ATLAS Target Acquisition algorithm suite for on the move	1	2022	4	2022
Fabricate ATLAS Prototype for on move Target ID and evaluation via Soldier Touch Point (PC22)	1	2022	4	2022
Prototype for on move Target ID and evaluation - Soldier Touch Point (PC22)	1	2023	1	2023
3GEN FLIR B-Kit Evaluation and Design	1	2022	2	2023
Interface Control Document (ICD) and Algorithm Programming Interface (API) Devel	1	2022	2	2023
Field Data Collections for Algorithm Training	1	2022	3	2023
Tethered Processing Definition and Integration	1	2022	2	2023
3GEN FLIR B-Kit algorithm integration and testing	2	2023	4	2023
Vehicle Integration and Demonstration Events (PC22, OTM, etc)	1	2022	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 0604115A / <i>Technology Maturation Initiatives</i>				Project (Number/Name) AX9 / <i>Adv Mobility Experimental Prototype Adv Tech</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>AX9: Adv Mobility Experimental Prototype Adv Tech</i>	-	14.678	-	-	-	-	-	-	-	-	0.000	14.678
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project integrates and demonstrates advanced powertrain, power generation, and running gear technologies into a prototype ground combat vehicle. Advanced Mobility Experimental Prototype (AMEP) activities will demonstrate increased mobility, increased maneuver speeds, reduced fuel demands, and onboard power generation available for advanced lethality and protection technologies. The experimental prototype will be evaluated in realistic operating environment to validate performance and capability enhancements to inform ground combat vehicle programs of record.

This work is coordinated with PE 0603462A (Next Generation Combat Vehicle Advanced Technology) / BG4 (Adv Mobility Experimental Prototype Adv Tech Demo).

The cited work is consistent with the Under Secretary of Defense, Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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

	FY 2023	FY 2024	FY 2025
Title: Advanced Mobility Experimental Prototype	14.678	-	-
Description: Efforts integrate advanced powertrain and onboard electrical power generation into a ground combat vehicle to demonstrate reduced percentage of no-go terrain, increased acceleration and maneuver speeds across all traversable terrain, increased electrical payload capabilities and, reduced fuel consumption. These technologies improve operational capabilities by extending time between resupply, improving operational range and tactical maneuver options and, increase onboard electrical power generation for electrical subsystems and payloads. This effort provides advanced powertrain technology mitigating performance and maneuver limitations imposed by legacy powertrains, providing drive-by-wire engine, transmission, generator and thermal management systems enabling multi-domain operational maneuver capabilities for current and future ground combat vehicles. Effort will integrate, mature, and demonstrate an automated main gun and ammunition handling system to reduce time to engage, increase speed of battle, and increase platform lethality.			
Accomplishments/Planned Programs Subtotals	14.678	-	-

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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX9 / <i>Adv Mobility Experimental Prototype Adv Tech</i>

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

Remarks

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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX9 / <i>Adv Mobility Experimental Prototype Adv Tech</i>
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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	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Fabricate Powertrain Technologies	C/Various	GVSC : Warren, MI	3.409	1.093		-		-		-		-		-	0.000	4.502	-
Capability Demonstration	TBD	GVSC : Warren, MI	2.380	3.469		-		-		-		-		-	5.000	10.849	-
Turret Enhancements	TBD	GVSC : Warren, MI	7.226	10.116		-		-		-		-		-	0.000	17.342	-
Subtotal			13.015	14.678		-		-		-		-		-	5.000	32.693	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	13.015	14.678	-	-	-	-	5.000	32.693	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX9 / <i>Adv Mobility Experimental Prototype Adv Tech</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								
Powertrain																																				
Perform Design, Fab, & Int. of 1000 hp Powertrain, Elect...																																				
Perform Fine tuning, Controls development, upgrades Phas...																																				
Demonstrate Technologies (YPG) Phase 3 vehicle																																				
Data Analysis and Final Report																																				
Large Caliber Armament System (LCAS)																																				
LCAS – Armament Automation Integration																																				
LCAS – Autoloader Integration																																				
LCAS – Fire Control Integration																																				
LCAS - Turret Integration																																				
LCAS - Integration Demonstration					 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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AX9 / <i>Adv Mobility Experimental Prototype Adv Tech</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Powertrain	1	2020	4	2023
Perform Design, Fab, & Int. of 1000 hp Powertrain, Electrical Power Phase 3	1	2021	3	2023
Demonstrate Technologies (Camp Grayling) Phase 3 vehicle	3	2022	4	2022
Perform Fine tuning, Controls development, upgrades Phase 3 vehicle	4	2022	2	2023
Demonstrate Technologies (YPG) Phase 3 vehicle	3	2023	4	2023
Data Analysis and Final Report	4	2022	4	2023
Large Caliber Armament System (LCAS)	1	2023	4	2023
LCAS - Large Caliber Armament System (LCAS) TMI System Level Design	2	2021	3	2022
LCAS - Armament Automation Integration	2	2021	3	2023
LCAS - Autoloader Integration	2	2021	2	2023
LCAS - Fire Control Integration	2	2021	2	2023
LCAS - Turret Integration	2	2022	4	2023
LCAS - Integration Demonstration	4	2023	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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AY2 / <i>Army Operational Fires</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
AY2: <i>Army Operational Fires</i>	-	10.647	-	-	-	-	-	-	-	-	0.000	10.647
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project matures and demonstrates a ground-launched, treaty-compliant weapon system capable of destroying critical relocatable, time critical targets in contested Anti-Access/Area Denial (A2/AD) environments. Activities include system-level prototyping to extend the range of Army fires well beyond 499km to complement other fires developments.

Army senior leadership approves Technology Maturation Initiative projects prior to budget year programming based on priority and opportunity, ensuring that demonstrations have a high potential for filling capability gaps and transitioning.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project complements PE 0604182A (Hypersonics).

Work in this Project is performed by the Rapid Capabilities and Critical Technologies Office (RCCTO).

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

	FY 2023	FY 2024	FY 2025
Title: Army Operational Fires	10.647	-	-
Description: This Project matures and demonstrates a ground-launched, treaty-compliant weapon system capable of destroying critical relocatable, time critical targets in contested Anti-Access/Area Denial (A2/AD) environments. Activities include system-level prototyping to extend the range of Army fires well beyond 499km to complement other fires developments.			
Accomplishments/Planned Programs Subtotals	10.647	-	-

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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AY2 / <i>Army Operational Fires</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
Rapic Trajectory Generator (RTG) Maturation	█																											
Tech Maturation for Performance Improvement	█																											
Ground Spt Equipment Tech Maturation	█																											

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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 0604115A / <i>Technology Maturation Initiatives</i>	Project (Number/Name) AY2 / <i>Army Operational Fires</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AUR HWIL Prototype Tech Maturation	3	2020	2	2022
Short Hot Launch Test Development	4	2020	3	2022
Missile Booster Thermal Protection Manufacturing Tech Maturation	1	2021	4	2022
Rapic Trajectory Generator (RTG) Maturation	4	2020	2	2023
SHOTL Test Series	1	2022	4	2022
RTG Demonstration	2	2022	2	2022
Tech Maturation for Performance Improvement	1	2022	3	2023
Ground Spt Equipment Tech Maturation	1	2022	4	2023
GSE Tech Maturation Demonstration #1	3	2022	3	2022

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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	269.186	281.239	315.772	-	315.772	245.380	347.669	406.934	270.679	Continuing	Continuing
CR9: <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>	-	192.268	110.625	88.480	-	88.480	77.210	146.522	221.795	243.267	Continuing	Continuing
CS1: <i>M-SHORAD Inc 3</i>	-	66.933	160.426	204.880	-	204.880	152.905	190.918	174.796	16.966	Continuing	Continuing
FI4: <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	-	9.985	10.188	22.412	-	22.412	15.265	10.229	10.343	10.446	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

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

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

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

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

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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 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>
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require the Inc. 1 air defense identification and defeat capabilities to counter FW, RW, and UAS threats. FY 2025 funding in the amount of \$22.412 million supports Inc. 1 System Initial Operational Test (IOT), Product Improvement Tasks, and includes support for Program Management, Test and Evaluation, and Engineering Technical Support.

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

Change Summary Explanation

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

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>				Project (Number/Name) CR9 / <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CR9: <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>	-	192.268	110.625	88.480	-	88.480	77.210	146.522	221.795	243.267	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

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

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

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

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

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

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

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

N/A

Remarks

D. Acquisition Strategy

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

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CR9 / Directed Energy M-SHORAD / M-SHORAD Inc 2
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Management	Various	Various : Huntsville, AL	-	14.752	Dec 2022	11.014	Dec 2023	7.311	Dec 2024	-		7.311	Continuing	Continuing	-
AMP-HEL Product Management	Various	Various : Various	-	1.057	Jun 2023	-		-		-		-	0.000	1.057	-
Subtotal			-	15.809		11.014		7.311		-		7.311	Continuing	Continuing	N/A

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

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DE M-SHORAD Systems Development, Prototypes and Integration Inc. 2	C/CPFF	Kord Technologies : Huntsville, AL	-	78.785	Apr 2023	55.434	Dec 2023	20.417	Dec 2024	-		20.417	Continuing	Continuing	-
DE M-SHORAD Software Support	MIPR	various : various	-	1.355	Oct 2022	-		2.942	Dec 2024	-		2.942	Continuing	Continuing	-
DE M-SHORAD GFE	MIPR	PM Stryker : Warren, MI	-	6.755	Apr 2023	-		-		-		-	0.000	6.755	-
AMP-HEL Development Contract	C/CPFF	RCCTO OTA : Redstone Arsenal, AL	-	51.404	Mar 2023	-		-		-		-	0.000	51.404	-
PEO CS&CSS to procure (4) Govt ISVs	MIPR	PEO CS&CSS : Warren, MI	-	3.052	May 2023	-		-		-		-	0.000	3.052	-
Subtotal			-	141.351		55.434		23.359		-		23.359	Continuing	Continuing	N/A

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

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

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

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

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost 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
DE M-SHORAD Developmental Test / Demonstration and Evaluation	MIPR	Various : Various	-	-		14.490	Jan 2024	-		-		-	Continuing	Continuing	-
DE M-SHORAD Acceptance Testing	MIPR	Various : Various	-	-		-		9.315	Jan 2025	-		9.315	0.000	9.315	-
PEO Developmental Testing/User Assessment	MIPR	PEO M&S : Huntsville, AL	-	10.977	Feb 2023	-		-		-		-	0.000	10.977	-
AMP-HEL Testing	MIPR	Various : Various	-	2.000	Jun 2023	-		-		-		-	0.000	2.000	-
Subtotal			-	12.977		14.490		9.315		-		9.315	Continuing	Continuing	N/A

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army								Date: March 2024					
Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>				Project (Number/Name) CR9 / <i>Directed Energy M-SHORAD / M-SHORAD Inc 2</i>					
	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	-	192.268		110.625		88.480		-		88.480	Continuing	Continuing	N/A

Remarks

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

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
M-SHORAD Inc. 2 Other Transaction Agreement (OTA) Award ...			1 OTA Award																									
M-SHORAD Inc. 2 Prototyping (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 Contractor Logistics Support (CLS) (P1-6...																												
M-SHORAD Inc. 2 Development Testing (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 ATEC Operational Assessment OCONUS (P1-4...																												
M-SHORAD Inc. 2 Acceptance Testing (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 Prototype Deliveries (P5-6) (RCCTO)																												
M-SHORAD Inc. 2 DE Integrated Test Campaign (RCCTO/PEO MS)																												
M-SHORAD Inc. 2 Transition/Future Acquisition Activities...																												
M-SHORAD Inc. 2 Contractor Logistics Support (CLS) PEO M...																												

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

Schedule Details

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

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) CS1 / <i>M-SHORAD Inc 3</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CS1: <i>M-SHORAD Inc 3</i>	-	66.933	160.426	204.880	-	204.880	152.905	190.918	174.796	16.966	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

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

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

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

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

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CS1 / M-SHORAD Inc 3

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

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C26311: M-SHORAD INC 3 INTERCEPTORS	-	-	0.000	-	0.000	-	-	18.954	178.731	0.000	197.685

Remarks

D. Acquisition Strategy

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

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

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CS1 / M-SHORAD Inc 3
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Management Inc. 3	C/LH	Trident, Intuitive Research and others : Huntsville, AL	-	1.392	Mar 2023	2.888	Oct 2023	3.218	Oct 2024	-		3.218	Continuing	Continuing	-
Subtotal			-	1.392		2.888		3.218		-		3.218	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering & Technical Support	MIPR	Combat Capabilities Development Command : Redstone Arsenal, AL	-	5.368	Mar 2023	2.657	Oct 2023	3.909	Oct 2024	-		3.909	Continuing	Continuing	-
Systems Development and Integration	C/CPFF	Raytheon and Lockheed Martin : Tuscon, AZ and Grand Prarie, TX	-	52.768	Aug 2023	152.556	Dec 2023	189.823	Dec 2024	-		189.823	Continuing	Continuing	-
Integration of M-SHORAD Inc. 1 with NGSRI	SS/CPFF	General Dynamics : Warren, MI	-	-		-		0.450	Dec 2024	-		0.450	Continuing	Continuing	-
Integration of M-SHORAD Inc. 1 with 30mm MMPA	Various	Combat Capabilities Development Command Armaments Center and Northrop Grumman : Picatinny Arsenal, New Jersey and Mesa, Arizona	-	0.800	Sep 2023	-		0.150	Dec 2024	-		0.150	Continuing	Continuing	-
Subtotal			-	58.936		155.213		194.332		-		194.332	Continuing	Continuing	N/A

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) CS1 / M-SHORAD Inc 3
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technology Demonstration Support	MIPR	Army Test and Evaluation Center : Redstone Arsenal, Alabama	-	0.303	Aug 2023	0.750	Oct 2023	0.789	Jan 2025	-		0.789	Continuing	Continuing	-
Test Support	MIPR	Combat Capabilities Development Command : Redstone Arsenal, Alabama	-	-		1.325	Oct 2023	1.451	Jan 2025	-		1.451	Continuing	Continuing	-
Modeling and Simulation Development	MIPR	Combat Capabilities Development Command : Redstone Arsenal, AL	-	6.177	Aug 2023	0.250	Oct 2023	5.055	Dec 2024	-		5.055	Continuing	Continuing	-
Soldier Touch Points (STPs)	MIPR	DEVCOM Analysis Center (DAC) : Aberdeen Proving Ground, MD	-	0.125	Dec 2023	-		0.035	Jan 2025	-		0.035	Continuing	Continuing	-
Subtotal			-	6.605		2.325		7.330		-		7.330	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	66.933	160.426	204.880	-	204.880	Continuing	Continuing	N/A

Remarks

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

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

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

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

Schedule Details

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

Note

MTA-RP: Middle Tier of Acquisition - Rapid Prototyping

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

Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)				Project (Number/Name) F14 / Maneuver - Short Range Air Defense (M-SHORAD)			
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
FI4: Maneuver - Short Range Air Defense (M-SHORAD)	-	9.985	10.188	22.412	-	22.412	15.265	10.229	10.343	10.446	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

FY 2025 funding (FI4) in the amount of \$22.412 million supports Initial Operational Testing (IOT) and upgrades for the M-SHORAD Inc. 1 systems through individual materiel changes to address operational lessons-learned and other system performance improvements/enhancements providing capability overmatch against emerging threats.

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

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

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army	Date: March 2024
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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	Project (Number/Name) F14 / <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C14301: <i>Maneuver - Short Range Air Defense (M-SHORAD)</i>	246.867	400.697	69.091	-	69.091	42.676	-	-	-	Continuing	Continuing

Remarks

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

D. Acquisition Strategy

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

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

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

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

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

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / Maneuver - Short Range Air Defense (M-SHORAD)	Project (Number/Name) F14 I Maneuver - Short Range Air Defense (M-SHORAD)
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Management Inc. 1	Various	Trident, Intuitive Research and others : Huntsville, Alabama	7.290	1.071	Oct 2022	0.342	Oct 2023	0.953	Oct 2024	-		0.953	Continuing	Continuing	-
Subtotal			7.290	1.071		0.342		0.953		-		0.953	Continuing	Continuing	N/A

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

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Improvements - Inc. 1	SS/CPFF	GDLS : Sterling, MI	3.479	5.701	Oct 2022	5.150	Oct 2023	4.373	Oct 2024	-		4.373	Continuing	Continuing	-
Subtotal			3.479	5.701		5.150		4.373		-		4.373	Continuing	Continuing	N/A

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

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Testing Inc. 1	MIPR	Redstone Test Center (RTC) and White Sands Missile Range (WSMR) : Redstone, AL and WSMR, NM	12.573	0.457	Oct 2022	1.390	Oct 2023	-		-		-	0.000	14.420	-
Test Support Inc. 1	MIPR	RTC, WSMR, Target Management Office and others :	16.331	0.324	Oct 2022	1.390	Oct 2023	2.830	Oct 2024	-		2.830	0.000	20.875	-

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

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering and Technical Support / Emerging Threat Analysis																												
Capabilities Development Document (CDD) approval for additional systems above 144	▲ 1																											
Dual Stinger Vehicle Universal Launcher (SVUL) Developmental Testing (DT)					■ Dual SVUL DT																							
Operational Utility Assessment (OUA)									■ Operational Utility Assessment (OUA)																			
Developmental Testing (DT)																												
Initial Operational Test (IOT)													■ IOT															
AMD Survivability Development																												
MS C													▲ 2 Milestone C															

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

Schedule Details

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

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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 0604119A / Army Advanced Component Development & Prototyping
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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	198.111	204.914	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	403.025
BR2: Advanced Component Development & Prototyping	-	198.111	204.914	-	-	-	-	-	-	-	0.000	403.025

A. Mission Description and Budget Item Justification

The Advance Component Development & Prototype budget line includes multiple efforts across the Army's Battlefield Operational Systems necessary to evaluate integrated technologies in the most high fidelity and realistic operating environment as possible to assess the performance or cost reduction potential of advanced technology.

Projects focus on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Efforts also includes advanced technology demonstrations to expedite technology transition from the laboratory to operational use, with the goal of transitioning systems into the acquisition process within the FYDP.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	198.111	204.914	211.637	-	211.637
Current President's Budget	198.111	204.914	0.000	-	0.000
Total Adjustments	0.000	0.000	-211.637	-	-211.637
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-211.637	-	-211.637

Change Summary Explanation

Funding decrease due to budget line item restructure.

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</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	-	54.728	40.930	24.168	-	24.168	28.170	24.411	34.838	19.905	Continuing	Continuing
BV4: <i>Area Protection and Alt Nav Technology Development</i>	-	30.912	13.183	-	-	-	-	-	-	-	0.000	44.095
ED5: <i>Assured Positioning, Navigation and Timing (PNT)</i>	-	-	3.013	14.133	-	14.133	28.170	20.579	27.792	12.789	Continuing	Continuing
EH8: <i>DISMOUNTED</i>	-	10.038	10.896	10.035	-	10.035	-	3.832	7.046	7.116	Continuing	Continuing
EJ2: <i>MOUNTED</i>	-	13.778	13.838	-	-	-	-	-	-	-	0.000	27.616

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Assured Positioning, Navigation and Timing modernization priority.

The Assured Positioning, Navigation and Timing (APNT) provides Army ground maneuver forces access to assured PNT under conditions where Global Positioning Systems (GPS) may be limited or denied (jammed and spoofed) as per the National Defense Authorization Act guidance. APNT products are ruggedized tactical systems that enable Army forces the ability to shoot, move, communicate, thereby allowing forces to maneuver from operational and strategic distances to close with, destroy, and exploit the enemy with sufficient combat power, tempo, and momentum. APNT addresses two critical capability gaps: Access and Integrity. Access is the ability to retrieve accurate PNT information in a contested Electronic Warfare/Cyber environment. Integrity is the ability to trust the PNT information. PNT is a critical enabler of many Army Maneuver, Fires, and Command and Control systems that are dependent on accurate Position and Timing, and a foundational Multi-Domain Battle capability to support: calibrated force posture (position and maneuver across strategic distances); multi-domain formations (operate in contested spaces against near-peer adversaries); convergence (continuous integration of capabilities in all domains).

Approved Requirements: The Army Requirements Oversight Council (AROC) approved the Alternative Navigation (ALTNV) Abbreviated Capabilities Development Document (A-CDD) in October 2022. The Joint Requirements Oversight Council (JROC) approved the Dismounted APNT System (DAPS) Capabilities Development Document (CDD) on 28 January 2022. The Army Requirements Oversight Council (AROC) approved the Mounted APNT System (MAPS) CDD on 12 September 2020. MAPS and DAPS are implementing Congressional and OSD guidance to develop and field Military Code (M-Code) Global Positioning System (GPS) Ground user Equipment. The AROC approved the Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) Mounted Form Factor (CMFF) Abbreviated Capabilities Development Document (A-CDD) on 04 January 2021. In support of House Report 116-442, 2020, the program will prototype modular cards and software according to the Modular Open System Approach (MOSA) standards, for future modernization and new weapons systems. On 31 January, 19 March, and 10 August 2019, the MAPS, DAPS, ALTNV Directed Requirements were approved, respectively. Joint Requirements Oversight Council Memo (JROCM) 049-10, dated 05 April 2010, approved the PNT Assurance Initial Capabilities Document and designated the Army as the Lead Component for Assured PNT.

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>
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(BV4) - The Area Protection and Alternative Navigation project line currently funds the Alternative Navigation (ALTNAV) Enterprise. The ALTNAV Enterprise is a global navigation solution providing warfighters with an alternative source of positioning and timing information. In accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611), ALTNAV Enterprise is a complementary capability to Global Positioning System and may be used as contingency in the PNT PACE (Primary, Alternative, Contingency, Emergency) Plan that facilitates continued operations as GPS is degraded or denied. ALTNAV Enterprise consists of: (1) Space Segment, (2) Ground Control Segment, (3) User Equipment and Software.

(ED5) - The Assured Positioning Navigation Timing project develops a Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) APNT Card and a Modular Open Systems Approach (MOSA) APNT modernization efforts which enables the transition of incremental and disruptive technologies to fieldable PNT solutions to pace or overmatch current and evolving threats in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611).

(EH8) - The Dismounted APNT System (DAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable M-Code Global Positioning System (GPS) capable Ground User Equipment (MGUE) receivers and Alternative Navigation (ALTNAV). The DAPS will provide Soldiers Assured PNT (APNT) information utilizing various sources of PNT data to address multiple threats and ensure mission success where Global Positioning System (GPS) may be limited or denied. DAPS will deliver APNT in an optimized form factor that supports mission profiles in denied environments.

(EJ2) - The Mounted APNT System (MAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable M-Code GPS capable MGUE receivers and Alternative Navigation (ALTNAV). The MAPS will deliver systems that provide the Army's combat forces access to assured PNT information under conditions where space-based GPS may be limited or denied to enable Army forces the ability to move, shoot, communicate, and provide situational awareness.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	57.620	40.930	48.356	-	48.356
Current President's Budget	54.728	40.930	24.168	-	24.168
Total Adjustments	-2.892	0.000	-24.188	-	-24.188
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.300	-			
• SBIR/STTR Transfer	-1.592	-			
• Adjustments to Budget Years	-	-	-24.188	-	-24.188

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: BV4: *Area Protection and Alt Nav Technology Development*
 Congressional Add: *Alt Nav*

	FY 2023	FY 2024
Congressional Add Subtotals for Project: BV4	14.000	-
Congressional Add Totals for all Projects	14.000	-

Change Summary Explanation

The \$24.188 Million budget reduction is a result of realignment from Mounted (EJ2) and ALTNAV (BV4) RDTE budgets to ALTNAV (SSN K49041) OPA to support ALTNAV fielding.

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>				Project (Number/Name) BV4 / <i>Area Protection and Alt Nav Technology 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
<i>BV4: Area Protection and Alt Nav Technology Development</i>	-	30.912	13.183	-	-	-	-	-	-	-	0.000	44.095
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

There are no Base funds for project Area Protection and Alt Nav Technology Development (BV4) in Fiscal Year (FY) 2025. The ALTNAV Enterprise will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49041) to support ALTNAV fielding.

A. Mission Description and Budget Item Justification

Alternative Navigation (ALTNAV) Enterprise is a global navigation solution providing warfighters with an alternative source of positioning and timing information. ALTNAV Enterprise is a complementary capability to Global Positioning System and may be used as contingency in the PNT PACE (Primary, Alternative, Contingency, Emergency) Plan that facilitates continued operations as GPS is degraded or denied in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611). ALTNAV Enterprise consists of: (1) Space Segment, (2) Ground Control Segment, (3) User Equipment and Software.

The Area Protection and Alt Nav Technology Development project supports the ALTNAV capability and complementary PNT technologies. ALTNAV provides radio frequency (RF) and source diversity that enables Army users access to accurate and assured position and time information in GPS denied environments. ALTNAV Abbreviated Capabilities Development Document (A-CDD) was Army Requirements Oversight Council (AROC) Approved, October 2022.

There are no Base funds for project Area Protection and Alt Nav Technology Development (BV4) in Fiscal Year (FY) 2025. The ALTNAV Enterprise will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49041) to support ALTNAV fielding.

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

	FY 2023	FY 2024	FY 2025
Title: Area Protection & Alt Nav Technology Development	16.912	13.183	-
Description: This effort supports Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS), PNT software frameworks and Alternative Navigation (ALTNAV) PNT capabilities.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base funds in the amount of \$13.183 million completes Alternative Navigation (ALTNAV) Ground Control Segment Development and Performance Verification Testing.			
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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funding decreased from \$13.183 Million in Fiscal Year (FY) 2024 to \$0.000 Million in Fiscal Year (FY) 2025. There are no Base funds for project Area Protection and Alt Nav Technology Development (BV4) in Fiscal Year (FY) 2025. Effort ends in Fiscal Year (FY) 2024.			
Accomplishments/Planned Programs Subtotals	16.912	13.183	-

	FY 2023	FY 2024
Congressional Add: Alt Nav	14.000	-
FY 2023 Accomplishments: Fiscal Year (FY) 2023 Congressional Add in the amount of \$14.000 million supports acceleration of the Alternative Navigation (ALTNAV) Enterprise Ground Control Segment Development and Testing.		
Congressional Adds Subtotals	14.000	-

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>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>
• K49020: Dismounted Hub	26.594	41.533	63.139	-	63.139	59.688	67.571	64.428	65.071	Continuing	Continuing
• K49030: Mounted Hub A-PNT	137.505	153.517	129.835	-	129.835	127.335	127.383	127.496	128.769	Continuing	Continuing
• K49041: ALTERNATE NAVIGATION (ALT NAV)	-	4.962	39.977	-	39.977	41.282	11.552	-	-	0.000	97.773
• OMA - 432126000: DCS Long Haul Communications	12.000	2.872	3.301	-	3.301	3.173	3.236	3.301	-	0.000	27.883

Remarks
 Linked to:
 K49020 / Dismounted Hub is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing
 K49030 / Mounted Hub A-PNT is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing
 K49041 / Alternative Navigation (ALTNAV) is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing
 DCS Long Haul Communications funds commercial satellite airtime for ALTNAV

D. Acquisition Strategy

The Alternative Navigation (ALTNAV) Ground Control Segment Capability will be implemented by utilizing a mix of competitive Other Transaction Authority (OTA)'s and Federal Acquisition Regulation contracts. This will provide incremental capability to use and inform future Mounted Assured Positioning, Navigation, and Timing System (MAPS) and Dismounted Assured Positioning, Navigation, and Timing System (DAPS) requirements.

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) BV4 / <i>Area Protection and Alt Nav Technology Development</i>

- Requirement documents include:
- ALTNAV Abbreviated Capabilities Development Document (A-CDD), Army Requirements Oversight Council (AROC) Approved, October 2022.
 - DAPS Capabilities Development Document (CDD), Joint Requirements Oversight Council (JROC) Approved, 28 January 2022.
 - MAPS Capabilities Development Document (CDD), Army Requirements Oversight Council (AROC) Approved, 12 September 2020.
 - Alternative Navigation (ALTNAV) DR, 10 August 2019.

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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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology 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			
Project Management Support	Various	Various : Various	1.622	1.181	Dec 2022	0.659	Dec 2023	-		-		-	0.000	3.462	-
Subtotal			1.622	1.181		0.659		-		-		-	0.000	3.462	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			
ALTNV Enterprise Ground Control Segment Development	Various	Various : Various	3.507	11.624	Oct 2023	6.022	Nov 2023	-		-		-	0.000	21.153	-
Modular Open System Approach (pntOS & CMOSS)	Various	Various : Various	18.616	10.965	Nov 2022	-		-		-		-	0.000	29.581	-
Subtotal			22.123	22.589		6.022		-		-		-	0.000	50.734	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			
Engineering and Technical Services - Government	IA	C5ISR : Various	0.532	0.307	Nov 2022	0.322	Nov 2023	-		-		-	0.000	1.161	-
Engineering and Technical Services - Contractor	Various	DCS Corporation / MITRE / QED Corporation : APG, MD	6.273	3.171	Feb 2023	2.398	Dec 2023	-		-		-	0.000	11.842	-
Subtotal			6.805	3.478		2.720		-		-		-	0.000	13.003	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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology 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			
Test and Evaluation support	IA	Various : Various	3.401	3.664	Nov 2022	0.543	Nov 2023	-		-		-	0.000	7.608	-
ALTNAV Performance Verification Testing	Various	Various : Various	-	-		2.590	Feb 2024	-		-		-	0.000	2.590	-
ALTNAV Cyber Vulnerability	Various	Various : Various	-	-		0.649	Dec 2023	-		-		-	0.000	0.649	-
Subtotal			3.401	3.664		3.782		-		-		-	0.000	10.847	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			33.951	30.912	13.183	-	-	-	0.000	78.046	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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology 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
ALTNAV Enterprise Ground Control Segment (GCS) Dev	[Redacted]				[Redacted]																							
ALTNAV Enterprise Ground Control Development	[Redacted]				[Redacted]																							
ALTNAV Performance Verification Testing	[Redacted]				[Redacted]																							
ALTNAV Performance Verification Testing	[Redacted]				[Redacted]																							
ALTNAV Program Initiation	[Redacted]				[Redacted]																							
ALTNAV Program Initiation	[Redacted]				[Redacted]																							
ALTNAV Enterprise GCS Installation & Fielding (OPA Funded)	[Redacted]				[Redacted]																							
ALTNAV Enterprise GCS Installation & Fielding	[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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) BV4 / <i>Area Protection and Alt Nav Technology Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ALTNAV Enterprise Ground Control Segment (GCS) Dev	2	2019	3	2024
ALTNAV Performance Verification Testing	1	2024	2	2024
ALTNAV Program Initiation	2	2024	2	2024
ALTNAV Enterprise GCS Installation & Fielding (OPA Funded)	4	2024	2	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 0604120A / Assured Positioning, Navigation and Timing (PNT)				Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)			
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
ED5: Assured Positioning, Navigation and Timing (PNT)	-	-	3.013	14.133	-	14.133	28.170	20.579	27.792	12.789	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Assured Positioning, Navigation and Timing (APNT) project funds the development of Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) APNT Card and APNT modernization efforts. This enables the Science & Technology transitions of incremental and disruptive technologies to fieldable Positioning, Navigation and Timing (PNT) solutions to pace or overmatch current and evolving threats and in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611).

The CMOSS APNT Card provides the APNT solutions required by the CMOSS Mounted Form Factor (CMFF) Abbreviated Capability Development Document and distributes APNT data to payloads within the CMFF chassis and external systems as needed. It is designed to provide PNT in satellite denied or degraded environments ensuring mission accomplishments. The CMFF APNT card provides trusted PNT by utilizing multiple PNT sources and leveraging multiple open architectures. The CMOSS APNT Card prototyping and software development will be conducted in accordance with modular open systems approach (Reference House Report 116-442, 2020). The CMOSS APNT Card complies with the PNT Reference Architecture and MOSA compliant hardware; CMOSS and software frameworks (PNT Operating System (pntOS)), to ensure a plug and play capability.

APNT Modernization development will address the next generation of PNT solutions for clients and vehicular platforms. It will fully implement a Modular Open Systems Approach (MOSA), incorporate Military GPS User Equipment (MGUE) Increment 2, and improve complementary PNT capability that provides accurate positioning and timing in the absence of GPS for extended missions.

Fiscal Year (FY) 2025 Base funds in the amount of \$14.133 million continues the development of the CMOSS APNT Card and supports APNT modernization efforts.

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

	FY 2023	FY 2024	FY 2025
Title: CMOSS - PNT Modular Card	-	3.013	4.008
Description: CMOSS APNT Card development.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base funds in the amount of \$3.013 Million support Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) PNT Modular Card Development.			
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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Fiscal Year (FY) 2025 Base funds in the amount of \$4.008 Million completes CMOSS APNT Block 1 Card development and initiates Block 1 Integration and Block 2 Development and Testing.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased from \$3.103 Million in FY 2024 to \$4.008 Million in FY 2025 for continued development.			
Title: APNT Modernization	-	-	10.125
Description: Development will address the next generation of PNT solutions for clients and vehicular platforms, full Modular Open Systems Approach (MOSA), incorporate Military GPS User Equipment (MGUE) Increment 2, and improve complementary PNT capability.			
FY 2025 Plans: Fiscal Year (FY) 2025 Base funds in the amount of \$10.125 million initiates prototype hardware/software development and test.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased from \$0 Million in FY 2024 to \$10.125 Million in FY 2025. This increase supports Technology Maturation & Risk Reduction efforts to conduct advanced component development activities with emphasis on proving component and subsystem maturity.			
Accomplishments/Planned Programs Subtotals	-	3.013	14.133

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>
• AW6: Modular GPS Independent Sensors Advanced Tech	10.131	12.343	11.282	-	11.282	5.010	5.940	10.300	6.829	0.000	61.835
• AV8: Navigation Warfare (NAVWAR) Advanced Technology	1.949	6.029	3.988	-	3.988	6.036	5.352	10.955	15.494	0.000	49.803
• K49020: Dismounted Hub	26.594	41.533	63.139	-	63.139	59.688	67.571	64.428	65.071	Continuing	Continuing
• K49030: Mounted Hub A-PNT	137.505	153.517	129.835	-	129.835	127.335	127.383	127.496	128.769	Continuing	Continuing

Remarks
0603463A AW6 Modular GPS Independent Sensors Advanced Tech and AV8 Navigation Warfare (NAVWAR) Advanced Technology will transition Science & Technology (S&T) work for modular open systems approach (MOSA) compliance to Assured Positioning, Navigation and Timing.

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) ED5 / <i>Assured Positioning, Navigation and Timing (PNT)</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>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>
0604120A ED5 Assured Positioning, Navigation and Timing will transition PNT Modernization/complementary PNT capabilities to the Mounted Hub A-PNT and Dismounted Hub programs.											

D. Acquisition Strategy

The Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) APNT Card and APNT modernization efforts will utilize a mix of competitive Other Transaction Authority (OTA)'s and Federal Acquisition Regulation contracts in order to effectively prototype cards for integration into the CMOSS Mounted Form Factor system and to develop and test for APNT Modernization efforts. Both strategies will encompass prototype development, engineering trade-offs and soldier touch points to achieve the best balance of capability and cost.

The acquisition strategy for CMOSS APNT Card emphasizes using open standards and architecture to make it simpler and more cost-effective to upgrade capabilities and keep pace with commercial technology by eliminating complex integration challenges, lack of competition, and proprietary interfaces.

The acquisition strategy for APNT modernization efforts is being informed by Industry Market Research. Pending market research results, anticipating a multi-vendor Technology Maturation & Risk Reduction phase to conduct advanced component development activities with emphasis on proving component and subsystem maturity prior to integration with client systems and vehicle platforms. This will be followed by a down select to a single vendor Engineering and Manufacturing phase for final development and test.

Requirement documents include:

- DAPS Capabilities Development Document (CDD), Joint Requirements Oversight Council (JROC) Approved, 28 January 2022.
- Abbreviated Capabilities Development Document (A-CDD) for the CMOSS Mounted Form Factor, Army Requirements Oversight Council (AROC) approved on 4 January 2021.
- MAPS CDD, Army Requirements Oversight Council (AROC) approved on 12 September 2020.

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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 0604120A / Assured Positioning, Navigation and Timing (PNT)				ED5 / Assured Positioning, Navigation and Timing (PNT)							
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
Project Management Support	Various	Various : Various	5.843	-		0.331	Nov 2023	0.642	Nov 2024	-		0.642	0.000	6.816	Continuing
Subtotal			5.843	-		0.331		0.642		-		0.642	0.000	6.816	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
CMOSS APNT Card	Various	Various : Various	-	-		1.821	Nov 2023	1.266	Nov 2024	-		1.266	0.000	3.087	Continuing
APNT Modernization	Various	Various : Various	-	-		-		6.752	Nov 2024	-		6.752	0.000	6.752	Continuing
Subtotal			-	-		1.821		8.018		-		8.018	0.000	9.839	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 and Technical Contracting Services	C/FFP	Various : APG, MD	11.924	-		0.861	Nov 2023	3.705	Nov 2024	-		3.705	0.000	16.490	Continuing
Subtotal			11.924	-		0.861		3.705		-		3.705	0.000	16.490	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
Test and Evaluations	Various	Various : Various	-	-		-		1.768	Jan 2025	-		1.768	0.000	1.768	Continuing
Subtotal			-	-		-		1.768		-		1.768	0.000	1.768	N/A
Project Cost Totals			17.767	-		3.013		14.133		-		14.133	0.000	34.913	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 0604120A / Assured Positioning, Navigation and Timing (PNT)			Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)				
	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
Increase in cost categories consistent with overall increased funding.

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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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)

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
CMOSS APNT Card Development (Block 1)	[Blue bar: FY 2023 Q1-Q4, FY 2024 Q1-Q4, FY 2025 Q1-Q3]																											
	Block 1 PNT Card Development																											
CMOSS APNT Card Developmental Testing (Block 1)	[Blue bar: FY 2024 Q3, FY 2025 Q1-Q2]																											
	Block 1 PNT Card Testing																											
CMOSS APNT Card Integration (Block 1)	[Blue bar: FY 2025 Q1-Q4, FY 2026 Q1-Q2]																											
	Block 1 PNT Card Integration																											
CMOSS APNT Award Contract	[Blue triangle: FY 2025 Q1]																											
	Contract Award																											
CMOSS APNT Card Development (Block 2)	[Blue bar: FY 2025 Q1-Q4, FY 2026 Q1-Q2]																											
	Block 2 PNT Card Development																											
CMOSS APNT Card Developmental Testing (Block 2)	[Blue bar: FY 2026 Q1-Q4, FY 2027 Q1-Q2]																											
	Block 2 PNT Card Testing																											
CMOSS APNT Card Integration (Block 2)	[Blue bar: FY 2027 Q1-Q4, FY 2028 Q1-Q4]																											
	Block 2 PNT Card Integration																											
APNT Modernization Release Request for Proposal (RFP)	[Blue triangle: FY 2024 Q1]																											
	Release RFP																											
APNT Modernization Award Contract	[Blue triangle: FY 2025 Q1]																											
	Contract Award																											
APNT Modernization Prototype Delivery	[Blue triangle: FY 2026 Q1]																											
	Deliver Prototype																											
APNT Modernization Test & Evaluation of Prototype	[Blue square: FY 2026 Q2]																											
	Test & Evaluation																											
APNT Modernization Contract Award/Technology Maturation ...	[Blue bar: FY 2025 Q1-Q4, FY 2026 Q1-Q4, FY 2027 Q1-Q4]																											
	APNT Modernization TMRR																											
APNT Modernization Engineering Manufacturing Development	[Blue bar: FY 2028 Q1-Q4, FY 2029 Q1-Q4]																											
	APNT Modernization EMD																											

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) ED5 / <i>Assured Positioning, Navigation and Timing (PNT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CMOSS APNT Card Development (Block 1)	1	2022	1	2026
CMOSS APNT Card Developmental Testing (Block 1)	4	2023	2	2025
CMOSS APNT Card Integration (Block 1)	4	2024	1	2027
CMOSS APNT Award Contract	1	2025	1	2025
CMOSS APNT Card Development (Block 2)	1	2025	1	2027
CMOSS APNT Card Developmental Testing (Block 2)	4	2025	4	2027
CMOSS APNT Card Integration (Block 2)	1	2027	4	2029
APNT Modernization Release Request for Proposal (RFP)	4	2024	4	2024
APNT Modernization Award Contract	2	2025	2	2025
APNT Modernization Prototype Delivery	4	2025	4	2025
APNT Modernization Test & Evaluation of Prototype	4	2025	1	2026
APNT Modernization Contract Award/Technology Maturation & Risk Reduction	2	2025	4	2027
APNT Modernization Engineering Manufacturing Development	1	2028	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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH8 / DISMOUNTED
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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
EH8: <i>DISMOUNTED</i>	-	10.038	10.896	10.035	-	10.035	-	3.832	7.046	7.116	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Dismounted Assured PNT (APNT) System (DAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient, survivable, M-Code Global Positioning System (GPS) capable Ground User Equipment (MGUE) receivers and Alternative Navigation (ALTNV). The DAPS will provide Soldiers Assured PNT (APNT) information utilizing various sources of PNT data to address multiple threats and ensure mission success where Global Positioning System (GPS) may be limited or denied. DAPS will deliver APNT in an optimized form factor that supports dismounted mission profiles in denied environments.

- DAPS GEN I is delivering Assured PNT as Quick Reaction Capability (QRC) supporting United States Army Europe (USAREUR) and United States Army Pacific (USARPAC)
- DAPS GEN II is leveraging the QRC and lessons learned. Initial Operational Capability is planned for 2QFY25

Fiscal Year (FY) 2025 Base funds in the amount of \$10.035 million will support the completion of an Operational Assessment (OA) to determine the operation effectiveness and suitability for incorporating the integrated Anti-Jam (AJ) Antenna capability with the DAPS GEN II for future configurations (vehicular, maritime and aviation).

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

	FY 2023	FY 2024	FY 2025
Title: Dismounted APNT System (DAPS)	10.038	10.896	10.035
Description: This effort supports the DAPS hardware and software development, system engineering and client integration, development and operational testing, and program management efforts.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base funds in the amount of \$10.896 million will support the completion of Initial Operational Test and Evaluation (IOT&E) for DAPS GEN II, and development and testing to integrate an Anti-Jam (AJ) Antenna capability with the DAPS for future configurations (vehicular, maritime and aviation).			
FY 2025 Plans: Fiscal Year (FY) 2025 Base funds in the amount of \$10.035 million will support the completion of an Operational Assessment (OA) to determine the operation effectiveness and suitability for incorporating the integrated Anti-Jam (AJ) Antenna capability with the DAPS GEN II for future configurations (vehicular, maritime and aviation).			
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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 level of effort anticipated to remain stable. FY 2025 Base funds completes the Operational Assessment of the Anti-Jam (AJ) Antenna capability with the DAPS GEN II.			
Accomplishments/Planned Programs Subtotals	10.038	10.896	10.035

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
• K49020: <i>Dismounted Hub</i>	26.594	41.533	63.139	-	63.139	59.688	67.571	64.428	65.071	Continuing	Continuing

Remarks
K49020 / Dismounted Hub is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing.

D. Acquisition Strategy
The Dismounted Assured PNT (APNT) System (DAPS) acquisition strategy consists of an iterative development security operations (DevSecOps) methodology for the development, testing, production and fielding of a material solution that implements Congressional guidance for M-Code capability (10 USC 2281), Modular Open Systems Approach (Reference House Report 116-442, 2020), and the DAPS Capability Development Document (CDD) (signed 28 January 2022) performance requirements. The DAPS strategy leverages competitive Other Transaction Authority (OTA) agreements and Small Business Innovative Research (SBIR) contracts to assess industry capabilities, develop prototypes, and mature technology upgrades. Developmental test and operational assessment results informed a best value decision in November 2021 for the selected material solution for final engineering development, production and manufacturing readiness, and Limited User Test (LUT). LUT results informed a major capabilities acquisition program Milestone C decision March 2023. Following the successful Milestone C decision, a sole source, hybrid indefinite Delivery/Indefinite Quantity (ID/IQ) SBIR Phase III production contract was awarded in March 2023. The DAPS program conducted production qualification testing and an Initial Operational Test and Evaluation (IOT&E) in 1Q FY 2024 to support a Full Rate Production Decision in 3Q FY 2024.

Much like its predecessor the Defense Advanced Global Positioning System Receiver (DAGR), the DAPS must operate in a vehicular, maritime, and aviation environments. The DAPS offers design flexibility that may be leveraged as a multi-role device. Future roles for DAPS may include vehicular, maritime and aviation PNT capability provider. The DAPS program will evaluate and execute an engineering change proposal for integration of an Anti-Jam (AJ) Antenna capability.

DAPS requirement documents include:

DAPS GEN I Quick Reaction Capability (QRC): DAPS Directed Requirement (19 Mar 2019), Alternative Navigation Directed Requirement (10 August 2019), APNT Requirements Trace and Concurrence for DAPS with ALTNAV Handheld Devices memorandum (16 April 2020) and DAPS Directed Requirement Addendum (18 May 2021).

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>
DAPS GEN II Program of Record (POR): The Joint Requirements Oversight Council (JROC) approved the Dismounted APNT System (DAPS) Capabilities Development Document (CDD) on 28 January 2022.		

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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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH8 / DISMOUNTED
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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
Project Management Support	Various	Various : Various	0.579	0.324	Dec 2022	0.272	Dec 2023	0.278	Dec 2024	-		0.278	Continuing	Continuing	Continuing
Subtotal			0.579	0.324		0.272		0.278		-		0.278	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
DAPS Prototyping & Engineering Development, Production & Manufacturing Readiness	MIPR	Various : Various	14.955	1.501	Dec 2022	3.548	Dec 2023	4.783	Jan 2025	-		4.783	Continuing	Continuing	Continuing
Engineering and Technical Product Development	MIPR	C5ISR : APG, MD	1.883	1.197	Dec 2022	0.768	Dec 2023	0.783	Dec 2024	-		0.783	Continuing	Continuing	Continuing
Subtotal			16.838	2.698		4.316		5.566		-		5.566	Continuing	Continuing	N/A

Remarks
FY 2025 Product Development increased due to evaluation and execution of an engineering change proposal for integration of an Anti-Jam (AJ) Antenna capability.

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 and Technical Services - Government	Various	C5ISR : Various	0.530	0.327	Nov 2022	0.893	Nov 2023	0.911	Nov 2024	-		0.911	Continuing	Continuing	Continuing
Engineering and Technical Services - Contractor	C/CPFF	Various : Various	0.586	0.876	Dec 2022	0.699	Dec 2023	0.713	Dec 2024	-		0.713	Continuing	Continuing	Continuing
Subtotal			1.116	1.203		1.592		1.624		-		1.624	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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</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
QRC Production & Equipping	[Blue Bar]																											
	QRC Production & Equipping																											
Program of Record (POR) Engineering Development for Prod...	[Blue Bar]																											
	DAPS POR Engineering Development for Production																											
Developmental Test (POR)	[Blue Bar]																											
	DAPS Developmental Test																											
Limited User Test (LUT)	[Blue Bar]																											
	LUT																											
Milestone C Production Decision	▲ 1																											
	Milestone C Production Decision																											
Low Rate Initial Production (LRIP)	[Blue Bar]																											
	DAPS LRIP																											
Production Qualification Test (PQT)Initial Operational T...	[Blue Bar]																											
	DAPS PQT & IOT&E																											
Full Rate Production (FRP) Decision					▲ 2																							
					FRP																							
Initial Operational Capability (IOC)									▲ 4																			
									IOC																			
Production & Fielding									[Blue Bar]				[Blue Bar]				[Blue Bar]				[Blue Bar]							
									DAPS Production & Fielding				DAPS Production & Fielding				DAPS Production & Fielding				DAPS Production & Fielding							
DAPS Engineering Change Proposal Dev/ Test	[Blue Bar]																											
	DAPS ECP Dev/Test																											
DAPS Engineering Change Proposal Operational Assessment (OA)									▲ 3																			
									DAPS ECP OA																			

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
QRC Testing and Analyses	2	2021	1	2022
QRC Production & Equipping	3	2021	2	2023
Capability Development Document (CDD)	2	2022	2	2022
Program of Record (POR) Engineering Development for Production	1	2022	2	2023
Developmental Test (POR)	4	2022	1	2023
Limited User Test (LUT)	4	2022	1	2023
Milestone C Production Decision	2	2023	2	2023
Low Rate Initial Production (LRIP)	2	2023	2	2024
Production Qualification Test (PQT)Initial Operational Test & Evaluation (IOT&E)	4	2023	1	2024
Full Rate Production (FRP) Decision	3	2024	3	2024
Initial Operational Capability (IOC)	2	2025	2	2025
Production & Fielding	4	2024	4	2029
DAPS Engineering Change Proposal Dev/ Test	3	2023	4	2025
DAPS Engineering Change Proposal Operational Assessment (OA)	1	2025	1	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 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EJ2 / MOUNTED
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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
EJ2: MOUNTED	-	13.778	13.838	-	-	-	-	-	-	-	0.000	27.616
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY25, Program Element (PE) 0604120A project EJ2 has no funds. The Mounted program will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49030).

A. Mission Description and Budget Item Justification

The Mounted Assured Positioning, Navigation and Timing System (MAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable, M-Code Global Positioning System (GPS) capable Ground User Equipment (MGUE) receivers and Alternative Navigation (ALTNAV). The MAPS will deliver systems that provide the Army's combat forces access to assured PNT information under conditions where space-based GPS may be limited or denied to enable Army forces the ability to move, shoot, communicate, and provide situational awareness. MAPS addresses two critical capability gaps: Access and Integrity. Access is the ability to retrieve PNT information in a contested Electronic Warfare/Cyber environment. Integrity is the ability to trust the PNT information. PNT is a critical enabler of many Army Maneuver, Fire and Command and Control systems that are dependent on accurate Position and Timing. The MAPS will provide PNT when GPS is degraded or denied through military code (M-Code) GPS, Alternative Navigation (ALTNAV) signals, timing, sensor fusion, anti-jam antenna, and beam steering. This capability will deliver distributed assured PNT capabilities to Armored, Stryker and Infantry Brigade Combat Team (BCT) platforms in an iterative and affordable manner that allows for future modernization.

- MAPS GEN I is a Quick Reaction Capability (QRC) capability that concluded fielding in 1Q FY 2023 with 8 BCTs equipped.
- MAPS GEN II completed Milestone C in July 2022 and Initial Operating Capability (IOC) is planned for 4Q FY 2025.

In FY25, Program Element (PE) 0604120A project EJ2 has no funds. The Mounted program will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49030).

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

	FY 2023	FY 2024	FY 2025
Title: Mounted APNT System (MAPS)	13.778	13.838	-
Description: Funding supports MAPS hardware and software development, systems engineering, platform and client system integration, development and operational testing, and program management efforts.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base dollars in the amount of \$13.838 million supports completion of Initial Operational Test and Evaluation (IOT&E), MAPS system engineering, and management support. FY 2024 dollars will also support the development of component			

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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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
hardware and software elements of the modular open systems approach (MOSA) form factor that will inform future generations of MAPS systems.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY25 funding decreased to zero after completion of IOT&E efforts in FY24.			
Accomplishments/Planned Programs Subtotals	13.778	13.838	-

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>
• K49030: <i>Mounted Hub A-PNT</i>	137.505	153.517	129.835	-	129.835	127.335	127.383	127.496	128.769	Continuing	Continuing
• ED5: <i>Assured Positioning, Navigation and Timing (PNT)</i>	-	3.013	14.133	-	14.133	28.170	20.579	27.792	12.789	Continuing	Continuing

Remarks
 K49030 / Mounted Hub APNT is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing.
 0604120A ED5 Assured Positioning, Navigation and Timing will transition PNT Modernization/complementary PNT capabilities to the MAPS.

D. Acquisition Strategy
 The Mounted Assured Positioning, Navigation and Timing System (MAPS) acquisition strategy consists of an iterative development operations methodology for the development, testing, production and fielding of a material solution that implements Congressional guidance for M-Code capability (10 USC 2281), modular open systems approach (Reference House Report 116-442, 2020), and the MAPS Capability Development Document (approved 12 September 2020) performance requirements. The MAPS strategy leveraged competitive Other Transaction Authority (OTA) agreements to assess industry capabilities, develop prototypes, and mature technology upgrades. Developmental test and operational assessment results informed a best value decision in September 2020 of the selected material solution for final engineering development, production and manufacturing readiness, and Limited User Test (LUT). LUT results informed a major capabilities acquisition program Milestone C decision in July 2022. A follow-on hybrid fixed priced indefinite delivery indefinite quantity FAR production contract was awarded providing production test articles for Initial Operational Test and Evaluation (IOT&E) in 4Q FY 2023 to 2Q FY 2024 and demonstrate production ramp-up. The IOT&E will demonstrate capability for fielding to Stryker Brigade Combat Teams (BCTs) and the full rate production decision in 4Q FY 2024. FY 2025 follow on test and evaluation will demonstrate capability for remaining Armored Brigade Combat Teams (ABCT) key leader and key combat platforms.
 Acquisition of the hardware and software components for the Modular Open Systems Approach form factor will be performed using Broad Agency Announcements and OTAs to assess industry capabilities, develop prototypes, and mature technology upgrades.

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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 0604120A / Assured Positioning, Navigation and Timing (PNT)				EJ2 / MOUNTED							
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
Project Management Support	C/CPFF	Various : Various	3.267	0.759	Jan 2023	0.805	Jan 2024	-		-		-	0.000	4.831	-
Subtotal			3.267	0.759		0.805		-		-		-	0.000	4.831	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
Mounted PNT Integration - Combat Platforms	C/CPFF	Various : Various	37.050	2.932	Dec 2022	-		-		-		-	0.000	39.982	-
Mounted PNT Integration - Combat Services Support Platforms	Various	Various : Various	3.914	1.099	Feb 2023	-		-		-		-	0.000	5.013	-
Client Software Integration (Various)	MIPR	AvMC / S3I : Huntsville, AL	1.205	0.566	Mar 2023	-		-		-		-	0.000	1.771	-
MAPS MOSA component Hardware and Software development	Various	Various : Various	-	-		5.630	Jan 2024	-		-		-	0.000	5.630	-
Subtotal			42.169	4.597		5.630		-		-		-	0.000	52.396	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 and Technical Services - Government	Various	C5ISR : Various	2.850	0.960	Oct 2022	0.779	Nov 2023	-		-		-	0.000	4.589	-
Engineering and Technical Services - Contractor	C/CPFF	Various : Various	10.305	1.434	Dec 2022	0.933	Jan 2024	-		-		-	0.000	12.672	-
Subtotal			13.155	2.394		1.712		-		-		-	0.000	17.261	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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>
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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			
Initial Operational Test & Evaluation (IOT&E)	Various	Various : Various	-	6.028	Jan 2023	5.691	Nov 2023	-		-		-	0.000	11.719	-
Subtotal			-	6.028		5.691		-		-		-	0.000	11.719	N/A

Remarks
Due to complexity of the denied and degraded PNT environment required for operational testing, as well as troop availability, IOT&E will occur in two locations spanning two fiscal years.

	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	58.591	13.778	13.838	-	-	-	0.000	86.207	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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>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
Client and Platform Integration (RDT&E)	[Redacted]				[Redacted]																							
Client and Platform Integration (OPA)	[Redacted]				[Redacted]																							
MAPS MOSA Component Hardware & Software Development	[Redacted]				[Redacted]																							
LRIP / Full Rate Production (FRP) and Fielding (OPA)	[Redacted]				[Redacted]																							
Initial Operational Test & Evaluation	[Redacted]				[Redacted]																							
Full Rate Production Decision	[Redacted]				[Redacted]																							
Initial Operational Capability	[Redacted]				[Redacted]																							
Follow on Test and Evaluation	[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 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Client and Platform Integration (RDT&E)	3	2019	4	2023
Client and Platform Integration (OPA)	2	2022	4	2026
Mounted APNT Prototyping and Testing - Phase 1	1	2019	4	2019
Mounted APNT Prototyping and Testing - Phase 2	4	2019	4	2020
Operational Tech Demonstration	4	2020	4	2020
Direct Requirement Decision Selected Material Solution	4	2020	4	2020
Production Maturation - Phase 3	4	2020	4	2022
Development Test	3	2021	4	2022
Limited User Test	4	2021	4	2021
Milestone C Low Rate Initial Production (LRIP) Decision	4	2022	4	2022
MAPS MOSA Component Hardware & Software Development	1	2024	4	2024
Production Contract Award	4	2022	4	2022
LRIP / Full Rate Production (FRP) and Fielding (OPA)	4	2022	4	2028
Initial Operational Test & Evaluation	4	2023	2	2024
Full Rate Production Decision	4	2024	4	2024
Initial Operational Capability	4	2025	4	2025
Follow on Test and Evaluation	2	2025	2	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 0604121A / <i>Synthetic Training Environment Refinement & 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	-	236.396	109.714	136.029	-	136.029	87.618	129.817	135.115	138.267	0.000	972.956
CR2: <i>STE Information Systems (TSS, TMT)</i>	-	107.209	49.616	37.955	-	37.955	36.852	34.692	34.929	35.278	0.000	336.531
CR3: <i>STE Live</i>	-	66.396	23.839	34.115	-	34.115	18.016	83.248	84.312	85.154	0.000	395.080
CR4: <i>STE One World Terrain (OWT)</i>	-	1.336	13.192	11.350	-	11.350	7.049	7.234	7.454	7.529	0.000	55.144
CR5: <i>STE Reconfigurable Virtual Trainer (RVCT)</i>	-	19.970	15.282	7.434	-	7.434	6.070	4.643	8.420	10.306	0.000	72.125
CR6: <i>STE Squad Immersive Virtual Trainer (SiVT)</i>	-	36.130	-	18.889	-	18.889	-	-	-	-	0.000	55.019
CR7: <i>STE Soldier Virtual Trainer (SVT)</i>	-	5.355	7.785	26.286	-	26.286	19.631	-	-	-	0.000	59.057

Note
STE-Software (STE-SW) was previously referred to as STE-Information System (STE-IS).

A. Mission Description and Budget Item Justification

These funding lines are directly aligned to the Army Synthetic Training Environment (STE) Modernization Priority.

The Synthetic Training Environment (STE) is the next generation holistic combined arms collective training capability that will enable leaders, Soldiers, and units from Squad through Army Service Component Command to train where they will fight, with the partners they will fight with, and in complex operational environments in support of Multi-Domain Operations (MDO). STE will revolutionize Army training by providing the repetition necessary at the Point of Need (PoN) for improved proficiency prior to live training or operations- improving Soldier lethality and survivability. The STE program has multiple Other Transaction Authority (OTA) contracts awarded, and will implement an incremental fielding approach leveraging the Software Acquisition pathway (SWP) and the Middle Tier of Acquisition (MTA) pathway. The STE will be available where training occurs (home station, combat training centers, armories, institutions, and deployed locations).

The STE is comprised of five main signature efforts: 1) STE-Software (STE-SW); 2) Reconfigurable Virtual Collective Trainers (RVCT); 3) Squad Immersive Virtual Trainer (SiVT, in partnership with Solider Lethality's Integrated Visual Augmentation System (IVAS) program); 4) STE Live; and 5) Solider Virtual Trainer. STE-SW is comprised of Synthetic Training Environment training capability consisting of One World Terrain (OWT), Training Simulation Software (TSS), and Training Management Tools (TMT). The RVCT will allow units to collectively train, using proponent developed Combined Arms Training Strategies (CATS), on a simulated, fully interactive, real-time battlefield. Squad Immersive Virtual Trainer (SiVT) is the immersive training capability delivered as part of the IVAS for the close combat Squads that enables

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>
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IVAS to be a fight, rehearse, and training platform. STE Live focuses on the development of twelve engagement types and five instrumentation enablers. The twelve engagement types are direct fire, counter-defilade fire, indirect fire, dropped objects, placed objects, thrown objects, guided weapons, autonomous weapons, cyber, directed energy, radiant energy, and plume; the five instrumentation enablers are calculations, networks, sensors, terrains, and transmitters. SVT will provide training to Soldiers Army wide by providing a Weapons Skills Development (WSD), Joint Fires Trainer (JFT) and Use of Force (UoF). A future STE line of effort includes Next Generation Constructive (NGC) that will be scaled up from what the vendor is able to deliver through the STE-SW platform. NGC, as part of STE-Software, will provide constructive training capability to echelons above brigade.

FY2025 Projects CR2 through CR7 Base RDTE dollars in the amount of \$136.029 million funds significant development efforts in the STE-Software (STE-SW) which include Training Simulation Software/Training Management Tool (TSS/TMT) and One World Terrain (OWT), Reconfigurable Virtual Collective Trainer (RVCT), Squad Immersive Virtual Trainer (SiVT), Soldier Virtual Trainer (SVT), and STE Live.

The total cost of the STE Live (CR3) Middle Tier of Acquisition (MTA) effort is \$360.9 million RDTE from FY2022 to FY2026.

The total cost of the STE RVCT (CR5) MTA effort is \$119.1 million RDT&E from FY 2020 to FY 2024. The remainder of STE RVCT is fully funded across the Future Years Defense Program

The total cost of the SVT (CR7) Middle Tier of Acquisition effort is \$108.8 million from FY2022 to FY2027, including RDT&E (\$101.6M) and Procurement (\$7.2M) of prototype units.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	242.468	109.714	87.684	-	87.684
Current President's Budget	236.396	109.714	136.029	-	136.029
Total Adjustments	-6.072	0.000	48.345	-	48.345
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	-			
• SBIR/STTR Transfer	-6.071	-			
• Adjustments to Budget Years	-	-	48.345	-	48.345

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

Project: CR3: *STE Live*

Congressional Add: *Congressional Add: STE Live electronic bullet*

FY 2023	FY 2024
20.000	-

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *Congressional Add: STE Live OTA acceleration*

Congressional Add Subtotals for Project: CR3

Project: CR6: *STE Squad Immersive Virtual Trainer (SiVT)*

Congressional Add: *Congressional Add: Engineering, Support, Test & Evaluation for SiVT*

Congressional Add Subtotals for Project: CR6

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	20.000	-
	40.000	-
	36.130	-
	36.130	-
	76.130	-

Change Summary Explanation

Increase of \$2.464 million supports Project CR2, TSS/TMT, to continue with the DevSecOps approach, refinement of Brigade level training capability, and development of the Intel, Sustainment, Cyber, and Protection Warfighting Functions. Increase also reflects Program Management support cost that was realigned from OMA to RDTE.

Increase of \$.696 million supports Project CR3, STE Live, development activities for Increment 3 for autonomous weapon, directed energy and radiant energy efforts.

Increase of \$5.323 million supports Project CR4, One World Terrain, to continue development efforts to provide advanced capabilities that allow user-generated terrain captures to be incorporated into the OWT repository and standard commercial tools and technologies to be used for geospatial data editing. Increase also reflects Program Management support cost that was realigned from OMA to RDTE.

Increase of \$7.434 million in Project CR5, STE Reconfigurable Virtual Trainer (RVCT), is to continue development on RVCT future variant kits and complete integration lab assets.

Increase of \$18.889 million supports Project CR6, Squad Immersive Virtual Trainer (SiVT), to continue technology insertion into the SiVT system, including technologies that improve outdoor capability, increase the reliability and connectivity of the systems.

Increase of \$13.539 million supports Project CR7, STE Soldier Virtual Trainer (SVT), development of Phase 3 Weapon Skills Development Increment 2, Joint Fires Training, and Use of Force capabilities.

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</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
CR2: <i>STE Information Systems (TSS, TMT)</i>	-	107.209	49.616	37.955	-	37.955	36.852	34.692	34.929	35.278	0.000	336.531
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Training Simulation Software/Training Management Tools (TSS/TMT) provides 2 of the 3 core functions for the Synthetic Training Environment - Software (STE-SW). TSS/TMT converges our current live, virtual, gaming and constructive environments to provide a single, unified training & management environment from Soldier/Squad to Army Service Component Command (ASCC). TSS/TMT provides the ability to train in a single or multiple live, virtual, gaming and constructive environment simultaneously.

The Training Simulation Software (TSS), the core STE simulation engine, provides the physical and behavior models necessary to replicate the operational environment to enable collective training from Soldier/Squad through ASCC. The TSS provides entity, aggregate, and common services, as well as adjudicates interactions at the entity level (e.g., Computer-Generated Forces (CGF), and synthetic equipment). The Training Management Tool (TMT) enables units to quickly plan, prepare, execute, monitor, and assess collective training events for readiness. TMT provides an easy-to-use interface, combined with an Intelligent tutor to reduce help-desk support, time, and manpower currently required. TMT leverages training management (data) services and authoritative data sources to enable training on demand regardless of geographic location.

In FY 2021, TSS/TMT entered the Software Acquisition Pathway. TSS/TMT facilitates rapid and iterative delivery of its capabilities through a Development, Security, and Operations (DevSecOps) process to support Squad (Sq) to Brigade (BDE) level training through 4QFY2024.

FY 2025 Base RDTE dollars in the amount of \$37.955 million for TSS/TMT will continue with the DevSecOps approach to continue refinement of Brigade level training capability. Funding will continue development of the Intel, Sustainment, Cyber, and Protection Warfighting Functions. Base funding will also continue the implementation of the DevSecOps process and software production pipeline to support STE-SW capability releases across STE lines of efforts [Reconfigurable Virtual Collective Trainer (RVCT), Soldier Virtual Trainer (SVT), Live Training System (Live)]. Base funding will also continue the development and integration of Avionics Software Emulation (AvSE) with TSS/TMT software baseline to support the Reconfigurable Virtual Collective Trainer (RVCT) Air capability.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering, Support, Test & Evaluation for STE-IS	107.209	49.616	-
FY 2024 Plans: Funding supports the STE-IS TSS/TMT continued development of iterative incremental capability, testing and capability releases to enable Battalion to Brigade training. Continued development and testing will focus in the following areas:			

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>-- Architecture: continue with the development of a scalable/flexible Modular Open System Approach (MOSA) architecture and Platform Development Kit (PDK). Continue development of open/common interface to support technology insertion and interoperability with STE programs. Development and support of the STE-IS core architecture and services to support the SVT and LTS use cases.</p> <p>-- TMT: continue with the development of the user interfaces that would enable Commanders and Leaders at the Company through Brigade echelons to Plan, Prepare, Execute and Assess (PPEA) training exercises/scenarios. Integrate new Authoritative Data Sources (ADS) and initiate development of intelligent tutoring system to simplify and streamline the PPEA process. Continue development of the enterprise management capability to enable equipment and software health monitoring, remote software patching, remote Risk Management Framework compliance audits.</p> <p>-- TSS: continue development of the STE core simulation/game engine. Initiate the development of the Cyber domain to support Multi-Domain Operations (MDO).</p> <p>-- Integration: Continue the integration of TSS, TMT, OWT, RVCT-Air, RVCT-Ground, RVCT-Soldier, Avionics Software Emulation (AvSE), Mission Command Information Systems (MCIS), and Live, Virtual, Constructive - Integration Architecture (LVC-IA) programs. Initiate integration of LTS and SVT core services into the STE-IS core.</p> <p>-- Test/Evaluation: Conduct evaluation of the TSS/TMT MVPs through technical assessments, Soldier Touch Points, test planning events, and Operational Assessments/Demonstration.</p> <p>-- Continue the implementation of the Development, Security, and Operations (DevSecOps) process and the Continuous Integration/Continuous Delivery (CI/CD) software production pipeline. Extend the DevSecOps environment to the other STE programs.</p> <p>-- Continue development and integration of AvSE with TSS/TMT software baseline to ensure that the RVCT-Air capability is concurrent with Aviation platform systems.</p> <p>-- Continue development and integration of Common Software Libraries (CSL) with the TSS/TMT software baseline to ensure that the RVCT-Ground capability is concurrent with Ground platform systems.</p> <p>-- Continue enhancing the TSS/TMT software baseline based on Soldier feedback collected at Soldier Touch Points, Operational Assessments/Demonstrations, and other test events.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY2024 to FY2025 is due to the scaling down of developmental efforts to enable Battalion to Brigade training capability. Requirement title was changed from Engineering, Support, Test & Evaluation STE-IS to Engineering, Support, Test and Evaluation STE-SW.</p>				
Title: Engineering, Support, Test & Evaluation for STE-SW		-	-	37.955
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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Funding supports the TSS/TMT continued development of iterative incremental capability, testing and capability releases to enable Battalion to Brigade training. Continued development and testing will focus in the following areas:</p> <ul style="list-style-type: none"> -- Architecture: continue with the development of a scalable/flexible Modular Open System Approach (MOSA) architecture and Platform Development Kit (PDK). Continue development of open/common interface to support technology insertion and interoperability with STE programs. Development and support of the core architecture and services to support the SVT and LTS use cases. -- TMT: continue with the development of the user interfaces that would enable Commanders and Leaders at the Company through Brigade echelons to Plan, Prepare, Execute and Assess (PPEA) training exercises/scenarios. Integrate new Authoritative Data Sources (ADS) and initiate development of intelligent tutoring system to simplify and streamline the PPEA process. Continue development of the enterprise management capability to enable equipment and software health monitoring, remote software patching, remote Risk Management Framework compliance audits. -- TSS: continue development of the STE core simulation/game engine. Initiate the development of the Cyber domain to support Multi-Domain Operations (MDO). -- Integration: Continue the integration of TSS, TMT, OWT, RVCT-Air, RVCT-Ground, RVCT-Soldier, Avionics Software Emulation (AvSE), Mission Command Information Systems (MCIS), and Live, Virtual, Constructive - Integration Architecture (LVC-IA) programs. Continues integration of LTS and SVT core services into the STE-SW core. -- Test/Evaluation: Conduct evaluation of the TSS/TMT Minimal Viable Products (MVPs) through technical assessments, Soldier Touch Points, test planning events, and Operational Assessments/Demonstration. -- Continue the implementation of the Development, Security, and Operations (DevSecOps) process and the Continuous Integration/Continuous Delivery (CI/CD) software production pipeline. Extend the DevSecOps environment to the other STE programs. -- Continue development and integration of AvSE with TSS/TMT software baseline to ensure that the RVCT-Air capability is concurrent with Aviation platform systems. -- Continue development and integration of Common Software Libraries (CSL) with the TSS/TMT software baseline to ensure that the RVCT-Ground capability is concurrent with Ground platform systems. -- Continue enhancing the TSS/TMT software baseline based on Soldier feedback collected at Soldier Touch Points, Operational Assessments/Demonstrations, and other test events. <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Change from FY2024 to FY2025 reflects requirement title change from Engineering, Support, Test & Evaluation STE-IS to Engineering, Support, Test and Evaluation STE-SW. Decrease from \$49.616 million to \$37.955 million due to the scaling down of developmental efforts to enable Battalion to Brigade training capability.</p>			
Accomplishments/Planned Programs Subtotals	107.209	49.616	37.955

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</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>
• NA2016: <i>STE INFO SYSTEMS (TSS/TMT)</i>	9.722	9.648	24.499	-	24.499	24.712	18.181	28.640	27.070	0.000	142.472

Remarks

Procurement dollars for Training Simulation Software/Training Management Tools (TSS/TMT) provides Interim Contractor Support to conduct software updates, modifications, Risk Management Framework (RMF) concurrency, Problem Troubleshoot Reports (PTRs), and help desk support for fielded TSS/TMT capability.

D. Acquisition Strategy

The Training Simulation Software/Training Management Tools (TSS/TMT) uses the Software Acquisition Pathway. To ensure speed and agility to deliver and modernize STE, a modular open systems architecture (MOSA) is also used to enable the Army to exploit rapid advancements in cutting-edge commercial technologies. Other acquisition elements such as testing, contracting, and technology transition will consider any and all means available to innovate and incorporate complementary support to add momentum in this approach.

The TSS/TMT requirements are codified in the Abbreviated Capabilities Development Document (A-CDD) version 2, approved 2 June 2020. TSS/TMT was one of five (5) Other Transaction Authority (OTAs) awarded in FY 2019 in support of the STE prototype initiatives which include: TSS/TMT, One World Terrain (OWT), Reconfigurable Virtual Collective Trainer (RVCT), Live Training Systems (market research only), and Soldier Virtual Trainer (SVT) Weapons Optimization (market research only). Prime(s) and Sub-vendors will execute the STE agreement(s) through an Agile development process with established success criteria and their Development, Security, and Operations (DevSecOps) processes. Vendors will continually include the Government and all stakeholders (Internal and external) in the Agile development process. This process will ensure all parties have transparency and early input into the modular design effort to support success of the product(s) being developed for the STE.

Lessons learned and revisions to the A-CDD, form the basis of the TSS/TMT OTA awarded in June 2021. The TSS/TMT OTA will continue development and evaluation iterative software releases through technical assessments, Soldier Touch Points, test planning events, and Operational Assessments/Demonstrations to provide a Squad (Sq) to Brigade (BDE) training capability, in addition to, providing Minimum Viable Capability Release (MVCR) in support of RVCT Soldier, Ground, Solider Dismounted and Air capability. This OTA will also continue to address Soldier feedback to provide a more robust Brigade and below collective training capability.

STE Increment 1 IOC implements TSS and TMT, two of the three foundational capabilities of the STE, which is planned for 4QFY2024, and is defined as the first fielding and acceptance of the capability at installations identified in accordance with the distribution plan. Increment 1 fielded STE systems will deliver software in support of RVCT Soldier, Ground and Air platforms and meet Risk Management Framework (RMF) requirements, and the ability to provide initial sustainment via Interim Contractor Support (ICS). TSS/TMT will continue to implement capability enhancement via follow-on STE Increments.

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</i>							

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			
TSS/TMT Program Management	Various	PEO STRI : Orlando, FL	-	-		-		3.518	Oct 2024	-		3.518	0.000	3.518	-
Subtotal			-	-		-		3.518		-		3.518	0.000	3.518	N/A

Remarks
TSS/TMT Program Management - FY2025 Base RDTE will provide program management, engineering and technical oversight, and travel for the TSS/TMT Program.

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			
TSS/TMT Prototype Development	Option/FFP	Cole Engineering Services : Orlando, FL	89.272	93.163	Oct 2022	6.210	Oct 2023	-		-		-	Continuing	Continuing	Continuing
AvSE Development/Integration	Various	CCDC AvMC/ PEO Aviation : Redstone Arsenal, AL	7.310	6.596	Jan 2023	-		6.700	Jan 2025	-		6.700	0.000	20.606	Continuing
TSS/TMT Prototype Development (OTA Extension)	Option/FFP	Cole Engineering Services : Orlando, FL	-	3.471	Dec 2023	41.348	Oct 2023	25.906	Oct 2024	-		25.906	Continuing	Continuing	Continuing
Subtotal			96.582	103.230		47.558		32.606		-		32.606	Continuing	Continuing	N/A

Remarks
FY2024/2025 BASE RDTE will exercise options on current prototype OTA to perform software improvement of Squad to Brigade Capability and continue development of the Intel, Sustainment, Cyber, and Protection Warfighting Functions.

TSS/TMT Development: FY2024 Base RDTE funding in the amount of \$41.348 million supporting TSS/TMT Development was shifted to TSS/TMT Prototype Development (Amount - \$40.158 million) and AvSE Development/Integration (Amount - \$1.190 million); these revisions will be updated in next available cycle.

AVSE Development: Decrease in AvSE Development/Integration from FY2023 to FY2024 is due to scaling down efforts to ensure that the RVCT-Air capability is concurrent with Aviation platform systems. NOTE - FY2024 RDTE in amount of \$1.190M will support effort for integration of Apache v6.0; this revision will be updated in the next available cycle. FY2025 Base RDTE funding continues integration efforts of Apache v6.0.

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</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 Development																																
Software Update R3	1 Company (RVCT Air)																															
Software Update R4					2 Battalion (TMT)																											
Operational Demonstration					3 RVCT A/G/S and TMT																											
Software Update R5									4 Brigade																							
Software Update R6													5																			
Production																																
Interim Contractor Support (ICS)																																

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR2 / <i>STE Information Systems (TSS, TMT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Revised A-CDD (19 Jun 20)	3	2020	3	2020
Capability Development	3	2019	4	2030
MVCR	4	2021	4	2021
Software Update R1	2	2022	2	2022
Software Update R2	4	2022	4	2022
Software Update R3	2	2023	2	2023
Software Update R4	4	2023	4	2023
Operational Demonstration	2	2024	2	2024
Software Update R5	4	2024	4	2024
Software Update R6	4	2025	4	2025
Production	4	2023	4	2032
Interim Contractor Support (ICS)	3	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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR3 / <i>STE Live</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
CR3: <i>STE Live</i>	-	66.396	23.839	34.115	-	34.115	18.016	83.248	84.312	85.154	0.000	395.080
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Synthetic Training Environment (STE) Live program develops live training systems in concert with the Cross Functional Team STE initiatives. The STE Live program converges live training with the STE, providing units the necessary training components to accelerate and sustain combined arms maneuver proficiency in support of Multi-Domain Operations (MDO). The STE Live program focuses on the development of a next generation live training architecture that leverages innovative technologies and standards to enable the realistic exercise of unit combat weapons up to brigade level in Multi Domain Operation Environments. The challenge today is the Army cannot train as it fights since 40% of Brigade Combat Team (BCT) platforms weapons effects are currently not simulated by today's live training system, Multiple Integrated Laser Engagement System (MILES). STE Live next generation systems will replicate the following new engagement types, improve sensory feedback, increase realism of direct fire engagement, increase realism of battle damage assessments, improve after action reviews and improve instrumentation at the Combat Training Centers and Home Stations: Indirect Fire, Counter-Defilade (M320, MK-19), Place Object (Mines), Thrown Objects (Grenades), Dropped Objects (Bombs), Guided Weapon (Missiles), Autonomous Weapon (Missiles, Smart Munitions), Direct Energy (laser), Radiant Energy (Sonic, Microwave), Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Plumes and Cyber.

FY 2025 Base RDTE dollars in the amount of \$34.115 million furthers development of STE Live prototype(s) to replicate the Tactical Engagement Simulation Systems (TESS) for multiple engagement scenarios (continue direct fire, guided missiles, and autonomous weapons). These systems will replace up to six systems reaching end of useful life and enhance Soldier capability and training value. FY 2025 funds will also continue to revolutionize Soldier Simulation and Training systems to include a Synthetic Training Environment for 12 engagement types: Direct Fire, Counter-Defilade Fire, Indirect Fire, Dropped Objects, Placed Objects, Thrown Objects, Guided Weapons, Autonomous Weapons, Cyber, Directed Energy, Radiant Energy, and Plume. The 5 instrumentation enablers are Calculations, Networks, Sensors, Terrains, and Transmitters.

The total cost of the STE Live (CR3) Middle Tier of Acquisition (MTA) effort is \$360.9 million RDTE from FY2022 to FY2026.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering, Support, Test & Evaluation for STE Live	26.396	23.839	34.115
Description: Direct engineering development, support and test of the STE Live program through awarded OTA vehicles.			
FY 2024 Plans:			
FY 2024 Base RDTE dollars in the amount of \$23.839 million furthers development of STE Live prototype(s) to replicate the TESS for multiple engagement scenarios (direct fire, guided missiles, and autonomous weapons). These systems will eventually replace			

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR3 / <i>STE Live</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
up to six systems reaching End of Useful life and enhance Soldier capability and training value. FY 2024 funds will continue to revolutionize TESS and the 5 instrumentation enablers (Calculations, Networks, Sensors, Terrains, and Transmitters).			
FY 2025 Plans: FY 2025 Base RDTE dollars in the amount of \$34.115 million furthers development of STE Live Increment 2 fleet integration, hardening, Electromagnetic Interference/ Environmental testing, series on record tests to exit prototyping and enter production and fielding. Fleet include small arms, ground combat vehicles and some counter defilade weapons. This in addition to the development activities for increment 3 that will occur by the STRI Agile Acquisition Response (STAAR) team for autonomous weapon, directed energy and radiant energy.			
FY 2024 to FY 2025 Increase/Decrease Statement: The increase of \$10.276M from FY 2024 to FY 2025 is to support the development activities for increment 3 that will occur by STAAR for autonomous weapon, directed energy and radiant energy.			
Accomplishments/Planned Programs Subtotals	26.396	23.839	34.115

	FY 2023	FY 2024
Congressional Add: Congressional Add: STE Live electronic bullet	20.000	-
FY 2023 Accomplishments: FY 2023 Congressional Add RDTE dollars in the amount of \$20.000 million furthered development of STE Live. \$20.000 million provided for the development of the STE Live electronic bullet.		
Congressional Add: Congressional Add: STE Live OTA acceleration	20.000	-
FY 2023 Accomplishments: FY 2023 Congressional Add RDTE dollars in the amount of \$20.000 million furthered development of STE Live. \$20.000 million provided funding to accelerate development being completed under the STE Live Other Transaction Agreements (OTAs).		
Congressional Adds Subtotals	40.000	-

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
• NA2012: STE LIVE TRAINING SYSTEM	6.166	35.071	73.811	-	73.811	117.564	68.823	11.140	11.252	0.000	323.827

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR3 / <i>STE Live</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>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

Procurement dollars for STE Live will procure Force on Force engagement types, updates to the live training infrastructure, and Contractor Logistics Support that will support the integration and fielding of STE Live capabilities to the Combat Training Centers.

D. Acquisition Strategy

To accelerate the live training modernization program, a STE Live Force on Force Modular Open System Approach compliant architecture will be developed starting with a 5G Player Unit Radio interface point and addressing training gaps for direct fire, indirect fire, placed objects, thrown objects, and counter-defilade force on force engagement systems to include modernized instrumentation enablers. STE Live will leverage innovative technologies in areas of integrated internet of things, intelligent sensors, augmented reality and haptics to realize these capabilities. STE Live will be acquired using rapid prototyping with objective to achieve production ready solutions within 2 to 3 years after award. STE Live Other Transaction Authority is pursuing Initial Operational Capability in FY 2026 and production of Full Operational Capability quantities in FY 2030.

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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 0604121A / <i>Synthetic Training Environ ment Refinement & Prototyping</i>	Project (Number/Name) CR3 / <i>STE Live</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			
STE Live Prototype Development	C/TBD	TBD : Various/ Various	-	-		23.839	Feb 2024	34.115	Feb 2025	-		34.115	0.000	57.954	-
STE Live Prototype Development	C/FFP	National Security Technology Accelerator : Various	-	19.472	Apr 2023	-		-		-		-	0.000	19.472	-
STE Live Prototype Development	C/FFP	Advanced Technology International : Various	-	3.969	Apr 2023	-		-		-		-	0.000	3.969	-
STE Live Electronic Bullet	C/FFP	National Security Technology Accelerator : Various/Various	-	3.196	Jul 2023	-		-		-		-	0.000	3.196	-
STE Live Electronic Bullet	C/FFP	Advanced Technology International : Various	-	16.376	Jul 2023	-		-		-		-	0.000	16.376	-
STE Live Electronic Bullet	C/FFP	Sustainable Systems Solutions LLC : Various	-	0.428	Jul 2023	-		-		-		-	0.000	0.428	-
STE Live OTA Acceleration	C/FFP	National Security Technology Accelerator : Various/Various	-	14.879	Jul 2023	-		-		-		-	0.000	14.879	-
STE Live OTA Acceleration	C/FFP	Advanced Technology International : Various	-	1.019	Jul 2023	-		-		-		-	0.000	1.019	-
STE Live OTA Acceleration	C/FFP	Riptide Software : Orlando, FL	-	0.100	Jul 2023	-		-		-		-	0.000	0.100	-
STE Live OTA Acceleration	C/FFP	General Dynamics Mission Systems Inc. : Orlando, FL	-	2.985	Jul 2023	-		-		-		-	0.000	2.985	-

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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 0604121A / Synthetic Training Environ ment Refinement & Prototyping				CR3 / STE Live							
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
STE Live OTA Acceleration	C/FFP	Sustainable Systems Solutions LLC : Various	-	0.079	Jul 2023	-		-		-		-	0.000	0.079	-
Subtotal			-	62.503		23.839		34.115		-		34.115	0.000	120.457	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
STE Live Integration	RO	DEVCOM : Orlando, FL	-	0.300	Apr 2023	-		-		-		-	0.000	0.300	-
STE Live Support	Various	Various : Orlando, FL	-	0.101	Aug 2023	-		-		-		-	0.000	0.101	-
STE Live OTA Acceleration	RO	A TEC : FORT HUACHUCA,AZ	-	0.883	Jul 2023	-		-		-		-	0.000	0.883	-
STE Live OTA Acceleration	RO	DEVCOM : Orlando, FL	-	0.055	Sep 2023	-		-		-		-	0.000	0.055	-
Subtotal			-	1.339		-		-		-		-	0.000	1.339	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
STE Live Testbed	C/FFP	Sustainable Systems Solutions LLC : Various	-	2.554	Feb 2023	-		-		-		-	0.000	2.554	-
Subtotal			-	2.554		-		-		-		-	0.000	2.554	N/A
Project Cost Totals			-	66.396		23.839		34.115		-		34.115	0.000	124.350	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 0604121A / <i>Synthetic Training Environ ment Refinement & Prototyping</i>	Project (Number/Name) CR3 / <i>STE Live</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
STE Live OTA 21 (DF Small Arms,)	██████████				██████████				██████████																			
STE Live OTA 21 (IDF)	██████████				██████████				██████████																			
STE Live OTA 21 (CDF)	██████████				██████████				██████████																			
STE Live OTA 22 (Mine, Grenade)	██████████				██████████				██████████																			
STE Live OTA 22 (Bomb)	██████████				██████████				██████████																			
STE Live OTA 23 (DF Ground Vehicles, Cyber/EW, Plume)	██████████				██████████				██████████				██████████															
STE Live OTA 24 (DF Ground Vehicles, Guided & Autonomous..)	██████████				██████████				██████████				██████████															
STE Live OTA 24 (DF Aviation)	██████████				██████████				██████████				██████████															
STE Live OTA 25 (DE, RE, Next Gen Squad Weapon)	██████████				██████████				██████████				██████████				██████████				██████████							

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR3 / <i>STE Live</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
STE Live OTA 21 (DF Small Arms,)	4	2021	1	2025
STE Live OTA 21 (IDF)	4	2021	4	2024
STE Live OTA 21 (CDF)	4	2021	1	2025
STE Live OTA 22 (Mine, Grenade)	3	2022	4	2024
STE Live OTA 22 (Bomb)	3	2022	4	2024
STE Live OTA 23 (DF Ground Vehicles, Cyber/EW, Plume)	2	2023	4	2025
STE Live OTA 24 (DF Ground Vehicles, Guided & Autonomous Munitions)	2	2024	2	2025
STE Live OTA 24 (DF Aviation)	2	2024	4	2026
STE Live OTA 25 (DE, RE, Next Gen Squad Weapon)	2	2025	1	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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR4 / <i>STE One World Terrain (OWT)</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
CR4: <i>STE One World Terrain (OWT)</i>	-	1.336	13.192	11.350	-	11.350	7.049	7.234	7.454	7.529	0.000	55.144
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

One World Terrain (OWT) is one of the Army's modernization efforts, and one of three core functions of the Synthetic Training Environment - Software (STE-SW). OWT provides a 3D global terrain capability and associated information services that support virtual replication of the physical Earth to reflect the complexities of the operational environment in support of Multi-Domain Operations (MDO) for use in training. OWT enables leaders, Soldiers, and units to train in simulated complex operational environments, such as dense urban, woodland, jungle, desert, and subterranean areas before the first fight begins.

OWT modernizes the Army's terrain generation capability by automatically processing raw geospatial data into a format that is editable and consumable by standard commercial tools and technologies. It provides the tools to incorporate approved geospatial information updates and local terrain surveys into the OWT foundational repository and will be used by the Synthetic Training Environment (STE) to represent the terrain in a virtual environment.

In FY 2021, OWT entered the Software Acquisition Pathway.

As part of the STE family of programs, OWT provides rapid and iterative delivery of its capabilities to the Training Support System/Training Management Tool (TSS/TMT) for integration into the STE-SW that supports the Reconfigurable Virtual Collective Trainer (RVCT) and future STE training systems.

FY 2025 Base RDTE dollars in the amount of \$11.350 million for OWT will continue development of capabilities that automatically process geospatial data into simulation ready 3D terrain for training use; provide geospatial data and models that are editable by standard commercial tools and technologies; and incorporate approved geospatial data updates and user-generated terrain captures into the OWT repository. OWT Program Office costs transitioned from OMA to RDTE based on utilization of the Software Acquisition Pathway.

The OWT requirements are codified in the STE-SW abbreviated Capabilities Development Document (A-CDD) version 2, approved 2 June 2020.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering, Support, Test & Evaluation for OWT	1.336	13.192	11.350
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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR4 / <i>STE One World Terrain (OWT)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Funding will support the further automation of OWT. Additionally, base funding will develop advanced capabilities to replicate complex environments such as urban terrain with dense infrastructure and power grids. Also, base funding will continue efforts to integrate OWT 3D terrain data into the Synthetic Training Environment (STE) family of programs.</p> <p>FY 2025 Plans: Funding will support the continued automation of OWT feature extraction and attribution as well as program management costs. In addition, OWT will begin to develop advanced capabilities that allow user-generated terrain captures to be incorporated into the OWT repository and standard commercial tools and technologies to be used for geospatial data editing. Also, base funding will continue efforts to improve OWT 3D terrain data integration into the Synthetic Training Environment (STE) family of programs.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY2024 to FY2025 is due to scaling down the efforts to automate OWT capability and improve OWT 3D terrain data for integration into STE family of programs.</p>			
Accomplishments/Planned Programs Subtotals	1.336	13.192	11.350

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

N/A

Remarks

D. Acquisition Strategy

The OWT requirements are codified in the STE-SW abbreviated Capabilities Development Document (A-CDD) version 2, approved 2 June 2020. OWT was one of five (5) Other Transaction Authorities (OTAs) awarded in FY 2019 in support of the STE prototype initiatives which included: STE-SW (Training Simulation Software/ Training Management Tool (TSS/TMT) and One World Terrain (OWT)), Reconfigurable Virtual Collective Trainer (RVCT), Live Training Systems (market research only), and Solider Virtual Trainer (SVT) weapons optimization (market research only). The Prime(s) and Sub-vendors execute the STE agreement(s) through Development, Security, and Operations (DevSecOps) processes. Vendors continually include the Government and stakeholders in the development process. This process ensures all stakeholders have early input into modular design efforts to support accelerated integration of STE family of programs.

In June 2021, OWT was designated as a software intensive program and entered the Software Acquisition Pathway as a component of the STE-SW Family of Programs.

OWT continues to develop prototype capabilities using the OTA awarded in FY2019 and conduct evaluations of the capability and terrain data products through technical assessments, Soldier Touch Points, test events, and Operational Assessments/Demonstrations held in concert with TSS/TMT. OWT products will be integrated with the TSS/TMT as the core information system for the STE Family of 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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR4 / <i>STE One World Terrain (OWT)</i>

OWT geospatial data delivered as part of the integrated STE-SW capability, will be in accordance with the STE distribution plan and will meet Information Assurance and Risk Management Framework requirements. Interim Contractor Support will align to support the STE fielding, anticipated to begin in 4QFY2024. OWT will continue to develop new capabilities, conduct minor updates, and refresh terrain data as needed via the OTA Extension until the Follow-on Production OTA and new Prototyping OTA are awarded in FY 2026.

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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 0604121A / Synthetic Training Environment Refinement & Prototyping	Project (Number/Name) CR4 / STE One World Terrain (OWT)
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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			
OWT Program Management	Various	PEO STRI : Orlando, FL	-	-		-		1.937	Oct 2024	-		1.937	0.000	1.937	-
Subtotal			-	-		-		1.937		-		1.937	0.000	1.937	N/A

Remarks
OWT Program Management - FY2025 Base RDTE will provide program management, engineering and technical oversight, and travel for the OWT Program.

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			
OWT Capability Development	Option/FFP	Maxar Technologies : Westminster, CO	25.870	1.336	Feb 2022	12.738	Dec 2023	8.945	Dec 2024	-		8.945	Continuing	Continuing	Continuing
Subtotal			25.870	1.336		12.738		8.945		-		8.945	Continuing	Continuing	N/A

Remarks
OWT Capability Development: OWT awarded its OTA in June 2019. FY 2023-2025 Base RDTE funding will support the continuation of prototyping activities for the OWT OTA. The OWT OTA will be extended to continue development activities through 1QFY2026.

Note: VRICON was acquired by Maxar Technologies on 1 July 2020.

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			
OWT Assessment	Various	Various : Orlando, FL	0.904	-		0.454	Mar 2024	0.468	Mar 2025	-		0.468	Continuing	Continuing	Continuing
Subtotal			0.904	-		0.454		0.468		-		0.468	Continuing	Continuing	N/A

Remarks
OWT Assessment - Conducts the evaluation of OWT products through Soldier Touch Points, test events, and Operational Assessments in conjunction with TSS/TMT.

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR4 / <i>STE One World Terrain (OWT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
OWT OTA	3	2019	1	2025
OWT OTA (Extension)	2	2025	1	2027
OWT Capability Development	3	2019	1	2032
OWT Follow-On Production OTA	2	2026	1	2032
Prototyping OTA	4	2026	1	2032
OWT Interim Contractor Support (ICS)	4	2025	1	2032
Software Release 3 (STE-SW)	2	2023	2	2023
Software Release 4 (STE-SW)	4	2023	4	2023
Operational Demonstration	2	2024	2	2024
Software Release 5 (STE-SW)	4	2024	4	2024
Software Release 6 (STE-SW)	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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR5 / <i>STE Reconfigurable Virtual Trainer (RVCT)</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
CR5: <i>STE Reconfigurable Virtual Trainer (RVCT)</i>	-	19.970	15.282	7.434	-	7.434	6.070	4.643	8.420	10.306	0.000	72.125
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Synthetic Training Environment-Software (STE-SW) and Reconfigurable Virtual Collective Trainer (RVCT) requirements, which are codified in abbreviated Capabilities Development Documents (A-CDD) version 2 approved 2 June 2020, directly support the Army Collective Training Environment - Initial Capabilities Document (ACTE-ICD) as the Army's cornerstone for replicating the Operational Environment (OE) during training events enabling the Army to train as it fights. Separate, but interoperable, RVCT systems are required for both air and ground collective training. The Air RVCT will represent the U.S. Army, Army National Guard, and Army Reserves fleet of rotary wing aircraft. The Ground RVCT will represent ground track and wheeled vehicles from the U.S. Army and Army National Guard.

The Reconfigurable Virtual Collective Trainer (RVCT) is the Army's next generation Virtual Training System for conducting collective maneuver training, collective gunnery training, mission rehearsal, and pre-deployment training; that will prepare units for Multi-Domain Operations (MDO). The RVCT includes aviation platforms (RVCT-A), ground platforms (RVCT-G), and dismounted infantry devices. The RVCT is transportable to the Point of Need (PoN) allowing units to train anywhere in the world. The RVCT will be enabled using the STE-SW, which provides a fully interactive, real time simulated battlefield.

FY2025 Base RDTE dollars in the amount of \$7.434 million for RVCT is to continue iterative development on the RVCT configuration kits, complete integration lab assets, and develop future configuration kits based on Soldier feedback emerging from the FY 2023 Soldier Touch Points (STPs) and an Operational Demonstration (OD) at Fort Cavazos, Texas.

The total cost of the STE RVCT (CR5) MTA effort is \$119.1 million RDT&E from FY 2020 to FY 2024. The remainder of STE RVCT is fully funded across the Future Years Defense Program.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering, Support, Test & Evaluation for RVCT	19.970	15.282	7.434
Description: Direct engineering development, support and test of the Reconfigurable Virtual Collective Trainer (RVCT) program through awarded OTA vehicles.			
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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR5 / <i>STE Reconfigurable Virtual Trainer (RVCT)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>FY2024 Base RDTE dollars in the amount of \$15.282 million for RVCT is to continue iterative development on the RVCT configuration kits, complete integration lab asses, and develop future configuration kits based on Soldier feedback emerging from FY 2023 STPs and the OD at Fort Hood, Texas.</p> <p>FY 2025 Plans: FY2025 Base RDTE dollars in the amount of \$7.434 million for RVCT is to continue development on RVCT future variant kits and complete integration lab assets.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease of \$7.848 million from FY 2024 to FY 2025 is due to the completion of Phase 1 RVCT First Article (FA) and Phase 2 GEN2 prototypes.</p>			
Accomplishments/Planned Programs Subtotals	19.970	15.282	7.434

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 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>
• NA2014: <i>STE-RVCT</i>	170.652	180.186	96.075	-	96.075	140.710	129.721	133.297	132.803	0.000	983.444

Remarks
Procurement dollars for RVCT will procure STE RVCT devices and Interim Contractor Support to fielded locations.

D. Acquisition Strategy
The United States Army has identified requirements for a training capability that provides a Synthetic Training Environment (STE), which includes immersive air and ground Reconfigurable Virtual Collective Trainers (RVCT), and a semi-immersive training capability for dismounted soldiers. The RVCT contributes significantly to the mitigation of four critical capability gaps identified in the Army's Capabilities Needs Analysis (CNA). As part of the STE Systems of Systems (SoS), the RVCT effort will deliver adaptable, low-overhead, software agnostic, training simulators that enable collective combined arms training in a realistic training environment that is a high-fidelity representation of current and future complex operational environments.

This STE simplified acquisition management plan for a Rapid Fielding (RF) decision occurred 2QFY2023. A Rapid Fielding production contract was awarded 3QFY2023. The First Unit Equipped (FUE) is projected for 4QFY2024. The 2QFY2023 Middle Tier Acquisition-Rapid Fielding (MTA-RF) decision date was driven by several contributing factors; the aging legacy Training Aids Devices Simulators, and Simulations (TADSS), the widening of their respective concurrency gaps, and advanced technology developments in the field of Modeling & Simulation (M&S), that now allow the US Army to realize a level of training realism that is not possible with the current generation of legacy TADSS.

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR5 / <i>STE Reconfigurable Virtual Trainer (RVCT)</i>
<p>RVCT executed a Middle Tier Acquisition-Rapid Prototyping (MTA-RP) as of 29 November 2021 in accordance with DoDi 5000.80, "Operation of Middle Tier of Acquisition (MTA), dtd 30 December 2019. Program Executive Officer for Simulation, Training, and Simulation (PEO STRI) is the Milestone Decision Authority for the approved MTA-RP. The MDA for the MTA-RF is the ASA (ALT) Acquisition Executive.</p> <p>The Phase 1 RVCT First Article (FA) prototyping phase conducted an iterative discovery and development process that included close collaboration between Soldier stakeholders, customers, industry, and the development engineering community. The RVCT FA prototyping phase provided users with multiple feedback points, using pre-planned Synthetic Training Environment-Software (STE-SW) Minimum Viable Product (MVP) software capability drops to facilitate Soldier Centric Design principles. Throughout the FA prototyping phase, the RVCT PMO prioritized requirements as a trade-off for delivery, affordability, and risk reduction.</p> <p>The RVCT Phase 2 produced prototype GEN2 RVCT A/G systems for use at Fort Cavazos, Texas to support the OA in FY 2022, continued development of the STE-SW, and follow on STPs and the OD in FY2024.</p> <p>The OA of the RVCT GEN2 prototypes were conducted 4QFY2022 at Fort Cavazos, Texas, and STP3 was conducted in 2QFY2023, also at Fort Cavazos, Texas. The OA helped senior leaders determine whether the RVCT systems were operationally effective, suitable, survivable, and safe for intended use to support a 2QFY2023 RVCT entry into MTA-RF. The RVCT OA was conducted on production representative RVCT hardware running the STE-SW Minimum Viable Capability Release (MVCR) Company level software capability.</p> <p>Current cost estimates are in line with a procurement funding request for a rapid fielding OTA production decision with a \$500M ceiling. Production of RVCT began 4QFY23.</p> <p>The MTA-RF production decision occurred when the Acquisition Decision Memorandum (ADM) was signed 21 MAR 2023. The rapid fielding production contract was awarded 3QFY23; and the Operational Demonstration is scheduled for 2QFY2024.</p>		

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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 0604121A / <i>Synthetic Training Environ ment Refinement & Prototyping</i>	Project (Number/Name) CR5 / <i>STE Reconfigurable Virtual Trainer (RVCT)</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			
Reconfigurable Virtual Collective Trainers	C/FP	Cole Engineering Services, Inc : Orlando, FL	24.296	5.341	Oct 2022	-		-		-		-	Continuing	Continuing	Continuing
Reconfigurable Virtual Collective Trainers	C/FP	Cole Engineering Services, Inc : Orlando	-	14.228	Apr 2023	15.282	Apr 2024	7.434	Apr 2025	-		7.434	0.000	36.944	-
Subtotal			24.296	19.569		15.282		7.434		-		7.434	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			
Environmental Testing	MIPR	Aberdeen Test Center : Aberdeen MD	-	0.401	Mar 2023	-		-		-		-	0.000	0.401	-
Subtotal			-	0.401		-		-		-		-	0.000	0.401	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			24.296	19.970	15.282	7.434	-	7.434	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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR5 / <i>STE Reconfigurable Virtual Trainer (RVCT)</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				
RVCT FUI				■																												
RVCT MDD		■																														
RVCT Army Requirements Oversight Council	■	■																														
RVCT NET	■	■																														
RVCT MTA RF	■	■	■																													
RVCT Rapid Fielding		■																														
RVCT Continued 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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR5 / <i>STE Reconfigurable Virtual Trainer (RVCT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RVCT PH2, Complete Prototypes	3	2021	4	2022
RVCT FUI	4	2023	4	2023
RVCT MDD	1	2022	2	2023
RVCT Army Requirements Oversight Council	4	2022	2	2023
RVCT NET	4	2022	2	2023
RVCT OA	4	2022	4	2022
RVCT MTA RF	4	2022	2	2023
RVCT Rapid Fielding	2	2023	4	2029
RVCT Continued Development	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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR6 / <i>STE Squad Immersive Virtual Trainer (SiVT)</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
CR6: <i>STE Squad Immersive Virtual Trainer (SiVT)</i>	-	36.130	-	18.889	-	18.889	-	-	-	-	0.000	55.019
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Squad Immersive Virtual Trainer (SiVT) is the immersive training capability delivered as part of the Integrated Visual Augmentation System (IVAS) for the close combat squads that enables IVAS to be a Fight, Rehearse, and Train platform. IVAS/SiVT provide a single platform for Soldiers/Marines to Fight, Rehearse, and Train with day and night capability, providing increased lethality, mobility, and situational awareness necessary to achieve overmatch against current and future adversaries. SiVT provides a readiness tool for Squad Lethality and Human Performance assessment and a Synthetic Training Environment (STE) tool enabling on-demand squad training. SiVT provides the "Rehearse and Train" capability to the IVAS platform's "Fight, Rehearse, and Train" concept.

FY2025 BASE RDTE funding in the amount of \$18.889 million will continue technology insertion into the SiVT system, including technologies that improve outdoor capability, increase the reliability and connectivity of the systems. Other efforts include alternative drop-in kit prototypes, additional drop-in kits to support future Next Generation Squad Weapon variants, SiVT reduction and improvements in Size, Weight, and Power (SWaP), One World Terrain accessibility and integration, and tactical cloud package development and integration. Funding will continue technology insertions and testing that improve the SiVTs ability to support Close Combat Force (CCF) training on Battle Drills 1-11 in both indoor and outdoor settings, mirroring IVAS capabilities.

Basis of Estimate: Developmental costs associated with vendor engineering, cyber hardening and logistical support personnel. Internal Army Enablement Testing (AETs) from Sprint Exit Builds (SEB) and Informal/Formal User Assessments/User Juries/Soldier Touch Points are required to ensure a path to Operational Test and Evaluation (OT&E) and First Unit Issued and First Unit Equipped.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering, Support, Test & Evaluation for SiVT	-	-	18.889
FY 2025 Plans:			
Funding will be used to continue technology insertion into the SiVT system, including technologies that improve outdoor Battle Drill capability. Other efforts include additional weapon trackers and weapon drop in kits to support future Next Generation Squad Weapon variants, SiVT reductions and improvements in Size, Weight, and Power (SWaP), One World Terrain (OWT) data accessibility and tactical cloud package development and integration.			
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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR6 / <i>STE Squad Immersive Virtual Trainer (SiVT)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY2025 funding increase to reinitiate continued efforts of technology insertion into the SiVT system and testing that improve the SiVTs ability to support Close Combat Force (CCF) training on Battle Drills 1-11 in both indoor and outdoor settings, mirroring IVAS capabilities.			
Accomplishments/Planned Programs Subtotals	-	-	18.889

	FY 2023	FY 2024
Congressional Add: Congressional Add: Engineering, Support, Test & Evaluation for SiVT	36.130	-
FY 2023 Accomplishments: Funding will be used for incremental technology insertion into the SiVT system, including technologies that improve outdoor capability. Other efforts include additional weapon trackers and weapon drop in kits to support future Next Generation Squad Weapon variants, SiVT reductions and improvements in Size, Weight, and Power (SWaP), and tactical cloud package development and integration.		
Congressional Adds Subtotals	36.130	-

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>
• NA2211: <i>STE SIVT (IVAS TRAINER)</i>	-	-	-	-	-	-	-	-	-		

Remarks

D. Acquisition Strategy

Integrated Visual Augmentation System (IVAS) prototype OTA was awarded November 2018 to provide Soldiers the Fight, Rehearse, and Train capability to the close combat Soldiers. The SiVT capabilities developed during the prototype effort were assessed through Soldier Touch Points and feedback in support of the follow-on production efforts. The Synthetic Training Environment Cross Functional Team (CFT) and the Program Executive Office (PEO) for Simulation, Training and Instrumentation worked with Soldier Lethality CFT and PEO Soldier to leverage their production OTA contract and awarded a modification in 4th QTR FY2022 that aligned SiVT with the IVAS fielding schedule. The Production and Fielding OTA is a five-year effort fielding to all active and reserve component close combat force (CCF) units. IVAS / SiVT awarded IVAS 1.2, Phase II modification in 4QFY23 to provide SiVT software and Authority to Operate, avatar behaviors upgrades, user experience improvements and bug fixes. Technical Insertions will incrementally improve capabilities over the life of the program. SiVT continues to work with Microsoft to develop and implement production improvements to the base system through Post Deployment Software Support (PDSS).

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR6 / <i>STE Squad Immersive Virtual Trainer (SiVT)</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			
Congressional Add: SiVT Development	Option/FP	Microsoft Corporation : Redmond, WA	-	36.130	Aug 2023	-		-		-		-	0.000	36.130	-
SiVT Development	Option/FP	Microsoft Corporation : Redmond, WA	4.817	-		-		18.889	Jun 2025	-		18.889	0.000	23.706	-
Subtotal			4.817	36.130		-		18.889		-		18.889	0.000	59.836	N/A

Remarks
 SiVT Development (Congressional Add)- SiVT awarded Phase 1 technology insertion efforts as part of the production OTA with Microsoft on Dec 2022. FY 2023 Base RDTE efforts continued technology insertion efforts to achieve outdoor capability.

 SiVT Development - FY 2025 Base RDTE efforts will continue technology insertion efforts to improve the outdoor capability and increase the reliability and connectivity of the systems.

	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	4.817	36.130	-	18.889	-	18.889	0.000	59.836	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 0604121A / Synthetic Training Environment Refinement & Prototyping	Project (Number/Name) CR6 / STE Squad Immersive Virtual Trainer (SiVT)

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
First Unit Issued					▲ 1								▲ 2															
IOC (First Unit Equip)																												
SiVT Development/Concurrency																												
SiVT Production																												

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR6 / <i>STE Squad Immersive Virtual Trainer (SiVT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SiVT Proptotype Development	1	2019	4	2021
First Unit Issued	2	2024	2	2024
IOC (First Unit Equip)	1	2026	1	2026
SiVT Development/Concurrency	4	2021	4	2029
SiVT Production	2	2022	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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>				Project (Number/Name) CR7 / <i>STE Soldier Virtual Trainer (SVT)</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
CR7: <i>STE Soldier Virtual Trainer (SVT)</i>	-	5.355	7.785	26.286	-	26.286	19.631	-	-	-	0.000	59.057
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Soldier Virtual Trainer (SVT) is enabled by the Synthetic Training Environment (STE) and is a virtual immersive trainer that combines and integrates several individual Soldier training capabilities: Weapon Skills Development (WSD), Joint Fires Training (JFT), and Use of Force (UoF). (1) WSD provides immersive capability to meet individual/crew weapons training in support of Army integrated weapon training strategies. (2) JFT provides certification and qualification of Joint Fires Observers (JFO). This includes the training of types II and III close air support according to the JFO Memorandums of Agreement. (3) UoF training enables Soldiers to replicate current Non-Lethal (NL) devices, munitions that demand the user to determine the appropriate level of force, select the correct device, and comply with doctrine, legal policy, and guidance for NL device employment. SVT will take a phased acquisition approach in developing the three capabilities beginning with WSD, JFT, and UoF respectively. SVT's acquisition strategy implementation and award will reduce impact of replacing currently fielded sustained Program of Records (Engagement Skills Trainer II (EST II) and Call for Fire Trainer III (CFFT III)). EST and CFFT PoRs are currently in sustainment awaiting to be replaced by SVT.

FY 2025 Base RDTE dollars in the amount of \$26.286 million for SVT furthers the development of prototype designs for SVT Core Integration, WSD - Increment 2, JFT, and UoF capabilities. The prototype designs will inform requirements, technology readiness level maturity, design of the SVT capabilities, and level of effort to integrate with STE Software.

The total cost of the SVT (CR7) Middle Tier of Acquisition effort is \$108.8 million from FY2022 to FY2027, including RDT&E (\$101.6M) and Procurement (\$7.2M) of prototype units.

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

	FY 2023	FY 2024	FY 2025
Title: Engineering, Support, Test & Evaluation for SVT	5.355	7.785	26.286
Description: Direct engineering development, support and test of the Soldier Virtual Trainer (SVT) program through awarded OTA vehicles.			
FY 2024 Plans: FY 2024 Base RDTE dollars in the amount of \$7.785 million for SVT furthers the development of prototype designs for SVT Core Integration, WSD-Increment 2, JFT, and UoF capabilities. The prototype designs will inform requirements, technology readiness level maturity, design of the SVT capabilities, and level of effort to integrate with the common synthetic environment.			
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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR7 / <i>STE Soldier Virtual Trainer (SVT)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 Base RDTE dollars in the amount of \$26.286 million for SVT furthers the development of prototype designs for SVT Core Integration, WSD -Increment 2, JFT, and UoF capabilities. The prototype designs will inform requirements, technology readiness level maturity, design of the SVT capabilities, and level of effort to integrate with STE software.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The increase of \$18.501 million from FY 2024 to FY 2025 is to support development of phase 3 WSD- Increment 2, JFT and UoF capabilities.			
Accomplishments/Planned Programs Subtotals	5.355	7.785	26.286

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
• NA2013: <i>STE-SOLDIER VIRTUAL TRAINER</i>	-	10.060	23.798	-	23.798	43.128	78.220	77.480	78.265	0.000	310.951

Remarks
Procurement dollars for SVT will procure STE SVT initial Weapon Skills Development (WSD) capabilities for Increment 1.

D. Acquisition Strategy
The SVT uses the Synthetic Training Environment (STE) modular open systems architecture via virtual interface and hardware standards. SVT optimizes training delivery through the employment of a combination of Operational Environment (OE) mixed reality visualization and Natural User Interface (NUI) technologies to maximize efficiencies for the integration of system capabilities. The SVT system design combines and integrates several individual Soldier and squad training capabilities, Weapon Skill Development (WSD), Joint Fires Training (JFT), and Use of Force (UoF), into a single capability that can be conducted simultaneously or individually and enable physical movement/exertion related to the execution of a Soldier individual and squad collective training tasks. The system is required to be person transportable and deployable worldwide. It delivers training at the Point of Need (PoN) supporting Army-wide formations such as artillery, Military Police, and units for weapons skills development.

SVT entered the Middle Tier Acquisition Rapid Prototyping Pathway in 3QFY2022 and awarded two vendor OTAs in support of the development prototype design for the SVT Core and WSD Increment 1. In May 2023 SVT down selected to a single vendor and awarded the follow-on phase of SVT Core and WSD Increment 1 to continue prototype development and integrate STE Software. Multiple test events including Soldier Touch Points, and Operational Demonstrations will be conducted during the development phase to endure Warfighter feedback is incorporated and facilitate acceptance in support of FY 2025 IOC. SVT will take a phased acquisition approach in developing the three capabilities: WSD, JFT, and UoF. SVT OTA option award(s) for WSD Increment 2, JFT, and UoF are projected for 2QFY2024.

The SVT OTA's Prime(s) and Sub-vendors will execute the STE agreement(s) through an Agile development process with established success criteria and their DevSecOps processes and develop prototypes to prove out the three SVT capabilities: WSD, UoF, and JFT. SVT vendors will continually include the Government and

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR7 / <i>STE Soldier Virtual Trainer (SVT)</i>

all stakeholders (Internal and external) in the SVT Hardware prototype development and the STE-SW Agile development integration process. This process will ensure all parties have transparency and early input into the modular design effort in order to support success of the product(s) being developed for the SVT and interacting with the STE-SW. Other acquisition elements such as testing, contracting, and technology transition will consider any and all means available to innovate and incorporate complementary support to add momentum in this approach.

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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 0604121A / <i>Synthetic Training Environment Refinement & Prototyping</i>	Project (Number/Name) CR7 / <i>STE Soldier Virtual Trainer (SVT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SVT Development/STPs	3	2022	2	2026
SVT OD #1	4	2024	4	2024
SVT IOC	2	2025	2	2025
SVT OD #2	4	2025	4	2025
SVT Production	4	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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</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	-	14.298	16.426	17.341	-	17.341	10.346	10.363	17.739	17.917	0.000	104.430
CD4: <i>Counter Improvised-Threat Demonstration</i>	-	14.298	16.426	17.341	-	17.341	10.346	10.363	17.739	17.917	0.000	104.430

A. Mission Description and Budget Item Justification

This Program Element (PE) develops prototypes and demonstrates technology for detecting and defeating Improvised Explosive Devices (IED). The goal of this Project is to mature technology to increase the ability of deployed forces to positively identify IEDs with minimal false alarms and increase the rate of advance of route clearance missions. Additionally, the objective is to positively neutralize or mitigate the effects of IEDs with minimal collateral damage. Driven by the current threat facing deployed U.S. forces, this PE enables rapid development and delivery of capabilities that enable the detection, neutralization, and risk mitigation of IEDs and their effects. These technologies are intended to be matured and demonstrated for integration onto existing Department of Defense weapon systems.

This PE is coordinated with the Under Secretary of Defense for Research and Engineering (USD/R&E) and the Defense Threat Reduction Agency (DTRA).

Work in this Project is managed by Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Center. Work is performed by Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise with oversight from Assistant Secretary of the Army for Acquisition, Logistics and Technology for Research and Technology (DASA R&T).

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	14.840	16.426	17.306	-	17.306
Current President's Budget	14.298	16.426	17.341	-	17.341
Total Adjustments	-0.542	0.000	0.035	-	0.035
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.542	-	-	-	-
• Adjustments to Budget Years	-	-	0.035	-	0.035

Change Summary Explanation

Funding increase is an economic adjustment.

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>					Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</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
CD4: <i>Counter Improvised-Threat Demonstration</i>	-	14.298	16.426	17.341	-	17.341	10.346	10.363	17.739	17.917	0.000	104.430
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project develops prototypes and demonstrates technology for detecting and defeating Improvised Explosive Devices (IED). The goal of this Project is to mature technology to increase the ability of deployed forces to positively identify IEDs with minimal false alarms and increase the rate of advance of maneuver forces. An additional goal is to positively neutralize IEDs with minimal collateral damage. Driven by the current threat facing deployed U.S. forces, this project enables rapid development and delivery of capabilities that enable the detection, neutralization, and mitigation of IEDs and their effects.

This Project is coordinated with the Under Secretary of Defense for Research and Engineering (USD/R&E) and the Defense Threat Reduction Agency (DTRA).

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

	FY 2023	FY 2024	FY 2025
Title: Radio Controlled IED Detection Technology Demonstration	1.823	-	-
Description: This effort demonstrates Radio Controlled IED detection exploiting advanced network techniques. This effort demonstrates the ability to detect Radio Controlled IEDs with minimal false alarms.			
Title: Anti-Armor IED Detection Technology Demonstration	1.539	2.850	-
Description: This effort demonstrates anti-armor IED detection using technologies to include high resolution electro-optical / infrared and other sensors to detect component characteristics to identify the location of IEDs prior to detonation.			
FY 2024 Plans: Will continue prototype development of unmanned system mounted multi-sensor detection and geo-location of IEDs at standoff distances. Will conduct testing to confirm detection performance.			
FY 2024 to FY 2025 Increase/Decrease Statement: Effort completes in FY24.			
Title: Personnel Borne IED Detection Technology Demonstration	3.812	-	-
Description: This effort demonstrates Personnel Borne IED (PBIED) detection by aggregating information from a network of small, inexpensive sensor technologies including electro-optical and millimeter wave radar imagers to sense the presence of			

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
PBIEDs attached to personnel through thin walls. This effort demonstrates the ability to aggregate sensor data to identify PBIEDs with minimal false alarms.				
Title: Off-Route IED Detection Technology Demonstration Description: This effort will demonstrate a proof of concept IED detection system using miniaturized sensors developed in the Counter-Improvised Threat Simulation Program Element 0603134A integrated with unmanned aerial systems to detect off-route IEDs to support combat maneuver forces.		2.593	-	-
Title: Water-Borne IED Detection Technology Demonstration Description: This effort conducts a technology demonstration to evaluate the performance of IED detection technologies in coastal water and water gap crossings. The focus is on detecting devices in water using detection mechanisms at standoff distances to protect troop landings and water gap crossings for the military.		2.995	-	-
Title: Teamed IED Detection Technology Demonstration Description: This effort demonstrates the teaming of small unmanned aerial and ground systems to cooperatively detect IED emplacements and indicators of IED emplacements. This effort optimizes unmanned system teaming to increase the confidence in IED detection using multiple platforms with multiple sensor modes, and integrating their information. This effort will conduct a demonstration in FY 2025 using multiple heterogeneous platforms to reduce false alarms for IED detection. FY 2024 Plans: Will continue maturation of teamed unmanned system detection of IEDs using multiple platforms, algorithms and sensors. Will evaluate coordinated maneuver schemes to optimize detection probability from multiple platforms leveraging work in PE 0603134A. FY 2025 Plans: Will demonstrate detection of IEDs utilizing teamed small, unmanned aerial and unmanned ground systems with improved detection performance and reduced false alarms in a relevant environment. Will evaluate potential data fusion techniques for improved detection performance and identify integration challenges and opportunities leveraging work in PE 0603134A. FY 2024 to FY 2025 Increase/Decrease Statement: Funding increases in FY25 to evaluate data fusion techniques in support of improving detection performance.		1.536	3.356	3.925
Title: IED Detection Evaluation in Varied Environments		-	2.118	6.455

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: This effort conducts characterization of mature IED detection system in in varying environments to ensure performance is known in various environmental conditions. Will conduct a series of annual assessments in varying environments, including hot, wet, and artic to ensure necessary performance.</p> <p>FY 2024 Plans: Will conduct evaluation of mature IED detection systems in arctic environments to assess performance and provide system optimization. Evaluation will be conducted using electro-optical, infrared and radio frequency, and other sensing modalities at appropriate test facilities.</p> <p>FY 2025 Plans: Will conduct evaluations of mature IED detection and neutralization systems in temperate and jungle environments to assess performance. Will evaluate multiple electro-optical, infrared, radio frequency, electromagnetic induction, and other sensing modalities at appropriate test facilities. Will assess detection performance against various IED components and emplacements.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased in FY25 due to completion of Anti-Armor IED Detection Technology Demonstration effort to conduct follow-on activities in IED detection, and realignment of priorities from Enhanced Personnel Borne IED Detection Prototyping.</p>			
<p>Title: Radio Controlled IED Interoperability Evaluation</p> <p>Description: This effort conducts regular assessments of interoperability of Radio Control IED neutralization technologies in the presence of battlefield and commercial radio frequency signals to ensure performance is maintained. This will be conducted with foreign partners and hosted by different countries.</p> <p>FY 2024 Plans: Will conduct an assessment of interoperability of Radio Control IED neutralization technologies in the presence of other radio frequency signals including participation from international partner systems to ensure function in the presence of battlefield and commercial signals. This will be conducted in the United States in coordination with foreign and industry partners.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Effort completes in FY24, with follow-on activity being conducted in Maneuver IED Detection and Mitigation Technology Demonstration effort.</p>	-	1.520	-
<p>Title: Enhanced Personnel Borne IED Detection Prototyping</p> <p>Description: This effort evaluates the performance of prototype millimeter wave radar and imaging infrared sensors to detect concealed Personnel Borne IEDs (PBIEDs) while deployed. The focus will be on low size, weight and power with high</p>	-	2.756	-

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>probability of detection and low false alarm rates. This effort will evaluate mature solutions for applicability to PBIED detection in environments with both combatant and non-combatant populations.</p> <p>FY 2024 Plans: Will conduct evaluation of mature, lightweight, integrated millimeter wave and infrared radar systems to detect Personnel Borne IEDs. Will improve aided detection algorithms for increased detection capability against varied target configurations and clothing types.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Effort completes in FY24.</p>			
<p>Title: Maneuver IED Detection and Mitigation Technology Demonstration</p> <p>Description: This effort focuses on the challenges of the force to detect and mitigate hidden IEDs in a battlefield environment. The detection is focused on anti-armor threats with mitigation through device neutralization or marking. The demonstration will employ detection capabilities on multiple platforms, manned and unmanned, to integrate mature technologies for detection and neutralization of IEDs.</p> <p>FY 2024 Plans: Will integrate mature detection and neutralization technologies on manned and unmanned platforms for demonstration. Will develop scenarios to evaluate the integrated performance of IED detection sensors and radio controlled IED neutralization technologies.</p> <p>FY 2025 Plans: Will assess performance of IED detection sensors and radio controlled IED neutralization technologies in various scenarios. Will mature and evaluate emerging technologies for detection and mitigation of IED threats, including manipulation techniques, electromagnetic, optical, millimeter wave, nuclear quadrupole resonance, and harmonic sensors. Will assess performance of emerging technologies in complex electromagnetic environments.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increases in FY25 due to integration of advanced IED mitigation technologies previously conducted in the Radio Controlled IED Interoperability Evaluation effort.</p>	-	3.826	5.693
<p>Title: Neutralization and Mitigation Technology Evaluation in Varied Environments</p> <p>Description: This effort will develop, mature and automate technologies capable of neutralizing IEDs with complex emplacements and configurations. It will evaluate and optimize neutralization capabilities in varied environmental conditions.</p>	-	-	1.268

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2025 Plans:</i> Will mature and evaluate electro-magnetic pre-triggering, kinetic devices, remotely operated manipulation, and precision placement technologies to neutralize IEDs with complex emplacements and configurations and/or within complex environmental conditions.</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> This is a new effort beginning in FY25.</p>			
Accomplishments/Planned Programs Subtotals	14.298	16.426	17.341

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

N/A

Remarks

D. Acquisition Strategy

The Army will coordinate plans with USD (R&E), DTRA, and other Services to prototype and demonstrate CIED technologies, with Army and Service Laboratories and/or industry performing the demonstration activities. The Army will use existing and new contracts to perform these efforts with selected industry partners based on solicitations issued. The Army will continue promising technology demonstrations started in FY20 by DTRA based on review with DTRA, USD (R&E) and other Services.

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</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			
Remote Controlled IED Detection Technology Demonstration	C/CPFF	PEO IEW&S : Aberdeen, MD	4.383	1.823	Jan 2023	-		-		-		-	0.000	6.206	-
Anti-Armor IED Detection Technology Demonstration	C/Various	DEVCOM C5ISR : Ft. Belvoir, VA	4.228	1.539	Feb 2023	2.850	Feb 2024	-		-		-	0.000	8.617	-
Personnel Borne IED Detection Technology Demonstration	C/Various	DEVCOM CBC : Aberdeen, MD	4.809	3.812	Dec 2022	-		-		-		-	0.000	8.621	-
Off-Route IED Detection Technology Demonstrator	C/Various	DEVCOM GVSC : Warren, MI	3.173	2.593	Dec 2022	-		-		-		-	0.000	5.766	-
Water-Borne IED Detection Technology Demonstration	MIPR	Office of Naval Research (ONR) : Arlington, VA	2.245	2.995	Jan 2023	-		-		-		-	0.000	5.240	-
Teamed IED Detection Technology Demonstration	TBD	DEVCOM GVSC : Warren, MI	-	1.536	Feb 2023	3.356	Dec 2023	3.925	Dec 2023	-		3.925	0.000	8.817	-
IED Detection Evaluation in Varied Environments	C/Various	ARL : Adelphi, MD	-	-		2.118	Jan 2024	6.455	Jan 2024	-		6.455	0.000	8.573	-
Radio Controlled IED Interoperability Evaluation	C/TBD	PEO IEW&S : Aberdeen, MD	-	-		1.520	Dec 2023	-		-		-	0.000	1.520	-
Enhanced Personnel Borne IED Detection Prototyping	C/TBD	DEVCOM CBC : Edgewood, MD	-	-		2.756	Jan 2024	-		-		-	0.000	2.756	-
Maneuver IED Detection and Mitigation Technology Demonstration	C/TBD	TBD : TBD	-	-		3.826	Feb 2024	5.693	Feb 2024	-		5.693	0.000	9.519	-
Neutralization and Mitigation Technology Evaluation in Varied Environments	C/TBD	TBD : TBD	-	-		-		1.268	Feb 2024	-		1.268	0.000	1.268	-
Subtotal			18.838	14.298		16.426		17.341		-		17.341	0.000	66.903	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 0604134A / Counter Improvised-Threat Demonstration, Prototype Development, and Testing	Project (Number/Name) CD4 / Counter Improvised-Threat Demonstration

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
Radio Controlled IED Detection Technology Demonstration	[Blue Bar]				[Grey Bar]																							
Radio Controlled IED Detection Phase 2 Demonstration	[Blue Bar]				[Grey Bar]																							
Anti-Armor Multi-Sensor IED Detection Technology Demonst...	[Blue Bar]				[Grey Bar]																							
Personnel Borne IED Detection Technology Demonstration	[Blue Bar]				[Grey Bar]																							
Personnel Borne IED Detection Demonstration	[Blue Bar]				[Grey Bar]																							
Off-Route IED Detection Technology Demonstration	[Blue Bar]				[Grey Bar]																							
Off-Route IED Demonstration	[Blue Bar]				[Grey Bar]																							
Water-Borne IED Detection Technology Demonstration	[Blue Bar]				[Grey Bar]																							
Teamed IED Detection Technology Demonstration	[Blue Bar]				[Grey Bar]																							
Unmanned System Teaming Integration	[Blue Bar]				[Grey Bar]																							
Teamed IED Detection Demonstration	[Blue Bar]				[Grey Bar]																							
IED Detection Evaluation in Varied Environments	[Blue Bar]				[Grey Bar]																							
IED Detection Evaluation in Varied Environments Eval 1	[Blue Bar]				[Grey 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 0604134A / Counter Improvised-Threat Demonstration, Prototype Development, and Testing	Project (Number/Name) CD4 / Counter Improvised-Threat Demonstration

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
IED Detection Evaluation in Varied Environments Eval 2									5 Temperate Evaluation																			
IED Detection Evaluation in Varied Environments Eval 3													6 Jungle Evaluation															
Radio Controlled IED Interoperability Evaluation													3 Radio Controlled IED Interoperability Evaluation															
Radio Controlled IED Interoperability Evaluation Event																												
Enhanced Personnel Borne IED Detection Prototyping																												
Maneuver IED Detection and Mitigation Technology Demonstr...																												
Neutralization and Mitigation Technology Evaluation in V...																												

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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 0604134A / <i>Counter Improvised-Threat Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) CD4 / <i>Counter Improvised-Threat Demonstration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Radio Controlled IED Detection Technology Demonstration	1	2021	4	2023
Radio Controlled IED Detection Phase 2 Demonstration	1	2022	4	2023
Anti-Armor Multi-Sensor IED Detection Technology Demonstration	2	2023	4	2025
Personnel Borne IED Detection Technology Demonstration	1	2021	4	2023
Personnel Borne IED Detection Demonstration	4	2023	4	2023
Off-Route IED Detection Technology Demonstration	1	2022	4	2023
Off-Route IED Demonstration	4	2023	4	2023
Water-Borne IED Detection Technology Demonstration	1	2022	4	2023
Teamed IED Detection Technology Demonstration	2	2023	4	2025
Unmanned System Teaming Integration	2	2023	4	2023
Teamed IED Detection Demonstration	1	2024	4	2025
IED Detection Evaluation in Varied Environments	1	2024	4	2026
IED Detection Evaluation in Varied Environments Eval 1	4	2024	4	2024
IED Detection Evaluation in Varied Environments Eval 2	2	2025	2	2025
IED Detection Evaluation in Varied Environments Eval 3	4	2026	4	2026
Radio Controlled IED Interoperability Evaluation	2	2024	3	2024
Radio Controlled IED Interoperability Evaluation Event	3	2024	3	2024
Enhanced Personnel Borne IED Detection Prototyping	1	2024	4	2024
Maneuver IED Detection and Mitigation Technology Demonstration	1	2024	4	2027
Neutralization and Mitigation Technology Evaluation in Varied Environments	1	2025	4	2027

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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 0604135A / Strategic Mid-Range Fires
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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	379.535	31.559	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	411.094
MR2: Mid-Range Capability Ground Support Equipment	-	143.869	22.091	-	-	-	-	-	-	-	0.000	165.960
MR3: Mid-Range Capability (MRC) Missiles	-	171.710	-	-	-	-	-	-	-	-	0.000	171.710
MR4: Mid-Range Cap Launcher Payload Deployment System	-	63.956	9.468	-	-	-	-	-	-	-	0.000	73.424

Note

In Fiscal Year (FY) 2025, efforts in PE 0604135A/Strategic Mid-Range Fires transitions from RCCTO to PE 0605235A/Strategic Mid-Range Capability, Proj/CQ4: Mid-Range Capability at PEO M&S.

A. Mission Description and Budget Item Justification

The work in this PE supports the research, development, prototype, test and evaluation of technology to rapidly and efficiently procure, transition, and/or field critical enabling technologies and capabilities that address near-term, and mid-term threats and is directly aligned to the Army Long Range Precision Fires modernization priority.

The Program Element (PE) 0604135A funds the effort and continues as the program transitions. PE 0605235A. Five MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed and fielded by RCCTO, and PEO MS will complete the development and fielding of the four remaining MRC batteries. The mission of the MRC Prototype Weapon System is to provide Combatant Commanders with a strategic, ground-mobile, offensive missile capability. The MRC Prototype Weapon System will leverage existing SM-6 and Tomahawk technologies and missiles for ground launch, to provide a responsive, highly accurate, deep strike capability designed to destroy high value, high payoff targets. MRC is optimized for the penetration/dis-integration phase of Multi-Domain Operations (MDO) by defeating enemy Anti-Access / Area Denial (A2/AD) systems allowing the Combatant Commander freedom to maneuver during the exploitation phase.

The MRC Prototype Weapon System leverages Joint Service technologies and integration of common hardware, software, and mutually supporting test events. MRC provides the Launchers and Battery Operations Center (BOC) which enable the capability to fire a mix of missiles capable of flying at various speeds and altitudes for mid-range distances to engage targets. The first MRC Prototype Weapon System deliverable quantity is one residual combat MRC prototype battery consisting of four launchers, BOC, reload support, and the basic load of missiles consisting of eight (8) SM-6 Blk 1A and eight (8) Tomahawk Blk V to be fielded NLT 4Q FY 2023 as the First Unit of Issue (FUI). Delivery of follow-on batteries and additional capabilities by PEO MS will occur annually thereafter.

FY 2024 Base funding in the amount of \$31.559 million funds the logistics support of the first MRC battery, up to one year after First Unit Issue (FUI) Declaration. Logistics Support will include maintenance tasks and troubleshooting, sparing, and reach back for engineering support. Logistics Support will include embedded Field

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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 0604135A / <i>Strategic Mid-Range Fires</i>
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Service Representatives (FSRs) will provide subject matter expertise for the MRC Prototype Battery on a continuous basis starting at first unit of issue. Base funding allows for logistics support integration efforts to ensure safe and effective operational fielding of the prototype battery.

Project Numbers MR2, MR3, and MR4 are components of the overarching Program Element, PE 0604135A Strategic Mid-Range Fires.

MR2 - Mid-Range Capability Ground Support Equipment

The MRC Ground Support Equipment (GSE) leverages Joint Service technologies and integration of common hardware, software, mutually supporting test events, and logistics support for the GSE. This includes the Battery Operations Center (BOC), prime movers, trailers, generators, cabling, and support vehicles. The MRC BOC houses the federated Command and Control systems which enable the capability to fire a mix of missiles capable of flying at various speeds and altitudes for mid-range distances to engage targets.

MR3 - Mid-Range Capability Missile

Mid Range Capability Missiles. Missiles funding was moved to PE 0204229A / Tomahawk. There is no funding for MR3 - Mid Range Capability Missile in FY 24

MR4 - Mid-Range Capability Launcher Payload Deployment System

The MRC Launcher Payload Deployment System (PDS) leverages Joint Service technologies and integration of common hardware, software, mutually supporting test events, and logistics support for the MRC PDS. The MRC Launcher PDS stows and fires a mix of missiles. The missiles are capable of flying at various speeds and altitudes for mid-range distances to engage desired targets. The MRC Launcher PDS Project delivers four PDSs for each MRC Battery.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	404.291	31.559	0.000	-	0.000
Current President's Budget	379.535	31.559	0.000	-	0.000
Total Adjustments	-24.756	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	-			
• SBIR/STTR Transfer	-14.757	-			

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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 0604135A / <i>Strategic Mid-Range Fires</i>				Project (Number/Name) MR2 / <i>Mid-Range Capability Ground Support 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
MR2: <i>Mid-Range Capability Ground Support Equipment</i>	-	143.869	22.091	-	-	-	-	-	-	-	0.000	165.960
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MRC Ground Support Equipment (GSE) leverages Joint Service technologies and integration of common hardware, software, and mutually supporting test events for the GSE. This includes the Battery Operations Center (BOC), prime movers, trailers, generators, cabling, and support vehicles. The MRC BOC houses the federated Command and Control systems which enable the capability to fire a mix of missiles capable of flying at various speeds and altitudes for mid-range distances to engage targets.

The FY 2024 Base Funding in the amount of \$22.091 million funds the logistics support of the first MRC battery, up to one year after First Unit Issued Declaration. Logistics Support will include maintenance tasks and troubleshooting, sparing, and reach back for engineering support. Logistics Support will include embedded Field Service Representatives (FSRs) will provide subject matter expertise for the MRC Prototype Battery on a continuous basis starting at first unit of issue. Base funding allows for logistics support integration efforts to ensure safe and effective operational fielding of the prototype battery.

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

	FY 2023	FY 2024	FY 2025
Title: MR2 - Mid-Range Capability Ground Support Equipment	143.869	22.091	-
Description: The MRC Ground Support Equipment (GSE) leverages Joint Service technologies and integration of common hardware, software, and mutually supporting test events for the GSE. This includes the Battery Operations Center (BOC), prime movers, trailers, generators, cabling, and support vehicles. The MRC BOC houses the federated Command and Control systems.			
Funding the FY 2020, FY 2021, FY 2022 is located in PE 0604644A.			
FY 2024 Plans: The FY 2024 Base Funding in the amount of \$22.091M funds the logistics support of the first MRC battery, up to one year after First Unit Issued Declaration. Logistics Support will include maintenance tasks and troubleshooting, sparing, and reach back for engineering support. Logistics Support will include embedded Field Service Representatives (FSRs) will provide subject matter expertise for the MRC Prototype Battery on a continuous basis starting at first unit of issue. Base funding allows for logistics support integration efforts to ensure safe and effective operational fielding of the prototype battery.			
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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR2 / <i>Mid-Range Capability Ground Support Equipment</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 Decrease reflects the transition of the Mid Range Capability (MRC) program to Program Executive Office (PEO) Missiles and Space within PE 0605235A (Strategic Mid-Range Capability).			
Accomplishments/Planned Programs Subtotals	143.869	22.091	-

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

Remarks
Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

D. Acquisition Strategy
The MRC project develops, integrates, produces and sustains MRC specific analysis, design, development, and integration through a RCCTO prototype Other Transaction Authority (pOTA), which was awarded to Lockheed Martin (LM) in November 2020. Additionally, the pOTA has leveraged the Strategic Capabilities Office (SCO), Navy, and US Marine Corps (USMC) investments in weapon system development, since 2016, which are ongoing by providing a body of data including Technical Data Packages (TDP), Critical Design Review (CDR) artifacts, and active production lines. The MRC project leveraged existing contract vehicles to procure supporting items currently in production through a combination of Army and Navy contracts. Using these contracts, the MRC project retains commonality in production, training, logistics, and sustainment with the Navy.

US Army Rapid Capabilities and Critical Technologies Office (RCCTO) Mid-Range Capability (MRC) effort continues as the program transitions to the US Army Program Executive Office Missiles and Space (PEO MS) in FY2024 with the start of PE 0605235A in FY 2023. Five MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed by RCCTO, and the four remaining MRC batteries by PEO MS. Project Number MR2 / Mid-Range Capability Ground Support Equipment is a component of the overarching Program Element, PE 0604135A Strategic Mid-Range Fires.

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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 0604135A / Strategic Mid-Range Fires				MR2 / Mid-Range Capability Ground Support 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
System Engineering and Program Management	Various	TBD : Huntsville, AL; National Capitol Region	-	9.907	Nov 2022	1.973		-		-		-	0.000	11.880	-
Subtotal			-	9.907		1.973		-		-		-	0.000	11.880	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
Original Equipment Manufacturer (OEM)	SS/CPFF	Lockheed Martin : various	-	86.928	Jan 2023	19.265	Oct 2023	-		-		-	0.000	106.193	-
Government Furnished Equipment (GFE)	Various	Various : Various	-	13.972	Jan 2023	-		-		-		-	0.000	13.972	-
Other Government Agencies (OGA)	TBD	various : various	-	4.036	Jan 2023	0.853	Jan 2024	-		-		-	0.000	4.889	-
Subtotal			-	104.936		20.118		-		-		-	0.000	125.054	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
Cyber, Software, Transportation	Various	Various : Various	-	14.564	Oct 2022	-		-		-		-	0.000	14.564	-
Subtotal			-	14.564		-		-		-		-	0.000	14.564	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
Test and Evaluation	Various	various : Various	-	14.462	Jan 2023	-		-		-		-	0.000	14.462	-
Subtotal			-	14.462		-		-		-		-	0.000	14.462	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 0604135A / <i>Strategic Mid-Range Fires</i>				Project (Number/Name) MR2 / <i>Mid-Range Capability Ground Support Equipment</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	-	143.869	22.091	-	-	-	0.000	165.960	N/A			

Remarks
 Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI).

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR2 / <i>Mid-Range Capability Ground Support 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
MRC Ground Support Equipment (GSE) Assembly																												
MRC Battery Operation Center (BOC) Assembly																												
Initial System Integration and Check Out																												
Initial Fielding Prototype																												
Obtain Release to Train																												
Net																												
TRR																												
Obtain Release for Flight Test																												
SM-6 Missile Flight Test																												
Tomahawk Missile Flight Test																												
Subsequent Batteries GSE																												
First Unit of Issue (FUI)									1																			
Logistics Support																												

Note
Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI).

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR2 / <i>Mid-Range Capability Ground Support Equipment</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MRC Ground Support Equipment (GSE) Assembly	1	2022	1	2023
MRC Battery Operation Center (BOC) Assembly	1	2022	1	2023
Initial System Integration and Check Out	3	2022	1	2023
New Materiel in Brief (NMIB)	3	2022	3	2022
Initial Fielding Prototype	1	2023	1	2023
Obtain Release to Train	1	2023	4	2023
Net	2	2023	3	2023
TRR	2	2023	2	2023
Obtain Release for Flight Test	3	2023	3	2023
SM-6 Missile Flight Test	3	2023	3	2023
Tomahawk Missile Flight Test	3	2023	3	2023
Subsequent Batteries GSE	3	2022	4	2023
First Unit of Issue (FUI)	4	2023	4	2023
Logistics Support	1	2024	4	2024

Note

Program Element (PE) 0604135A / *Strategic Mid-Range Fires* (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI).

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR3 / <i>Mid-Range Capability (MRC) Missiles</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
MR3: <i>Mid-Range Capability (MRC) Missiles</i>	-	171.710	-	-	-	-	-	-	-	-	0.000	171.710
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MRC buys missiles and associated missile support equipment needed for the operational fielding of the MRC prototype Battery. The missiles are capable of flying at various speeds and altitudes for mid-range distances to engage targets. MRC provides Program Management and Systems Engineering for missile buys. The FY 2023 Base funding in the amount of \$148.116 million was moved from PE 0604644A to PE 0604135A and continues buying missiles in FY 2023. Details at a higher classification.

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

	FY 2023	FY 2024	FY 2025
Title: MR3 - Mid-Range Capability (MRC) Missile	171.710	-	-
Description: MRC missiles and associated missile support equipment buy is needed for operational fielding of the MRC Prototype Battery. The missiles are capable of flying at various speeds and altitudes for mid-range distances to engage targets. MRC provides Government Systems Engineering and Program Management for missile buys.			
Accomplishments/Planned Programs Subtotals	171.710	-	-

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

N/A

Remarks

Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

D. Acquisition Strategy

The MRC project develops, integrates, produces and sustains MRC specific analysis, design, development, and integration through a RCCTO prototype. The MRC Weapon System leveraged existing contract vehicles to procure supporting items currently in production through a combination of Army and Navy contracts. Using these contracts, the MRC Prototype Weapon System retains commonality in production, training, logistics, and sustainment with the Navy.

US Army Rapid Capabilities and Critical Technologies Office (RCCTO) Mid-Range Capability (MRC) effort continues as the program transitions to the US Army Program Executive Office Missiles and Space (PEO MS) in FY24 with the start of PE 0605235A in FY 2023. Five MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed by RCCTO, and the four remaining MRC batteries by PEO MS. Project Number MR3 / Mid-Range Capability Missiles is a component of the overarching Program Element, PE 0604135A Strategic Mid-Range Fires.

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR3 / <i>Mid-Range Capability (MRC) Missiles</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			
System Engineering and Program Management	Various	TBD : Huntsville, AL; National Capitol Region	-	0.441	Nov 2022	-		-		-		-	0.000	0.441	-
Subtotal			-	0.441		-		-		-		-	0.000	0.441	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			
Missiles	Various	TBD : Huntsville, AL; National Capitol Region	-	171.269	Dec 2022	-		-		-		-	0.000	171.269	-
Subtotal			-	171.269		-		-		-		-	0.000	171.269	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			-	171.710	-	-	-	-	0.000	171.710	N/A

Remarks
 Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR3 / <i>Mid-Range Capability (MRC) Missiles</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
Missile Buy																												
SM-6 Missile Flight Test																												
Tomahawk Missile Flight Test																												
Initial Missile Delivery to Support First Unit Issue (FUI)																												
First Unit of Issue (FUI)																												
Remaining Missile Delivery																												

Note
 Program Element (PE) 0604135A / *Strategic Mid-Range Fires (RCCTO)* in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / *Strategic Mid-Range Capability (PEO MS)* and PE 0204229A / *Tomahawk (PEO MS)*.

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR3 / <i>Mid-Range Capability (MRC) Missiles</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Missile Buy	3	2022	4	2023
SM-6 Missile Flight Test	3	2023	3	2023
Tomahawk Missile Flight Test	3	2023	3	2023
Initial Missile Delivery to Support First Unit Issue (FUI)	3	2023	3	2023
First Unit of Issue (FUI)	4	2023	4	2023
Remaining Missile Delivery	4	2023	4	2025

Note

Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A/Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

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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 0604135A / <i>Strategic Mid-Range Fires</i>				Project (Number/Name) MR4 / <i>Mid-Range Cap Launcher Payload Deployment System</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
MR4: <i>Mid-Range Cap Launcher Payload Deployment System</i>	-	63.956	9.468	-	-	-	-	-	-	-	0.000	73.424
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MRC Launcher PDS leverages Joint Service technologies and integration of common hardware, software, and mutually supporting test events for the MRC Payload Deployment System. The MRC Launcher PDS stows and fires a mix of missile types to include SM-6 and Tomahawk. The missiles are capable of flying at various speeds and altitudes for mid-range distances to engage desired targets. The MRC Launcher PDS Project delivers four PDSs for each MRC Battery. Additional missiles may be integrated to the MRC Launcher PDS capability needs.

The FY 2024 Base Funding in the amount of \$9.468 M funds the logistics support of the first MRC battery, up to one year after First Unit Issued Declaration. Logistics Support will include maintenance tasks and troubleshooting, spares, and reach back for engineering support. Logistics Support will include embedded Field Service Representatives (FSRs) will provide subject matter expertise for the MRC Prototype Battery on a continuous basis starting at first unit of issue. Base funding allows for logistics support integration efforts to ensure safe and effective operational fielding of the prototype battery.

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

	FY 2023	FY 2024	FY 2025
Title: MR4 - Mid-Range Capability Launcher Payload Deployment System (PDS)	63.956	9.468	-
Description: The MRC Launcher PDS leverages Joint Service technologies and integration of common hardware, software, and mutually supporting test events for the MRC Launcher PDS. The MRC Launcher PDS stows and fires a mix of missile types to include SM-6 and Tomahawk missiles. The missiles are capable of flying at various speeds and altitudes for mid-range distances to engage desired targets. The MRC Launcher PDS project delivers four PDSs for each MRC Battery. Additional missiles may be integrated to the MRC Launcher PDS to meet capability needs.			
US Army Rapid Capabilities and Critical Technologies Office (RCCTO) Mid-Range Capability (MRC) effort continues as the program transitions to the US Army Program Executive Office Missiles and Space (PEO MS) PE 0605235A in FY2023. Five MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed by RCCTO, and the four remaining MRC batteries by PEO MS.			
FY 2024 Plans: The FY 2024 Base Funding in the amount of \$9.468M funds the logistics support of the first MRC battery, up to one year after First Unit Issued Declaration. Logistics Support will include maintenance tasks and troubleshooting, sparing, and reach back for engineering support. Logistics Support will include embedded Field Service Representatives (FSRs) will provide subject matter			

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR4 / <i>Mid-Range Cap Launcher Payload Deployment System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
expertise for the MRC Prototype Battery on a continuous basis starting at first unit of issue. Base funding allows for logistics support integration efforts to ensure safe and effective operational fielding of the prototype battery			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY 2025 Decrease reflects the transition of the Mid Range Capability (MRC) program to Program Executive Office (PEO) Missiles and Space within PE 0605235A (Strategic Mid-Range Capability).			
Accomplishments/Planned Programs Subtotals	63.956	9.468	-

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

N/A

Remarks

Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

D. Acquisition Strategy

The MRC project develops, integrates, produces and sustains MRC specific analysis, design, development, and integration through a RCCTO prototype Other Transaction Authority (pOTA), which was awarded to Lockheed Martin (LM) in November 2020. Additionally, the pOTA has leveraged the Strategic Capabilities Office (SCO), Navy, and US Marine Corps (USMC) investments in weapon system development, since 2016, which are ongoing by providing a body of data including Technical Data Packages (TDP), Critical Design Review (CDR) artifacts, and active production lines. The MRC project leveraged existing contract vehicles to procure supporting items currently in production through a combination of Army and Navy contracts. Using these contracts, the MRC project retains commonality in production, training, logistics, and sustainment with the Navy.

US Army Rapid Capabilities and Critical Technologies Office (RCCTO) Mid-Range Capability (MRC) effort continues as the program transitions to the US Army Program Executive Office Missiles and Space (PEO MS) in FY24 with the start of PE 0605235A in FY 2023. Five MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed by RCCTO, and the four remaining MRC batteries by PEO MS. Project Number MR4 / Mid-Range Capability Launcher Payload Deployment System is a component of the overarching Program Element, PE 0604135A Strategic Mid-Range Fires.

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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 0604135A / Strategic Mid-Range Fires				MR4 / Mid-Range Cap Launcher Payload Deployment System							
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
System Engineering and Program Management (SEPM)	Various	TBD : Huntsville, AL; National Capitol Region	-	6.567	Nov 2022	1.268	Oct 2023	-		-		-	0.000	7.835	-
Subtotal			-	6.567		1.268		-		-		-	0.000	7.835	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
Original Equipment Manufacturer (OEM)	SS/CPFF	Lockheed Martin : various	-	45.607	Jan 2023	8.200	Jan 2024	-		-		-	0.000	53.807	-
Subtotal			-	45.607		8.200		-		-		-	0.000	53.807	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
Cyber, Software, Transportation	Various	Various : Various	-	6.491	Oct 2022	-		-		-		-	0.000	6.491	-
Subtotal			-	6.491		-		-		-		-	0.000	6.491	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
Test and Evaluation	Various	various : Various	-	5.291	Jan 2023	-		-		-		-	0.000	5.291	-
Subtotal			-	5.291		-		-		-		-	0.000	5.291	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 0604135A / <i>Strategic Mid-Range Fires</i>			Project (Number/Name) MR4 / <i>Mid-Range Cap Launcher Payload Deployment System</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	-	63.956	9.468	-	-	-	0.000	73.424	N/A		

Remarks
 Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR4 / <i>Mid-Range Cap Launcher Payload Deployment System</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
MRC Launcher Payload Deployment System (PDS) Assembly	████████																											
Initial System Integration and Check Out	████████																											
Initial Fielding Prototype	████████																											
Obtain Release to Train	████████																											
Net	████████																											
TRR	████████																											
Obtain Release for Flight Test	████████																											
SM-6 Missile Flight Test	████████																											
Tomahawk Missile Flight Test	████████																											
Subsequent Batteries Launcher PDS	████████																											
First Unit of Issue (FUI)	████████																											
CLS	████████								████████																			

Note
 Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

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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 0604135A / <i>Strategic Mid-Range Fires</i>	Project (Number/Name) MR4 / <i>Mid-Range Cap Launcher Payload Deployment System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MRC Launcher Payload Deployment System (PDS) Assembly	1	2022	1	2023
Initial System Integration and Check Out	3	2022	1	2023
New Materiel in Brief (NMIB)	3	2022	3	2022
Initial Fielding Prototype	1	2023	1	2023
Obtain Release to Train	1	2023	4	2023
Net	2	2023	3	2023
TRR	2	2023	2	2023
Obtain Release for Flight Test	3	2023	3	2023
SM-6 Missile Flight Test	3	2023	3	2023
Tomahawk Missile Flight Test	3	2023	3	2023
Subsequent Batteries Launcher PDS	3	2022	4	2023
First Unit of Issue (FUI)	4	2023	4	2023
CLS	1	2024	4	2024

Note

Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A / Strategic Mid-Range Capability (PEO MS) and PE 0204229A / Tomahawk (PEO MS).

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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 0604182A / <i>Hypersonics</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	309.068	43.435	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	352.503
HX1: <i>Long-Range Hypersonic Weapon</i>	-	10.000	-	-	-	-	-	-	-	-	0.000	10.000
HX3: <i>All Up Round and Canister (AUR+C)</i>	-	71.614	-	-	-	-	-	-	-	-	0.000	71.614
HX4: <i>Common Hypersonic Glide Body (CHGB)</i>	-	92.589	-	-	-	-	-	-	-	-	0.000	92.589
HX5: <i>Ground Support Equipment (GSE)</i>	-	95.403	43.435	-	-	-	-	-	-	-	0.000	138.838
HX6: <i>Test and Evaluation</i>	-	39.462	-	-	-	-	-	-	-	-	0.000	39.462

Note

FY2024 is the last year of funding for Program Element (PE) 0604182A / Hypersonics and efforts will transition to PE 0605232A / Hypersonics EMD.

A. Mission Description and Budget Item Justification

The work in this Program Element (PE) supports the research, development, prototype, test and evaluation of technology to rapidly and efficiently procure, transition, and/or field critical enabling technologies and capabilities that address near-term, and mid-term threats and is directly aligned to the Army Long Range Precision Fires modernization priority.

PE 0604182A Hypersonics funds the development and prototype fielding of a Long Range Hypersonic Weapon to suppress adversary Long Range Fires and engage other high payoff/time critical targets. This effort encompasses the growth, testing and transition of Long Range Fires technologies.

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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 0604182A / <i>Hypersonics</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	238.168	43.435	0.000	-	0.000
Current President's Budget	309.068	43.435	0.000	-	0.000
Total Adjustments	70.900	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	76.856	-			
• SBIR/STTR Transfer	-5.956	-			

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

Project: HX1: Long-Range Hypersonic Weapon

Congressional Add: *Program Increase - Materials, Manufacturing & Machine Learning for Hypersonics*

Congressional Add Subtotals for Project: HX1

Project: HX4: Common Hypersonic Glide Body (CHGB)

Congressional Add: *Hypersonic Glide Body Risk Reduction*

Congressional Add: *Near Net Shape Materials*

Congressional Add Subtotals for Project: HX4

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	10.000	-
Congressional Add Subtotals for Project: HX1	10.000	-
	60.000	-
	5.000	-
Congressional Add Subtotals for Project: HX4	65.000	-
Congressional Add Totals for all Projects	75.000	-

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX1 / <i>Long-Range Hypersonic Weapon</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
HX1: <i>Long-Range Hypersonic Weapon</i>	-	10.000	-	-	-	-	-	-	-	-	0.000	10.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Previously, FY20-FY25 funding was captured within Program Element (PE) 0604182A / Hypersonics, Project HX1 / Long-Range Hypersonic Weapon. Beginning in FY23, all funding is realigned from Program Element (PE) 0604182A / Hypersonics, Project HX1 to Project HX3, HX4, HX5 and HX6 beneath PE 0604182A / Hypersonics.

This funding will transition the Budget Activity (BA) 4 activities to a Program of Record within PE 0605232A / Hypersonics EMD.

A. Mission Description and Budget Item Justification

Funding supports efforts to field an experimental prototype Hypersonic Weapon System with residual combat capability at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations by the end of FY 2023. Initial fielding of all ground support equipment and training canisters, less live rounds, was completed in FY 2021. The Long Range Hypersonic Weapon (LRHW) system will provide the Army a prototype strategic attack weapon system to defeat Anti Access/ Area Denial (A2/AD) capabilities, suppress adversary Long Range Fires, and engage other high payoff/time critical targets. The Army is working closely with the Navy in the development of the LRHW. Common with the Navy, the LRHW system includes a Common Hypersonic Glide Body (CHGB) and common 34.5 inch booster. Additionally, the LRHW will use an existing Command and Control (C2) Network, the Advanced Field Artillery Tactical Data System (AFATDS).

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

	FY 2023	FY 2024
Congressional Add: Program Increase - Materials, Manufacturing & Machine Learning for Hypersonics	10.000	-
FY 2023 Accomplishments: Produced and qualified additively manufactured components to support future production line incorporation to the Common Hypersonic Glide Body. Developed and coordinated Non-Destructive Inspection (NDI) criteria for Additively Manufactured parts to help reduce program cost and accelerate schedule for product acceptance. Performed a cyber and physical review of designs to optimize parts based on use of AM processes vice standard machining processes, reducing cost, weight, and wasted material.		
Congressional Adds Subtotals	10.000	-

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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX1 / <i>Long-Range Hypersonic Weapon</i>
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D. Acquisition Strategy

The Army will field an experimental prototype Hypersonic Weapons System with residual operational capability NLT FY 2023 at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations. Contractor Logistics Support (CLS) will be provided for one year following the delivery of the first battery. This effort uses a combination of Other Transaction Authority's (OTA's) and the Navy Conventional Prompt Strike (CPS) contract with Lockheed Martin. Long-lead procurement is required 2 years prior to delivery which resulted in a significant ramp up of funding in FY 2021 to meet the FY 2022 manufacturing and FY 2023 fielding requirement. Quick awards of the OTA and Navy CPS contracts ensure procurements are executed with adequate time to execute the funds and program requirements. A SETA contract provides support to the Government Project Office. The PEO M&S transition team is currently embedded within RCCTO to ensure an efficient transition in FY 2024 as a program of record.

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX1 / <i>Long-Range Hypersonic Weapon</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
JFC-2 Test	▲ 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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX1 / <i>Long-Range Hypersonic Weapon</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Integration Systems Requirement Review	1	2020	1	2020
AUR+C Preliminary Design Review	2	2020	2	2020
GSE Preliminary Design Review	2	2020	2	2020
Launcher Preliminary Design Review	3	2020	3	2020
GSE Critical Design Review	1	2021	1	2021
CHGB Long Lead/Production	1	2020	4	2022
Launcher Design/Manufacturing	1	2020	4	2021
Canisters Delivered for training	3	2021	4	2021
LRHW AUR+C Booster and Canister Deliveries	3	2021	4	2022
Delivery of Prototypes Launchers	4	2021	4	2021
Contractor Logistics Support (CLS)	1	2022	4	2022
New Equipment Training	1	2022	2	2022
Initial Fielding of BOC and TELs	4	2021	4	2021
FT-3 Test	1	2022	1	2022
JFC-1 Test	3	2022	3	2022
JFC-2 Test	2	2023	2	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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX3 / <i>All Up Round and Canister (AUR+C)</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
HX3: <i>All Up Round and Canister (AUR+C)</i>	-	71.614	-	-	-	-	-	-	-	-	0.000	71.614
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This funding will transition the Budget Activity (BA) 4 AUR+C activities to a Program of Record within PE 0605232A / Hypersonics EMD.

A. Mission Description and Budget Item Justification

Funds the effort to field an experimental prototype Hypersonic Weapon System with residual combat capability at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations by the end of FY 2023. Initial fielding of all ground support equipment and training canisters, less live rounds, was completed in FY 2021. The Long Range Hypersonic Weapon (LRHW) system will provide the Army a prototype strategic attack weapon system to defeat Anti Access/Area Denial (A2/AD) capabilities, suppress adversary Long Range Fires, and engage other high payoff/time critical targets. The Army is working closely with the Navy in the development of the LRHW. Common with the Navy, the LRHW system includes a Common Hypersonic Glide Body (CHGB) and common 34.5 inch booster. Additionally, the LRHW will use an existing Command and Control (C2) Network, the Advanced Field Artillery Tactical Data System (AFATDS).

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

	FY 2023	FY 2024	FY 2025
Title: All Up Round and Canister (AUR+C)	71.614	-	-
Description: This effort is the development, purchase of hardware, integration, assembly, test and delivery of the All Up Round and Canister (AUR+C).			
Accomplishments/Planned Programs Subtotals	71.614	-	-

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

N/A

Remarks

D. Acquisition Strategy

The RCCTO has a program level acquisition strategy that will field an experimental prototype Hypersonic Weapons System with residual operational capability NLT FY 2023 at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations. Contractor Logistics Support (CLS) will be provided for one year following the delivery of the first battery. RCCTO uses a combination of Other Transaction Authority's (OTA's) and the Navy Conventional Prompt Strike (CPS) contract with Lockheed Martin. The AUR+C is currently embedded into this strategy as a project. Long lead procurement is required 2 years prior to delivery resulting in a significant ramp up of funding in FY 2021 to meet the FY 2022 manufacturing and FY 2023 fielding requirement. Quick awards of the OTA and Navy CPS contracts ensure procurements are executed with adequate time to execute the funds and program requirements. A SETA contract provides support to the Government Project Office. The PEO M&S transition team is currently embedded within RCCTO to ensure an efficient transition in FY 2024 as a program of record.

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX3 / <i>All Up Round and Canister (AUR+C)</i>

The detailed acquisition strategy specific to AUR+C will be defined by PEO M&S to support the follow on AUR+C requirements currently funded in PE 0605232A / Hypersonics Weapon (LRHW), Project HX2.

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX3 / <i>All Up Round and Canister (AUR+C)</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
Army Canister Deliveries																												
LRHW AUR+C Booster Deliveries																												
JFC-2 Test	▲ 1																											
JFC-3 Test									▲ 2																			
IM/HC Testing																												
LRHW FUI									▲ 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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX3 / <i>All Up Round and Canister (AUR+C)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Army Canister Deliveries	1	2023	4	2023
LRHW AUR+C Booster Deliveries	1	2023	4	2023
JFC-2 Test	2	2023	2	2023
JFC-3 Test	4	2023	4	2023
IM/HC Testing	1	2023	2	2023
LRHW FUI	4	2023	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 0604182A / Hypersonics				Project (Number/Name) HX4 / Common Hypersonic Glide Body (CHGB)			
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
HX4: Common Hypersonic Glide Body (CHGB)	-	92.589	-	-	-	-	-	-	-	-	0.000	92.589
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This funding will transition the Budget Activity (BA) 4 AUR+C activities to PE 0605232A / Hypersonics EMD.

A. Mission Description and Budget Item Justification

Funds the effort to field an experimental prototype Hypersonic Weapon System with residual combat capability at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations by the end of FY 2023. Initial fielding of all ground support equipment and training canisters, less live rounds, was completed in FY 2021. The Long Range Hypersonic Weapon (LRHW) system will provide the Army a prototype strategic attack weapon system to defeat Anti Access/Area Denial (A2/AD) capabilities, suppress adversary Long Range Fires, and engage other high payoff/time critical targets. The Army is working closely with the Navy in the development of the LRHW. Common with the Navy, the LRHW system includes a Common Hypersonic Glide Body (CHGB) and common 34.5 inch booster. Additionally, the LRHW will use an existing Command and Control (C2) Network, the Advanced Field Artillery Tactical Data System (AFATDS).

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

	FY 2023	FY 2024	FY 2025
Title: Common Hypersonic Glide Body (CHGB)	27.589	-	-
Description: This effort is the development, purchase of the hardware, integration, assembly, test and delivery of the Common Hypersonic Glide Body (CHGB) system for the missile.			
Accomplishments/Planned Programs Subtotals	27.589	-	-

	FY 2023	FY 2024
Congressional Add: Hypersonic Glide Body Risk Reduction	60.000	-
FY 2023 Accomplishments: Furthered efforts executed under FY22 80 \$44,000K "Hypersonic Glidebody Risk Reduction" to purchase additional equipment for Common Hypersonic Glidebody (CHGB) production ramp up, purchased critical spare parts to offset risk for flight tests, improved supplier base and manufacturing capabilities, developed test equipment and continue production engineering effort to make design more affordable.		
Congressional Add: Near Net Shape Materials	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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX4 / <i>Common Hypersonic Glide Body (CHGB)</i>

	FY 2023	FY 2024
FY 2023 Accomplishments: Furthered efforts executed under FY22 80 \$500K Near Net Shape Materials to develop viable long-term alternatives to currently constrained industrial base for Thermal Protection Systems. In addition, this effort also looked to design and produce a prototype part that can validate manufacturing rate, scaling limitations, and mechanical properties.		
Congressional Adds Subtotals	65.000	-

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

N/A

Remarks

D. Acquisition Strategy

The RCCTO has a program level acquisition strategy that will field an experimental prototype Hypersonic Weapons System with residual operational capability NLT FY 2023 at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations. Contractor Logistics Support (CLS) will be provided for one year following the delivery of the first battery. RCCTO uses a combination of Other Transaction Authority's (OTA's) and the Navy Conventional Prompt Strike (CPS) contract with Lockheed Martin. The CHGB is currently embedded into this strategy as a project. Long lead procurement is required 2 years prior to delivery resulting in a significant ramp up of funding in FY 2021 to meet the FY 2022 manufacturing and FY 2023 fielding requirement. Quick awards of the OTA and Navy CPS contracts ensure procurements are executed with adequate time to execute the funds and program requirements. A SETA contract provides support to the Government Project Office. The PEO M&S transition team is currently embedded within RCCTO to ensure an efficient transition in FY 2024 as a program of record.

The detailed acquisition strategy specific to CHGB will be defined by PEO M&S to support the follow on CHGB requirements currently funded in PE 0605232A / Hypersonics Weapon (LRHW), Project HX2.

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX4 / <i>Common Hypersonic Glide Body (CHGB)</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
CHGB Deliveries	██████████																											
JFC-2 Test	▲ 1																											
JFC-3 Test									▲ 2																			
LRHW FUI									▲ 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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX4 / <i>Common Hypersonic Glide Body (CHGB)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CHGB Deliveries	1	2023	3	2023
JFC-2 Test	2	2023	2	2023
JFC-3 Test	4	2023	4	2023
LRHW FUI	4	2023	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 0604182A / Hypersonics	Project (Number/Name) HX5 / Ground Support Equipment (GSE)
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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
HX5: Ground Support Equipment (GSE)	-	95.403	43.435	-	-	-	-	-	-	-	0.000	138.838
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2024 remaining funding for Program Element (PE) 0604182A / Hypersonics and efforts will transition the Budget Activity (BA) 4 GSE activities to PE 0605232A / Hypersonics EMD.

A. Mission Description and Budget Item Justification

Funds the effort to field an experimental prototype Hypersonic Weapon System with residual combat capability at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations by the end of FY 2023. Initial fielding of all ground support equipment and training canisters, less live rounds, was completed in FY 2021. The Long Range Hypersonic Weapon (LRHW) system will provide the Army a prototype strategic attack weapon system to defeat Anti Access/Area Denial (A2/AD) capabilities, suppress adversary Long Range Fires, and engage other high payoff/time critical targets. The Army is working closely with the Navy in the development of the LRHW. Common with the Navy, the LRHW system includes a Common Hypersonic Glide Body (CHGB) and common 34.5 inch booster. Additionally, the LRHW will use an existing Command and Control (C2) Network, the Advanced Field Artillery Tactical Data System (AFATDS).

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

	FY 2023	FY 2024	FY 2025
Title: Ground Support Equipment (GSE)	95.403	43.435	-
Description: This funding is provided for planning, manufacturing and integration efforts for the Battery Operations Center (BOC), Transporter Erector Launcher (TEL), the Fielding and Transition efforts as well as the overall Systems Integration with the All Up Round and Canister (AUR+C) for the LRHW program.			
FY 2024 Plans: The FY 2024 Base Funding in the amount of \$43.244 million funds the logistics support of the first battery, up to one year after First Unit Issued Declaration. Logistics Support will include maintenance tasks and troubleshooting, sparing, and reach back for engineering support. Logistics Support will include embedded Field Service Representatives (FSRs) and will provide subject matter expertise for the LRHW Prototype Battery on a continuous basis starting at first unit of issue. Base funding allows for logistics support integration efforts to ensure safe and effective operational fielding of the prototype battery. Software development and maintenance to incorporate design changes resulting from test events as well as user feedback.			
FY 2024 to FY 2025 Increase/Decrease Statement: FY25 decrease reflects the transition of the Long Range Hypersonic Weapon (LRHW) program to Program Executive Office (PEO) Missiles and Space within PE 060523A/Hypersonics EMD.			
Accomplishments/Planned Programs Subtotals	95.403	43.435	-

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX5 / <i>Ground Support Equipment (GSE)</i>
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C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The RCCTO has a program level acquisition strategy that will field an experimental prototype Hypersonic Weapons System with residual operational capability NLT FY 2023 at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations. Contractor Logistics Support (CLS) will be provided for one year following the delivery of the first battery. RCCTO uses a combination of Other Transaction Authority's (OTA's) and the Navy Conventional Prompt Strike (CPS) contract with Lockheed Martin. The GSE is currently embedded into this strategy as a project. Funding for long lead items is required 2 years prior to delivery resulting in a significant ramp up of funding in FY 2021 to meet the FY 2022 manufacturing and FY 2023 fielding requirement. Quick awards of the OTA and Navy CPS contracts ensure funding actions are initiated with adequate time to execute the funds and program requirements. A SETA contract provides support to the Government Project Office. The PEO M&S transition team is currently embedded within RCCTO to ensure an efficient transition in FY 2024 as a program of record.

The detailed acquisition strategy specific to GSE will be defined by PEO M&S to support the follow on GSE requirements currently funded in PE 0605232A / Hypersonics Weapon (LRHW), Project HX2.

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX5 / <i>Ground Support Equipment (GSE)</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
Contractor Logistics Support (CLS)																												
JFC-2 Test																												
JFC-3 Test																												
Delta New Equipment Training																												
LRHW FUI																												

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX5 / <i>Ground Support Equipment (GSE)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Contractor Logistics Support (CLS)	1	2023	4	2024
JFC-2 Test	2	2023	2	2023
JFC-3 Test	4	2023	4	2023
Delta New Equipment Training	1	2023	1	2023
LRHW FUI	4	2023	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 0604182A / Hypersonics				Project (Number/Name) HX6 / Test and Evaluation			
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
HX6: <i>Test and Evaluation</i>	-	39.462	-	-	-	-	-	-	-	-	0.000	39.462
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This funding will transition the Budget Activity (BA) 4 Test and Evaluation activities to PE 0605232A / Hypersonics EMD.

A. Mission Description and Budget Item Justification

Funds the effort to field an experimental prototype Hypersonic Weapon System with residual combat capability at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations by the end of FY 2023. Initial fielding of all ground support equipment and training canisters, less live rounds, was completed in FY 2021. The Long Range Hypersonic Weapon (LRHW) system will provide the Army a prototype strategic attack weapon system to defeat Anti Access/Area Denial (A2/AD) capabilities, suppress adversary Long Range Fires, and engage other high payoff/time critical targets. The Army is working closely with the Navy in the development of the LRHW. Common with the Navy, the LRHW system includes a Common Hypersonic Glide Body (CHGB) and common 34.5 inch booster. Additionally, the LRHW will use an existing Command and Control (C2) Network, the Advanced Field Artillery Tactical Data System (AFATDS).

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

	FY 2023	FY 2024	FY 2025
Title: Test and Evaluation	39.462	-	-
Description: Test and evaluation includes test planning, execution, and analysis of 2 major flight tests. Also provides required support for environmental testing.			
Accomplishments/Planned Programs Subtotals	39.462	-	-

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

N/A

Remarks

D. Acquisition Strategy

The RCCTO has a program level acquisition strategy that will field an experimental prototype Hypersonic Weapons System with residual operational capability NLT FY 2023 at the Battery Level as part of the Long Range Fires Battalion in support of Multi-domain Operations. Contractor Logistics Support (CLS) will be provided for one year following the delivery of the first battery. RCCTO uses a combination of Other Transaction Authority's (OTA's) and the Navy Conventional Prompt Strike (CPS) contract with Lockheed Martin. Test is currently embedded into this strategy as a project. Long lead procurement is required 2 years prior to delivery resulting in a significant ramp up of funding in FY 2021 to meet the FY 2022 manufacturing and FY 2023 fielding requirement. Quick awards of the OTA and Navy CPS contracts ensure procurements are executed with adequate time to execute the funds and program requirements. A SETA contract provides support to the Government Project Office. The PEO M&S transition team is currently embedded within RCCTO to ensure an efficient transition in FY 2024 as a program of record.

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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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX6 / <i>Test and Evaluation</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
JFC-2 Test		▲ 1																										
JFC-2 Post Flight Analysis		■																										
JFC-3 Test				▲ 2																								
LRHW FUI				▲ 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 0604182A / <i>Hypersonics</i>	Project (Number/Name) HX6 / <i>Test and Evaluation</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JFC-2 Test	2	2023	2	2023
JFC-2 Post Flight Analysis	2	2023	3	2023
JFC-3 Test	4	2023	4	2023
LRHW FUI	4	2023	4	2023

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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 0604386A / <i>Biotechnology for Materials - Dem/Val</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	0.000	0.000	20.862	0.000	20.862	0.000	0.000	0.000	0.000	0.000	20.862
CQ9: <i>Biotechnology for Materials - Dem/Val</i>	-	-	-	20.862	-	20.862	-	-	-	-	0.000	20.862

Note

Biotechnology for Materials - Dem/Val is a new start in FY 2025.

A. Mission Description and Budget Item Justification

This Project will create a pipeline to down-select promising biotechnology capabilities towards fielded novel solutions for warfighter needs by enabling prototyping at an efficiency and speed greater than is currently possible, through integration of "cutting-edge" instrumentation and robotics in laboratory and armament/warfare centers/depots testing & evaluation systems. T-BRSC will deliver biotechnology advanced evaluations that exhibit Defense supply chain resiliency by providing alternative means of sourcing critical materials (e.g. jet fuel precursors, energetic precursors, lubricants, epoxies, anti-fouling compounds, recovery of rare earth elements) for transition into service acquisition programs. T-BRSC's comprehensive DoD investment strategy will develop the necessary biotechnology pipeline from demonstration and prototyping to manufacture and fielding, to reduce the risk of technological overmatch by adversaries and enable U.S. military and national security objectives for the future. This will provide Supply Chain Resiliency to the U.S. military, while enabling U.S. industry to support military and national security objectives, as well as de-risking cross-cutting and dual-use technologies necessary to drive commercialization and promote the U.S. Bioeconomy to compete with adversaries.

Work in this Project complements PE 0603386A (Biotechnology for Materials - Advanced Research) / CP7 (Biotechnology Demonstration and Evaluation).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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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 0604386A / <i>Biotechnology for Materials - Dem/Val</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	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	20.862	-	20.862
Total Adjustments	0.000	0.000	20.862	-	20.862
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	20.862	-	20.862

Change Summary Explanation

Funding increase reflects New Start for Biotechnology for Materials - Dem/Val.

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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 0604386A / <i>Biotechnology for Materials - Dem/Val</i>				Project (Number/Name) CQ9 / <i>Biotechnology for Materials - 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
CQ9: <i>Biotechnology for Materials - Dem/Val</i>	-	-	-	20.862	-	20.862	-	-	-	-	0.000	20.862
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Biotechnology for Materials - Dem/Val is a new start within the Biotechnology for Materials - Dem/Val program in FY 2025.

A. Mission Description and Budget Item Justification

This Project will create a pipeline to down-select promising biotechnology capabilities towards fielded novel solutions for warfighter needs by enabling prototyping at an efficiency and speed greater than is currently possible, through integration of "cutting-edge" instrumentation and robotics in laboratory and armament/warfare centers/depots testing & evaluation systems. T-BRSC will deliver biotechnology advanced evaluations that exhibit Defense supply chain resiliency by providing alternative means of sourcing critical materials (e.g. jet fuel precursors, energetic precursors, lubricants, epoxies, anti-fouling compounds, recovery of rare earth elements) for transition into service acquisition programs. T-BRSC's comprehensive DoD investment strategy will develop the necessary biotechnology pipeline from demonstration and prototyping to manufacture and fielding, to reduce the risk of technological overmatch by adversaries and enable U.S. military and national security objectives for the future. This will provide Supply Chain Resiliency to the U.S. military, while enabling U.S. industry to support military and national security objectives, as well as de-risking cross-cutting and dual-use technologies necessary to drive commercialization and promote the U.S. Bioeconomy to compete with adversaries.

Work in this Project complements PE 0603386A (Biotechnology for Materials - Advanced Research) / CP7 (Biotechnology Demonstration and Evaluation).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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

	FY 2023	FY 2024	FY 2025
Title: Title: Biotechnology for Materials - Dem/Val	-	-	20.862
Description: Description: This task evaluates the application of emerging biotechnologies and bio-manufactured materials for acquisition programs to address resilient military supply chain for needs.			
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 0604386A / <i>Biotechnology for Materials - Dem/Val</i>	Project (Number/Name) CQ9 / <i>Biotechnology for Materials - Dem/Val</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Will begin the evaluation of the application of biofuels as energetic materials in hypersonic systems; evaluate the performance of these fuels in hypersonic weapon systems; evaluate the application of high temperature resistant bio-manufactured composites hypersonic defense systems, unmanned aerial vehicles (UAVs) and fire-resistant casings for batteries. <i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> In Fiscal Year (FY) 2025, this effort is a New Start.			
Accomplishments/Planned Programs Subtotals	-	-	20.862

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

N/A

Remarks

N/A

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 0604386A / Biotechnology for Materials - Dem/Val				CQ9 / Biotechnology for Materials - Dem/Val							
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
Biotechnology for Materials - Dem/Val	Various	Various : Various	-	-		-		2.104	Oct 2024	-		2.104	0.000	2.104	-
Subtotal			-	-		-		2.104		-		2.104	0.000	2.104	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
High energy density endothermic biofuels combustion in scramjet combustor system	Various	Various : Various	-	-		-		4.659	Nov 2024	-		4.659	0.000	4.659	-
Self-insulating missile case prototypes and burn testing; bio-based airframe complete.	Various	Various : Various	-	-		-		1.950	Nov 2024	-		1.950	0.000	1.950	-
Subtotal			-	-		-		6.609		-		6.609	0.000	6.609	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
High fidelity testing of bio-blend endothermic fuel cooling/heat-sink properties for flight testing	Various	Various : Various	-	-		-		6.293		-		6.293	0.000	6.293	-
Materials qualification testing, demonstration of drone manufacturing	Various	Various : Various	-	-		-		5.856		-		5.856	0.000	5.856	-
Subtotal			-	-		-		12.149		-		12.149	0.000	12.149	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 0604386A / <i>Biotechnology for Materials - Dem/Val</i>	Project (Number/Name) CQ9 / <i>Biotechnology for Materials - Dem/Val</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 emerging biotechnologies and bio-manufactured m...									█	█	█	█																
High energy density endothermic biofuels combustion in s...									█	█	█	█																
Self-insulating missile case prototypes and burn testing...									█	█	█	█																
High fidelity testing of bio-blend endothermic fuel cool...											█	█	█	█	█	█												
Materials qualification testing, demonstration of drone ...											█	█	█	█	█	█												

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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 0604386A / <i>Biotechnology for Materials - Dem/Val</i>	Project (Number/Name) CQ9 / <i>Biotechnology for Materials - Dem/Val</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate emerging biotechnologies and bio-manufactured materials	1	2025	4	2026
High energy density endothermic biofuels combustion in scramjet combustor system	1	2025	4	2025
Self-insulating missile case prototypes and burn testing; bio-based airframe complete.	1	2025	4	2025
High fidelity testing of bio-blend endothermic fuel cooling/heat-sink properties for flight testing	3	2025	4	2026
Materials qualification testing, demonstration of drone manufacturing	3	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 0604403A / <i>Future Interceptor</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	-	7.880	8.040	8.058	-	8.058	8.068	8.154	8.245	8.327	Continuing	Continuing
FM3: <i>Future Interceptor</i>	-	7.880	8.040	8.058	-	8.058	8.068	8.154	8.245	8.327	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

The Future Interceptor will defend against current and emerging air, missile, and hypersonic threats in the lower tier of the ballistic missile defense battlespace. The Future Interceptor increases Air and Missile Defense (AMD) capability through improved velocity, altitude, and maneuverability characteristics. Requested funding refines and updates Architecture Design/ Concept Definitions, Performance Study Reports, and Program Feasibility / Acquisition Strategies delivered to the USG in Phase 1. It continues Virtual Missile Model (VMM) development to support and establish concept definitions. Products from the Future Interceptor concept definitions phase validate and establish technical approaches needed to inform future efforts to competitively down select to a single vendor.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	8.179	8.040	8.042	-	8.042
Current President's Budget	7.880	8.040	8.058	-	8.058
Total Adjustments	-0.299	0.000	0.016	-	0.016
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.299	-			
• Adjustments to Budget Years	-	-	0.016	-	0.016

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 0604403A / <i>Future Interceptor</i>				Project (Number/Name) FM3 / <i>Future Interceptor</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
FM3: <i>Future Interceptor</i>	-	7.880	8.040	8.058	-	8.058	8.068	8.154	8.245	8.327	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Future Interceptor will defend against current and emerging air, missile, and hypersonic threats in the lower tier of the ballistic missile defense battlespace. The Future Interceptor increases Air and Missile Defense (AMD) capability through improved velocity, altitude, and maneuverability characteristics. Requested funding refines and updates Architecture Design/ Concept Definitions, Performance Study Reports, and Program Feasibility / Acquisition Strategies delivered to the USG in Phase 1. It continues Virtual Missile Model (VMM) development to support and establish concept definitions. Products from the Future Interceptor concept definitions phase validate and establish technical approaches needed to inform future efforts to competitively down select to a single vendor.

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

	FY 2023	FY 2024	FY 2025
Title: Program Development and Support	7.880	8.040	8.058
Description: Provide program development and support for the Future Interceptor program, including technical work, concept definition, modeling & simulation work, and other related efforts.			
FY 2024 Plans: - Support the user community with technical subject matter expertise and assist in requirements development for Future Interceptor - Modeling and Sims (M&S) support to provide Subject-Matter-Expertise (SME) on the government furnished simulation framework that the contractors are using to build their VMMs			
FY 2025 Plans: - Development of contracting structure and Request for Proposal (RFP) preparation to award development contract(s) in follow-on years - Technology Readiness Level (TRL) assessments of critical technology elements to determine if maturity is ready for development - Begin derivation of the Future Interceptor technical performance requirements based on user threshold and objective requirements from the Capability Development Document and production of the Future Interceptor performance specification.			
FY 2024 to FY 2025 Increase/Decrease Statement: FY 2024 to FY 2025 funding increase represents minor increase due to economic assumptions.			
Accomplishments/Planned Programs Subtotals	7.880	8.040	8.058

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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 0604403A / <i>Future Interceptor</i>	Project (Number/Name) FM3 / <i>Future Interceptor</i>
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C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

Future Interceptor is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

D. Acquisition Strategy

To provide improved operational effectiveness, the Army will use the Defense Ordnance Technology Consortium (DOTC) Other Transactions Agreements (OTA) to execute a competitive initial concept definition (CD) with two contractors. From the CD phase, development approaches will utilize detailed modeling and simulation of the Future Interceptor as well as conduct prototype development of high-risk hardware technologies. The prototype technologies and detailed simulation-based interceptor design will be used to competitively down select to a single vendor. This approach and the resulting technologies and designs will inform the selection of Acquisition Strategy most advantageous for this project.

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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 0604403A / <i>Future Interceptor</i>	Project (Number/Name) FM3 / <i>Future Interceptor</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
DOTC Concept Development	DOTC Concept Development																											
Abbreviated Capability Development Document																									1			
Analysis and Modeling and Sim Development					Analysis and Modeling and Sim Development																							
Future Interceptor CDD																												
Future Interceptor Development																	Future Interceptor 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 0604403A / <i>Future Interceptor</i>	Project (Number/Name) FM3 / <i>Future Interceptor</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DOTC Concept Development	1	2020	4	2023
Abbreviated Capability Development Document	4	2023	4	2023
Analysis and Modeling and Sim Development	4	2023	3	2026
Future Interceptor CDD	4	2025	4	2025
Future Interceptor Development	4	2026	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 0604531A / Counter - Small Unmanned Aircraft 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	-	36.629	64.242	59.983	-	59.983	45.407	49.949	44.920	45.369	0.000	346.499
CQ5: C-sUAS Joint New Capabilities Development	-	28.072	43.263	38.790	-	38.790	24.185	28.698	22.967	22.805	0.000	208.780
CQ6: C-sUAS Joint Enabling Capabilities Development	-	8.557	20.979	21.193	-	21.193	21.222	21.251	21.953	22.564	0.000	137.719

A. Mission Description and Budget Item Justification

The Secretary of Defense (SecDef) designated the Secretary of the Army (SA) as the Department of Defense's (DoD) Executive Agent (EA) for Counter-small Unmanned Aircraft Systems (C-sUAS). The EA is tasked with leading, directing, and synchronizing DoD efforts to counter small Unmanned Aircraft System (sUAS) threats while minimizing unnecessary duplication and redundancy. The C-sUAS efforts are in response to the DoD Joint Requirements Oversight Council Memorandum (JROC-M) requirement for identification, development, testing, evaluation, and integration of technologies to defeat sUAS threats across the DoD. The C-sUAS efforts provide warfighters the ability to comprehensively detect, track, identify, and defeat enemy Group 1, 2 and 3 UAS platforms. The efforts will be joint development efforts to provide integrated solutions to meet the needs of the Military Services and DoD Agencies against emerging threats.

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	35.110	64.242	59.862	-	59.862
Current President's Budget	36.629	64.242	59.983	-	59.983
Total Adjustments	1.519	0.000	0.121	-	0.121
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	2.800	-	-	-	-
• SBIR/STTR Transfer	-1.281	-	-	-	-
• Adjustments to Budget Years	-	-	0.121	-	0.121

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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>				Project (Number/Name) CQ5 / <i>C-sUAS Joint New Capabilities 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
CQ5: <i>C-sUAS Joint New Capabilities Development</i>	-	28.072	43.263	38.790	-	38.790	24.185	28.698	22.967	22.805	0.000	208.780
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Counter-small Unmanned Aircraft Systems (C-sUAS) efforts will demonstrate and support prototype efforts with technologies and concepts to enable and/or accelerate their transition to acquisition programs. The efforts will address technical gaps between initial technologies or concept development and quickly transition to warfighter capabilities. Efforts will explore new concepts and their applications in potential future operating environments within a systems-of-systems context. These joint prototyping efforts will inform future requirements and support acquisition strategy planning to address the evolving s-UAS threats and new environments to which CsUAS systems must be deployed.

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

	FY 2023	FY 2024	FY 2025
Title: C-sUAS Prototyping New Joint Capabilities	28.072	43.263	38.790
Description: Prototyping detection and identification; defeat; and command and control technologies to meet the C-sUAS capability gaps. Prototypes will address operational requirements identified by the JROCM 078-20 and prioritized critical capability gaps identified by the DoD EA Governance.			
FY 2024 Plans: Continue the prototype development of joint capabilities to address capability gaps in detection, identification, defeat, and enhance command and control. New efforts in development and prototyping support under Collaborative Framework Environment and continuing prototyping efforts for High Power Microwave Ground (Solid State) Increment 2; High Energy Laser-Ground; Software Defined Radio Enhancements (Identification, Detection, Tracking, Defeat); Low Collateral Effects Interceptor Development and Integration; and Command and Control Decision Aids to include Command and Control Automation-Autonomy, and Human Machine Teaming, Family of Counter Unmanned Aircraft Systems (FoCUS) Machine Agent, and Joint Common Electronic Warfare (JCEW).			
FY 2025 Plans: Continue the prototype development of joint capabilities to address capability gaps in threat sUAS detection, identification, tracking, and defeat, and enhance command and control systems. New efforts in prototype development under Advanced Kinetic Defeat. Development and support under Collaborative Framework Environment, Command and Control Decision Aids (Command and Control Automation-Autonomy, and Human Machine Teaming, Family of Counter Unmanned Aircraft Systems (FoCUS) Machine Agent Evolution 2, High Energy Laser-Ground, High Power Microwave Increment 2 (Joint Evaluation of Solid-State			

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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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	Project (Number/Name) CQ5 / <i>C-sUAS Joint New Capabilities Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Technology for Electromagnetic Radiators), Joint Common Electronic Warfare (Joint Common Multi-mission Electronic Warfare), and Software Defined Radio Enhancement. FY 2024 to FY 2025 Increase/Decrease Statement: FY2025 decrease of \$4.473 million reflects transitions of prototype development efforts (Palletized High Energy Laser (P-HEL), Low Collateral Effects Interceptor Increment 2, and parts of Software Defined Radio Identification Enhancement).				
Accomplishments/Planned Programs Subtotals		28.072	43.263	38.790
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy The Joint C-sUAS new capability prototyping will address the Joint Requirements Oversight Council Memorandum (JROCM) 078-20 and be approved by the Department of Defense C-sUAS Executive Agent (EA) Governance. The C-sUAS EA Governance will approve prototyping efforts to meet identified gaps, and the joint capabilities will be funded under this Program Element. The Joint Counter-sUAS Office will identify new technologies within industry and Government S&T organization and leverage the flexibility of the Adaptive Acquisition Framework, Service Acquisition Policies, and pursue a combination of acquisition pathways to deliver prototypes for evaluation and future decisions. Prototypes may be deployed for additional combat evaluations and provide residual capabilities to the warfighter.				

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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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ5 / C-sUAS Joint New Capabilities Development
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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
Collaborative Framework Environment	TBD	Various : Various	-	-		1.800		2.000		-		2.000	Continuing	Continuing	Continuing
Command and Control Decision Aids	TBD	Various : Various	3.918	7.500		6.700		4.000		-		4.000	Continuing	Continuing	Continuing
High Energy Laser System Development	TBD	Various : Various	-	10.822		6.450		4.880		-		4.880	Continuing	Continuing	Continuing
High Power Microwave (Solid State) Increment 2	TBD	Various : Various	-	-		10.700		5.900		-		5.900	Continuing	Continuing	Continuing
Joint Common Electronic Warfare	TBD	Various : Various	-	-		5.673		7.913		-		7.913	Continuing	Continuing	Continuing
Low Collateral Effects Interceptor Development and Integration	TBD	Various : Various	-	4.950		5.500		-		-		-	Continuing	Continuing	Continuing
NinjaNet	TBD	Various : Various	-	-		1.200		1.200		-		1.200	Continuing	Continuing	Continuing
Software Defined Radio Identification Enhancement	TBD	Various : Various	-	2.000		5.240		-		-		-	Continuing	Continuing	Continuing
Advanced Kinetic Defeat	TBD	Various : Various	-	2.800		-		8.797		-		8.797	Continuing	Continuing	Continuing
Subtotal			3.918	28.072		43.263		34.690		-		34.690	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
High Energy Laser System Support	TBD	Various : Various	-	-		-		4.100		-		4.100	Continuing	Continuing	Continuing
Subtotal			-	-		-		4.100		-		4.100	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		3.918	28.072	43.263	38.790	-	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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ5 / C-sUAS Joint New Capabilities 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
Collaborative Framework Environment Design Study																												
Collaborative Framework Environment Development																												
Collaborative Framework Environment Integration																												
Collaborative Framework Environment Test & Evaluation 1									7																			
Collaborative Framework Environment Test & Evaluation 2											8																	
Command and Control Decision Aids Prototyping																												
High Energy Laser Operational Data Collection																												
High Energy Laser 10kW P-HEL 1 OA				1																								
High Energy Laser 10kW P-HEL 2 Deployment				2																								
High Energy Laser 10kW P-HEL 2 OA								4																				
High Energy Laser 20kW P-HEL 3 Deployment				3																								
High Energy Laser 20kW P-HEL 3 OA								5																				
High Power Microwave Ground Increment 2 (Solid State) Pr...																												

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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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ5 / C-sUAS Joint New Capabilities 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
High Power Microwave Ground Increment 2 (Solid State) Pr...																												
Joint Common Electronic Warfare Development																												
Joint Common Electronic Warfare Test & Evaluation																												
Low Collateral Effects Interceptor Increment 2 Design an...																												
Low Collateral Effects Interceptor Increment 2 Test & Ev...																												
NinjaNet Prototype Development																												
NinjaNet Prototype Cyber Assessment																												
NinjaNet Prototype Operational Assessment																												
Software Defined Radio Identification Enhancement Design...																												
Software Defined Radio Identification Enhancement Develo...																												
Advanced Kinetic Defeat Preliminary Engineering Design																												
High Energy Laser Software Development																												
High Energy Laser Spares Purchase																												

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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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ5 / C-sUAS Joint New Capabilities 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																
High Energy Laser Test Support																																												
High Energy Laser Analysis & Evaluation																																												
High Energy Laser System Training																																												
Advanced Kinetic Defeat Prototype System Development																																												
Advanced Kinetic Defeat Prototype 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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	Project (Number/Name) CQ5 / <i>C-sUAS Joint New Capabilities Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Collaborative Framework Environment Design Study	1	2024	2	2024
Collaborative Framework Environment Development	2	2024	3	2025
Collaborative Framework Environment Integration	1	2025	3	2025
Collaborative Framework Environment Test & Evaluation 1	2	2025	2	2025
Collaborative Framework Environment Test & Evaluation 2	3	2025	3	2025
Command and Control Decision Aids Prototyping	2	2022	2	2026
High Energy Laser Operational Data Collection	1	2023	2	2025
High Energy Laser 10kW P-HEL 1 OA	4	2023	4	2023
High Energy Laser 10kW P-HEL 2 Deployment	4	2023	4	2023
High Energy Laser 10kW P-HEL 2 OA	2	2024	2	2024
High Energy Laser 20kW P-HEL 3 Deployment	4	2023	4	2023
High Energy Laser 20kW P-HEL 3 OA	2	2024	2	2024
High Power Microwave Ground Increment 2 (Solid State) Prototype Development	1	2024	4	2025
High Power Microwave Ground Increment 2 (Solid State) Prototype Test & Evaluation	4	2025	4	2025
Joint Common Electronic Warfare Development	4	2023	3	2024
Joint Common Electronic Warfare Test & Evaluation	4	2024	4	2024
Low Collateral Effects Interceptor Increment 2 Design and Development	1	2023	4	2024
Low Collateral Effects Interceptor Increment 2 Test & Evaluation	3	2024	4	2024
NinjaNet Prototype Development	1	2024	1	2025
NinjaNet Prototype Cyber Assessment	1	2025	1	2025
NinjaNet Prototype Operational Assessment	1	2025	1	2026
Software Defined Radio Identification Enhancement Design Study	1	2023	3	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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	Project (Number/Name) CQ5 / <i>C-sUAS Joint New Capabilities Development</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Software Defined Radio Identification Enhancement Development and Integration	3	2023	4	2024
Advanced Kinetic Defeat Preliminary Engineering Design	1	2025	4	2025
High Energy Laser Software Development	1	2025	1	2025
High Energy Laser Spares Purchase	2	2025	2	2025
High Energy Laser Test Support	3	2025	3	2025
High Energy Laser Analysis & Evaluation	3	2025	4	2025
High Energy Laser System Training	4	2025	4	2025
Advanced Kinetic Defeat Prototype System Development	1	2025	4	2028
Advanced Kinetic Defeat Prototype Operational Assessment	2	2028	3	2028

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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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development				Project (Number/Name) CQ6 / C-sUAS Joint Enabling Capabilities 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
CQ6: C-sUAS Joint Enabling Capabilities Development	-	8.557	20.979	21.193	-	21.193	21.222	21.251	21.953	22.564	0.000	137.719
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Counter-small Unmanned Aircraft Systems (C-sUAS) enabling efforts will support the Joint C-sUAS Office in the identification and prioritization joint gaps and solutions, support Military Service program management members in conducting joint development and minimize duplication and redundancy across the Services. These joint enabling efforts will inform future requirements and solutions of C-sUAS to address evolving s-UAS threats and new environments to which systems must be deployed.

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

	FY 2023	FY 2024	FY 2025
<p>Title: Common Test Range</p> <p>Description: Execution of Joint Counter-small Unmanned Aircraft Systems Office (JCO) prototyping and experimentation of a Department of Defense common test ranges to explore new concepts and application in current and future operating environments. Test ranges must adapt to uncertainty of the evolving threat, military application of C-sUAS, and new commercial technology impacts to the battlefield environment. This ensures CsUAS technology is adequately assessed against a realistic environment and deliver reliable capabilities to the warfighter. These advances in ranges will support the Department of Defense testing activities for C-sUAS programs. This also includes updates to the DoD C-sUAS Common Test protocol to be used in all Joint C-sUAS testing activities to ensure consistency of data collection before being deployed.</p>	2.630	-	-
<p>Title: Joint Studies and Analysis</p> <p>Description: Execution of JCO studies to analyze current and future capability needs to aid the advancement and transition of advanced technologies by providing the credible evidence decision makers need to make sound strategic decision and investment choices. Concepts to be analyzed included, but not limited to, application of C-sUAS technologies in new environments, analysis of joint systems architectures, artificial intelligence and machine learning applications, directed energy weapons application, and integration into multi-domain operations. Studies and Analysis will improve the effectiveness of C-sUAS operation by developing concepts that generate new information to address challenging threats of the future and aid in identifying advanced technologies for prototyping and development.</p> <p>FY 2025 Plans: Continue the execution of joint studies to explore promising concepts and enabling technologies. Activities may include analysis, studies, experimentation, modeling and simulation, virtual prototyping, and workshops. Study topics are aligned to the identified</p>	0.766	-	0.378

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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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	Project (Number/Name) CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
joint capability gaps that include mass attack/swarm, group 3 one-way attack threats, kinetic defeat technologies, and command and control advancements. FY 2024 to FY 2025 Increase/Decrease Statement: FY2025 change reflects JCO governance decisions to prioritize joint studies that will inform approaches to joint solutions development.				
Title: Joint Assessments and Demonstrations Description: Execute demonstrations and assessments of new C-sUAS technology to explore new concepts, new applications of existing systems, and new industry technologies. New concepts and technologies demonstrations will address future capability gaps and acquisition programs to maintain pace with evolving threats and employment environments. FY 2024 Plans: Continue the execution of demonstrations and assessments of C-sUAS technology. Demonstrations will focus on capability gaps against emerging threats identified by the JCO and the Executive Agent C-sUAS Governance process to inform and enable limited prototyping procurements and follow-on operational assessments. FY 2024 to FY 2025 Increase/Decrease Statement: FY2025 decrease of \$20.979 million reflects separation of Joint Assessments and Demonstrations into two distinct programs to delineate cost between them going forward. These two distinct programs are "Joint Prototype Assessments" and "Joint C-sUAS Demonstrations".		5.161	20.979	-
Title: Joint Prototype Assessments Description: Execute operational assessments of joint applicable prototypes to explore new concepts and new applications of existing systems. Prototype assessments conducted in relevant operational environment will enable and inform limited prototype procurements to consider for transition to acquisition programs of record. FY 2025 Plans: Continue the execution of prototype assessments of joint applicable C-sUAS technologies in relevant operational environment. Prototypes developed under joint investment will be assessed to determine performance effectiveness and efficiency against emerging threats identified by the JCO and the Executive Agent C-sUAS Governance process. Prototype assessments will inform and enable limited prototype procurements. FY 2024 to FY 2025 Increase/Decrease Statement:		-	-	14.680

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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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	Project (Number/Name) CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
The increase of \$14.680 million reflects realignment of "Joint Assessments and Demonstrations" as "Joint Prototype Assessments" and "Joint C-sUAS Demonstrations". Separating the prototype assessments from Joint C-sUAS Demonstrations will provide clear context and scope to the purpose of assessments vs. demonstrations.			
<p>Title: Joint C-sUAS Demonstrations</p> <p>Description: Execute demonstrations of new industry C-sUAS technologies to explore new concepts, new applications of existing systems, and new industry technologies. New concepts and technologies demonstrations will address future capability gaps and acquisition programs to maintain pace with evolving threats and employment environments.</p> <p>FY 2025 Plans: Continue the JCO's capacity to conduct demonstrations and tests of mature Industry solutions with potential for joint applicable C-sUAS capabilities. Industry demonstrations focus topics will be informed by prioritized joint C-sUAS capability gaps. Demonstration events will enhance the ability to transition Industry-developed capabilities towards prototypes and/or system development for further assessments in relevant operational environment.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The increase of \$6.135 million reflects realignment of "Joint Assessments and Demonstration" into "Joint Prototype Assessments" and "Joint C-sUAS Demonstrations". Separating the Joint C-sUAS Demonstrations from prototype assessments will provide clear context and scope to the purpose of assessments vs. demonstrations.</p>	-	-	6.135
Accomplishments/Planned Programs Subtotals	8.557	20.979	21.193

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

N/A

Remarks

D. Acquisition Strategy

The Joint C-sUAS enabling efforts will be approved by the Department of Defense C-sUAS Executive Agent (EA) Governance. The C-sUAS EA Governance will approve efforts supporting future DoD decisions and identify gaps in current systems. The Joint Counter-sUAS Office will identify key efforts that support the mission and minimize redundancy among the Services. The Army Rapid Capabilities and Critical Technology Office (RCCTO) has been identified to provide material and acquisition support to the JCO to address enabling capability needs. The JCO with support from the Army RCCTO will solicit industry solutions against the C-sUAS gaps and hold demonstrations at an identified C-sUAS common test range. Identified solutions from demonstrations can potentially transition and/or inform existing C-sUAS programs, create new programs for development under PE0605531A CQ7, identify and create prototyping projects under PE0604531A CQ5, or transition. The JCO, with support from the Army RCCTO, will acquire necessary equipment and evaluate new environmental conditions for the C-sUAS test ranges to ensure testing consistency and realistic conditions.

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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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development				CQ6 / C-sUAS Joint Enabling Capabilities Development								
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	
Common Test Range	TBD	Various : Various	3.520	2.630		-		-		-		-	Continuing	Continuing	Continuing	
Subtotal			3.520	2.630		-		-		-		-	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	
Joint Studies and Analysis	TBD	Various : Various	3.310	0.766		-		0.378		-		0.378	Continuing	Continuing	Continuing	
Subtotal			3.310	0.766		-		0.378		-		0.378	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 Assessment and Demonstration	TBD	Various : Various	3.520	5.161		20.979		-		-		-	Continuing	Continuing	Continuing	
Joint Prototype Assessment	TBD	Various : Various	-	-		-		14.680		-		14.680	Continuing	Continuing	Continuing	
Joint C-sUAS Demonstration	TBD	Various : Various	-	-		-		6.135		-		6.135	Continuing	Continuing	Continuing	
Subtotal			3.520	5.161		20.979		20.815		-		20.815	Continuing	Continuing	N/A	
Project Cost Totals			10.350	8.557		20.979		21.193		-		21.193	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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ6 / C-sUAS Joint Enabling Capabilities 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
Common Test Range	Common Test Range assessments																											
Joint Studies	Joint Studies execution																											
Joint Demonstration	Joint Demonstration																											
Joint Prototype Assessments	Joint Prototype Assessments																											
Joint Demo #4				■																								
Joint Demo #5								■																				
Joint Demo #6												■																
Joint Demo #7																■												
Joint Demo #8																				■								
Joint Prototype Assessment (LCEI)					Joint Prototype Assessment (LCEI)																							
Joint Prototype Assessment (CaaS)					Joint Prototype Assessment (CaaS)																							
Joint Prototype Assessment (MDL - Phase 1)									Joint Prototype Assessment (MDL Phase 1)																			
Joint Prototype Assessment (SAM)													Joint Prototype Assessment (SAM)															

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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 0604531A / Counter - Small Unmanned Aircraft Systems Advanced Development	Project (Number/Name) CQ6 / C-sUAS Joint Enabling Capabilities 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
Joint Prototype Assessment (HPM - JESTER)																												

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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 0604531A / <i>Counter - Small Unmanned Aircraft Systems Advanced Development</i>	Project (Number/Name) CQ6 / <i>C-sUAS Joint Enabling Capabilities Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Common Test Range	1	2022	4	2023
Joint Studies	1	2022	4	2023
Joint Demonstration	1	2022	4	2029
Joint Prototype Assessments	2	2024	1	2030
Joint Demo #3	3	2022	3	2022
Joint Demo #4	3	2023	3	2023
Joint Demo #5	3	2024	3	2024
Joint Demo #6	3	2025	3	2025
Joint Demo #7	3	2026	3	2026
Joint Demo #8	3	2027	3	2027
Joint Prototype Assessment (LCEI)	2	2024	3	2025
Joint Prototype Assessment (CaaS)	3	2024	3	2025
Joint Prototype Assessment (MDL - Phase 1)	1	2025	3	2025
Joint Prototype Assessment (SAM)	1	2025	4	2025
Joint Prototype Assessment (HPM - JESTER)	1	2026	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 0604541A / <i>Unified Network Transport</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	-	35.616	40.915	31.837	-	31.837	31.831	32.148	32.479	32.820	Continuing	Continuing
BT2: <i>Command Post Mobility/Survivability</i>	-	6.645	8.581	5.010	-	5.010	5.010	5.010	5.010	5.010	Continuing	Continuing
BT3: <i>Common Operating Environment (COE)</i>	-	9.032	7.215	7.058	-	7.058	7.067	7.142	7.222	7.294	Continuing	Continuing
BT5: <i>Integrated Tactical Network/Enterprise Network</i>	-	19.939	25.119	19.769	-	19.769	19.754	19.996	20.247	20.516	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding line supports advanced component development activities that are aligned to the Army's modernized network of 2030/2040.

The Program Executive Office Command, Control, Communications-Tactical (PEO C3T) is responsible for programming, managing and executing these projects and ensuring these funds are aligned to support the Army's Network Modernization requirements. PEO C3T, in partnership with the Network Cross-Functional Team (N-CFT), prioritizes technology demonstrations, focused evaluations, and expert analyses to inform future requirements, mature technologies, and deliver new capabilities. Efforts funded from these projects will inform technology transitions, research and development, and user assessments, and then rapidly transition to appropriate Programs of Record or be established as a new program.

Unified Network Transport provides the ground domain network connectivity of Joint All Domain Command and Control (JADC2) and enables Unified Action Partner interoperability through integration with the Mission Partner Environment (MPE). Interoperability is the ability to routinely act together coherently, effectively and efficiently to achieve tactical, operational, and strategic objectives. Interoperability between disparate forces allows coalitions to produce greater combat power than the sum of their parts by leveraging relative strengths while mitigating relative weaknesses.

FY 2025 funds will support identification, maturation, demonstration, and evaluation of Technology Readiness Level (TRL) 6+ systems and subsystem components including, but not limited to, resilient Line of Sight (LOS) and beyond Line of Sight (BLOS) communications, information management systems, cyber electromagnetic activities (CEMA) situational understanding and operations, intelligence fusion, cloud technologies, virtual augmentation, artificial intelligence/machine learning (AI/ML), and data convergence and analytics in the Common Operating Environment to achieve modernized Unified Network capabilities required for the Army of 2030/2040. Successful solutions identified through evaluation in a high fidelity and realistic operating environment will be transitioned to Programs of Record for integration and fielding. Funds will also support integration with solutions identified in other Army network priorities to ensure network dependencies are addressed.

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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 0604541A / <i>Unified Network Transport</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	36.966	40.915	42.883	-	42.883
Current President's Budget	35.616	40.915	31.837	-	31.837
Total Adjustments	-1.350	0.000	-11.046	-	-11.046
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	-			
• SBIR/STTR Transfer	-1.349	-			
• Adjustments to Budget Years	-	-	-11.046	-	-11.046

Change Summary Explanation

Decrease due to reduction of requirements aligned to Command Post Mobility/Survivability and Integrated Tactical Network/Enterprise Network.

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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 0604541A / <i>Unified Network Transport</i>				Project (Number/Name) BT2 / <i>Command Post Mobility/Survivability</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
BT2: <i>Command Post Mobility/Survivability</i>	-	6.645	8.581	5.010	-	5.010	5.010	5.010	5.010	5.010	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line supports advanced component development activities that are directly aligned to Command Post Mobility and Survivability enhancements for the Army's modernized network of 2030/2040.

This project supports Command Post mobility/survivability efforts that may transition to sponsoring programs that get integrated in the Army's future Command Posts. The technical maturation and evaluation allow for Command Post disaggregation capabilities to inform future designs and support Command Post survivability against near peer competitors. Spectrum obfuscation and assessments of antenna remoting will support future Command Post enhancements.

FY 2025 funds will be used to mature, prototype, and evaluate emerging technologies that will inform design choices for the Army's Command Post infrastructure. Funds also support identification, maturation, demonstration, and evaluation of Technology Readiness Level (TRL) 6+ systems and subsystem components leading to a desired end state of resilient communications, adaptable computing and infrastructure, integrated power, electromagnetic signature management, and electromagnetic signature awareness to support Joint and Coalition Interoperability requirements in addition to Multi-Domain Operations (MDO) in Disconnected, Intermittent, and Limited (DIL) conditions. Successful solutions identified through evaluation in a high fidelity and realistic operating environment will be transitioned to Programs of Record for integration and fielding. Funds will also support integration with solutions identified in other Army network priorities to ensure network dependencies are addressed.

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

	FY 2023	FY 2024	FY 2025
Title: BT2 Command Post Mobility and Survivability	6.008	8.081	4.710
<p>Description: This funding is used to identify and acquire technologies for evaluation that address gaps associated with the Command Post (CP) in the overall Integrated Tactical Network. The project will focus on developing and obtaining approval of requirements for integrated command posts, then delivering these integrated command post designs to Army units. The project also addresses the operational requirement of Deployable, Integrated, and Mobile Command Post and integrates Knowledge Management.</p> <p>FY 2024 Plans: Funds will be used to mature, prototype, and evaluate emerging technologies relating to mobile and survivable Command Posts in a contested and congested environment. Effort includes maturing adaptable computing infrastructure to provide high throughput, resilient communications such as the work in Protected Communications for Manned/Unmanned Teams. Effort also includes developing and integrating technologies, material solutions and tactics into a holistic system that will prevent detection of high value assets (such as command posts) from enemy ISR systems through concealment and strategic initiatives solutions.</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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT2 / <i>Command Post Mobility/Survivability</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Additionally, effort plans include creating signature awareness, integrated power, reducing total electromagnetic signature, creating the means to disperse CP nodes and retaining effective Commander-Staff collaboration against near peer competition. These efforts will be demonstrated and evaluated with FORSCOM and inform the program technical baseline and doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). Innovative industry prototyping and evaluation associated with Technical Exchange Meetings (TEM) will lead to the assessment, demonstration, prototyping and integration of emerging industry solutions. Requirements for Command Post Mobility and Survivability will align with prioritization of science & technology and industry innovation efforts in support of Army Capability Set development.</p> <p>FY 2025 Plans: Funds will be used to mature, prototype, and evaluate emerging technologies relating to mobile and survivable Command Posts in a contested and congested environment. Effort includes maturing adaptable computing infrastructure to provide high throughput, resilient communications such as the work in Protected Communications for Manned/Unmanned Teams. Effort also includes developing and integrating technologies, material solutions and tactics into a holistic system that will prevent detection of high value assets (such as command posts) from enemy ISR systems through concealment and strategic initiatives solutions. Additionally, effort plans include creating signature awareness, integrated power, reducing total electromagnetic signature, creating the means to disperse CP nodes and retaining effective Commander-Staff collaboration against near peer competition. These efforts will be demonstrated and evaluated with FORSCOM and inform the program technical baseline and doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). Innovative industry prototyping and evaluation associated with Technical Exchange Meetings (TEM) and other forums will lead to the assessment, demonstration, prototyping and integration of emerging industry solutions. Requirements for Command Post Mobility and Survivability will align with prioritization of science & technology and industry innovation efforts in support of the Army's modernized network of 2030/2040.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduced requirements associated with transitioning science & technology and industry innovation efforts.</p>			
<p>Title: Program Management</p> <p>Description: Program management includes overall management of program execution, major events, reporting, funding execution, and contract management, as well as participation in program planning and Integrated Product Team meetings with key stakeholders.</p> <p>FY 2024 Plans: Funds will be used to provide overall management in support of Unified Network Transport efforts, including contractor personnel and contract management support via Army Contracting Command.</p> <p>FY 2025 Plans:</p>	0.637	0.500	0.300

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT2 / <i>Command Post Mobility/Survivability</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funds will be used to provide overall management in support of Unified Network Transport efforts, including contractor personnel and contract management support via Army Contracting Command.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Decrease due to reduced prototyping and experimentation requirements.			
Accomplishments/Planned Programs Subtotals	6.645	8.581	5.010

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

N/A

Remarks

N/A

D. Acquisition Strategy

Program Executive Office Command, Control, Communications-Tactical (PEO C3T), in partnership with the Network Cross-Functional Team (N-CFT), will align with Army network modernization priorities for technologies to be evaluated with appropriate Program Management (PM) offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in a Product Plan that authorizes a plan of execution for each capability being pursued. The various prototyping technologies will be pursued via competitively awarded contracts using best value source selection procedures. Identified Technology Readiness Level (TRL) 6 technologies will be matured, demonstrated, tested, and evaluated in realistic environments to achieve TRL 7. Selected technologies will be integrated into existing Programs of Record. A Transition Agreement (TA) is completed between the receiving PEO and the Science and Technology (S&T) community no later than halfway between the project start date and the project's first anticipated transition of any product(s) to a PEO/PM.

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT2 / <i>Command Post Mobility/Survivability</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 Office Support	C/Variou	BAH / ACC : APG, MD	0.381	0.543	Dec 2022	0.500	Dec 2023	0.300	Dec 2024	-		0.300	0.000	1.724	-
Industry Innovation Communications Gateway	C/CPFF	NIWC-LANT / SRC : North Charleston, SC	-	0.094	Dec 2022	-		-		-		-	0.000	0.094	-
Subtotal			0.381	0.637		0.500		0.300		-		0.300	0.000	1.818	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			
Science & Technology (S&T) Maturation - Surv Cmd Post	C/CPFF	CCDC/Polaris Alpha/ AASKI : APG, MD / Fredericksburg,VA / Tinton Falls, NJ	8.560	-		-		-		-		-	0.000	8.560	-
S&T Maturation - Spectrum Obfuscation	C/CPFF	BAH : McLean, VA	6.358	-		-		-		-		-	0.000	6.358	-
S&T Maturation - Lower Echelon Analytics Platform-Tactical (LTAC)	C/CPFF	DEVCOM Armaments Center / Parsons Government Services : Picatinny, NJ / Centreville, VA	0.080	2.731	Jan 2023	-		-		-		-	0.000	2.811	-
S&T Maturation - Cloudcom Collaboration	C/CPFF	CACI : Chantilly, VA	-	1.195	Aug 2023	-		-		-		-	0.000	1.195	-
S&T Maturation Prototyping & Evaluation	C/Variou	DEVCOM C5ISR / PEO C3T : APG, MD	-	-		5.500	Dec 2023	2.240	Dec 2024	-		2.240	0.000	7.740	-
Industry Innovation - Metadata Tagging	C/CPFF	BAH : McLean, VA	-	2.082	Jun 2023	-		-		-		-	0.000	2.082	-
Industry Innovation Prototyping & Evaluation	C/Variou	Various : Various	4.897	-		2.581	Feb 2024	2.470	Feb 2025	-		2.470	0.000	9.948	-
Subtotal			19.895	6.008		8.081		4.710		-		4.710	0.000	38.694	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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT2 / <i>Command Post Mobility/Survivability</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
Lower Echelon Analytics Platform Tactical (LTAC) Integration																												
Mobile and Survivable Command Posts (MASCP)																												
Industry Innovation Prototyping & 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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT2 / <i>Command Post Mobility/Survivability</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Survivable Command Post	2	2020	4	2022
Spectrum Obfuscation	2	2020	4	2022
Lower Echelon Analytics Platform Tactical (LTAC) Integration	2	2023	1	2025
Mobile and Survivable Command Posts (MASCP)	2	2025	4	2028
Industry Innovation Prototyping & Evaluation	4	2020	4	2029

Note

Industry Innovation Prototyping and Evaluation projects are awarded following Technical Exchange Meetings (TEM) and are continuous activities; Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will engage industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Records.

Changes from PB24 Schedule:

- Science and Technology (S&T) projects are evaluated based on ongoing forums with the S&T community. PEO C3T tracks changes to the S&T efforts, including but not limited to, titles, descriptions, Technology Readiness Level (TRL), planned program transition and transfer agreement status. PEO C3T utilizes this information to prioritize the S&T projects by fiscal year.
- Lower Echelon Analytics Platform Tactical (LTAC) Integration is projected to conclude in 1Q FY 2025.
- The schedule for Mobile and Survivable Command Posts (MASCP) is projected to commence in FY 2025 and is inclusive of multiple sub-efforts.
- The schedule for Industry Innovation Prototyping & Evaluation extends through FY 2029 to reflect the continuous nature of industry engagements.

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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 0604541A / <i>Unified Network Transport</i>				Project (Number/Name) BT3 / <i>Common Operating Environment (COE)</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
BT3: <i>Common Operating Environment (COE)</i>	-	9.032	7.215	7.058	-	7.058	7.067	7.142	7.222	7.294	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line supports advanced component development activities that are aligned to Common Operating Environment (COE) requirements for the Army's modernized network of 2030/2040.

This project will inform a modernized network by evaluating and maturing the use of cloud technologies, virtual augmentation, artificial intelligence, data convergence and analytics in the Common Operating Environment. This includes processing and storage to improve the architecture support for mobile, secure and distributed operations. Common Operating Environment (COE) creates an approved set of standards, computing technologies, integrated data and databases, common graphics, and a unified set of mission command applications. It allows warfighters to adapt and configure the network as conditions change - which is outlined in the approved COE requirements documents.

FY 2025 funds will be used to mature technologies to assess and evaluate the technical feasibility of solutions for enhanced planning and execution capabilities that enable rapid decision making at the speed of relevance. Funds will also support identification, maturation, demonstration, and evaluation of Technology Readiness Level (TRL) 6+ systems and subsystem components including data discovery, synchronization, security, and analysis across multiple data silos and disparate data platforms to efficiently converge data types to support Joint and Coalition Interoperability requirements. Funds will also support integration with solutions identified in other Army network priorities to ensure network dependencies are addressed.

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

	FY 2023	FY 2024	FY 2025
Title: BT3 Common Operating Environment	8.705	6.815	6.660
Description: This funding is used to identify and acquire technologies to address gaps associated with the Common Operating Environment (COE), in the overall Integrated Network. This project creates an approved set of standards, computing technologies, integrated data and databases and common graphics and a unified set of mission command applications. It will also support collaboration using a common picture with joint and coalition mission partners. This project also delivers an integrated body of requirements that meet operational needs.			
FY 2024 Plans: Funds will be used to continue efforts to mature technologies that capture, correlate, present data and enable rapid decision making at the speed of relevance using Artificial Intelligence/Machine Learning (AI/ML) and Automated Data Processing capabilities. Funds will also be used to evaluate the technical feasibility of solutions for expanded computing in tactical			

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT3 / <i>Common Operating Environment (COE)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>environments, data convergence, data fabric, sensor integration across identified platforms, flexible and scalable computing hardware/software, enhanced military decision making processes (MDMP), and applications security to inform command post computing environment tactical cloud/server infrastructure as well as efforts for innovative industry prototyping and evaluation associated with Technical Exchange Meetings (TEM) that will lead to potential solutions to assess, demonstrate, prototype, and integrate emerging industry solutions to mature Common Operating Environment capabilities. Requirements for Common Operating Environment will align with prioritization of science & technology and industry innovation efforts in support of Army Capability Set development.</p> <p>FY 2025 Plans: Funds will be used to continue efforts to mature technologies that capture, correlate, present data and enable rapid decision making at the speed of relevance using Artificial Intelligence/Machine Learning (AI/ML) and Automated Data Processing capabilities. Funds will also be used to evaluate the technical feasibility of solutions for data convergence, data fabric, sensor integration across identified platforms, adaptable computing hardware/software, enhanced military decision making processes (MDMP), and applications security to enhance the Common Operating Picture (COP) through the Command Post Computing Environment (CPCE). Funds will also be used for innovative industry prototyping and evaluation associated with Technical Exchange Meetings (TEM) and other forums that will lead to potential solutions to assess, demonstrate, prototype, and integrate emerging industry solutions to mature Common Operating Environment capabilities. Requirements for Common Operating Environment will align with prioritization of science & technology and industry innovation efforts in support of the Army's modernized network of 2030/2040.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduced requirements associated with transitioning science & technology and industry innovation efforts.</p>			
<p>Title: Program Management</p> <p>Description: Program management includes overall management of program execution, major events, reporting, funding execution, and contract management, as well as participation in program planning and Integrated Product Team meetings with key stakeholders.</p> <p>FY 2024 Plans: Funds will be used to provide overall management in support of Unified Network Transport efforts, including contractor personnel and contract management support via Army Contracting Command.</p> <p>FY 2025 Plans:</p>	0.327	0.400	0.398

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT3 / <i>Common Operating Environment (COE)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funds will be used to provide overall management in support of Unified Network Transport efforts, including contractor personnel and contract management support via Army Contracting Command.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Minor decrease due to alignment of funding among efforts..			
Accomplishments/Planned Programs Subtotals	9.032	7.215	7.058

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

N/A

Remarks

N/A

D. Acquisition Strategy

Program Executive Office Command, Control, Communications-Tactical (PEO C3T), in partnership with the Network Cross-Functional Team (N-CFT), will align with Army network modernization priorities for technologies to be evaluated with appropriate Program Management (PM) offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in a Product Plan that authorizes a plan of execution for each capability being pursued. The various prototyping technologies will be pursued via competitively awarded contracts using best value source selection procedures. Identified Technology Readiness Level (TRL) 6 technologies will be matured, demonstrated, tested, and evaluated in realistic environments to achieve TRL 7. Selected technologies will be integrated into existing Programs of Record. A Transition Agreement (TA) is completed between the receiving PEO and the Science and Technology (S&T) community no later than halfway between the project start date and the project's first anticipated transition of any product(s) to a PEO/PM.

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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 0604541A / Unified Network Transport				BT3 / Common Operating Environment (COE)							
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 Office Support	C/Various	BAH / ACC : APG, MD	0.973	0.327	Jun 2023	0.400	Dec 2023	0.398	Dec 2024	-		0.398	0.000	2.098	-
Subtotal			0.973	0.327		0.400		0.398		-		0.398	0.000	2.098	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
Science & Technology (S&T) Maturation - Spectrum Awareness	C/Various	CCDC/BAH/MITRE : APG, MD	1.000	-		-		-		-		-	0.000	1.000	-
S&T Maturation - Cyber Situational Awareness	C/Various	CCDC/MITRE/CACI/ MIT LL : APG, MD, Various	3.500	-		-		-		-		-	0.000	3.500	-
S&T Maturation - Modular RF	C/Various	DEVCOM AvMC/ SAIC : Huntsville, AL	4.883	4.000	Jan 2023	-		-		-		-	0.000	8.883	-
S&T Maturation - C5ISR Modular Open Suite of Standards	C/CPFF	CCDC / CACI : APG, MD / Chantilly, VA	0.155	-		-		-		-		-	0.000	0.155	-
S&T Maturation - Rainmaker	C/Various	DEVCOM / Enlighten / Parsons Government Services : APG, MD / Linthicum Heights, MD / Centreville, VA	2.804	-		-		-		-		-	0.000	2.804	-
S&T Maturation - Roadrunner	C/CPAF	BAH : McLean, VA	-	0.500	Mar 2023	-		-		-		-	0.000	0.500	-
S&T Maturation - Geospatially Enabled Operational Design	C/CPFF	ERDC / Battelle : Alexandria, VA / Columbus, OH	0.054	2.446	Dec 2022	-		-		-		-	0.000	2.500	-
Science & Technology Maturation Prototyping & Evaluation	C/Various	DEVCOM C5ISR, PEO C3T : APG, MD	-	-		4.000	Dec 2023	3.900	Dec 2024	-		3.900	0.000	7.900	-

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT3 / <i>Common Operating Environment (COE)</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
Rainmaker	█																											
Modular RF	█				█																							
Geospatially Enabled Operational Design (GEOD)	█				█				█				█															
Roadrunner	█				█																							
Dynamic Access Control -- Tactical													█				█											
Echelons Above Brigade Operations Fires (EOF)																	█				█							
Maestro																					█							
Tactical Zero Trust																					█							
Industry Innovation Prototyping & 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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT3 / <i>Common Operating Environment (COE)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Cyber Situational Understanding	2	2020	1	2022
Spectrum Awareness	2	2020	2	2021
Hardened Transport	4	2020	1	2021
Rainmaker	3	2022	2	2023
Modular RF	4	2021	4	2024
Geospatially Enabled Operational Design (GEOD)	1	2023	4	2026
Roadrunner	2	2023	1	2024
Dynamic Access Control -- Tactical	1	2026	4	2027
Echelons Above Brigade Operations Fires (EOF)	1	2027	4	2030
Maestro	1	2028	4	2029
Tactical Zero Trust	1	2029	4	2030
Industry Innovation Prototyping & Evaluation	4	2020	4	2029

Note

Industry Innovation Prototyping and Evaluation projects are awarded following Technical Exchange Meetings (TEM) and are continuous activities; Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will engage industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Record.

Changes from PB24 Schedule:

- Science and Technology (S&T) projects are evaluated based on ongoing forums with the S&T community. PEO C3T tracks changes to the S&T efforts, including but not limited to - titles, descriptions, Technology Readiness Level (TRL), planned program transition and transfer agreement status. PEO C3T utilizes this information to prioritize the S&T projects by fiscal year.
- Information Trust, previously captured on the BT3 schedule, is now captured under project BT5 (Integrated Tactical Network/Enterprise Network) and is projected to commence in FY 2025.
- Roadrunner's 6.4 RDTE requirement completed in FY23.
- Geospatially-Enabled Operation Design is projected to conclude in FY 2026 and is inclusive of multiple sub-efforts.

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT3 / <i>Common Operating Environment (COE)</i>
<ul style="list-style-type: none"> - Agile Virtual Enclave is removed from the schedule pending further technology maturation. - PKI Modernization, previously captured on the BT3 schedule, is now captured under project BT5 (Integrated Tactical Network/Enterprise Network). - Tactical Hardening for Quantum, previously captured on the BT3 schedule, is now captured under project BT5 (Integrated Tactical Network/Enterprise Network) is projected to commence in FY 2029 - Virtual Orchestration for Kinetic/Non-Kinetic Targeting Effects is now referred to as Maestro. - Dynamic Access & Control-Tactical (DAC-T), previously captured on the BT5 schedule, is now captured under project BT3 (Common Operating Environment). - Echelons Above Brigade Operations Fires (EOF) is identified as a 6.4 RDTE effort projected to commence in FY 2027. - Tactical Zero Trust is identified as a 6.4 RDTE effort projected to commence in FY 2029. - The schedule for Industry Innovation Prototyping & Evaluation extends through FY 2029 to reflect the continuous nature of industry engagements. 		

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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 0604541A / <i>Unified Network Transport</i>				Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</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
BT5: <i>Integrated Tactical Network/Enterprise Network</i>	-	19.939	25.119	19.769	-	19.769	19.754	19.996	20.247	20.516	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line supports advanced component development activities that are aligned to Integrated Tactical Network and Enterprise Network requirements for the Army's modernized network of 2030/2040.

This project enables a converged Mission Command Network that operates seamlessly worldwide and in any environment. It includes the development of a standards-based network architecture that unifies enterprise and deployed network capabilities, and features a unified transport layer, network operations and other enabling functions that allows integration of disparate networks. The Army network will provide resiliency through path diversity and dynamic routing to ensure tactical units can communicate in hostile environments. It will provide multiple ways to communicate and give commanders the ability to have a network that delivers the right information and data at the right time during operations. It fully incorporates cyber and electronic warfare capabilities that support the employment of the network as a weapon system.

FY 2025 funding will be used to inform design decisions for Army network modernization in the areas of resilient wideband satellite communications capabilities, non-traditional waveforms, narrowband waveforms, and implementation of Automated Primary Alternate Contingency and Emergency (PACE) communications through evaluation and technical maturation. Funds also support identification, maturation, demonstration, and evaluation of Technology Readiness Level (TRL) 6+ systems and subsystem components including resilient, alternate Beyond Line of Sight (BLOS) capability in support of legacy high frequency waveforms. Funds also support development of Cyber Electromagnetic Activities (CEMA) situational understanding and operational integration and interoperability functions. Additionally, funds support development of a modular open standards systems architecture. Successful solutions identified through evaluation in a high fidelity and realistic operating environment will be transitioned to Programs of Record for integration and fielding. Funds will also support integration with solutions identified in other Army network priorities to ensure network dependencies are addressed. Funds will support highly scalable and robust waveforms with simplified network management for operations in congested or contested environments.

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

	FY 2023	FY 2024	FY 2025
Title: Project BT5: Integrated Tactical Network/Integrated Enterprise Network	18.182	23.890	18.653
Description: This funding is used to identify and acquire technologies to address gaps associated with the Unified Network for evaluation and demonstration in the overall Integrated Network. The Unified Network enables a converged Mission Command Network that operates seamlessly worldwide and in any environment. This will require the creation of a standards-based network architecture that effectively integrates enterprise and deployed network capabilities across domains and environments and features a unified transport layer that permits "plug and play" for specific network capabilities. This project addresses the following			

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
operational requirements: Converged Mission Command Network, Network Augmentation / Extension, and Synthetic Training Environment.				
FY 2024 Plans: Funds will be used to continue science and technology evaluation and prototyping solutions to support approved requirements documents and critical network modernization efforts to accelerate/integrate Next Generation Tactical radios, automated cyber defense tools, non-traditional waveforms, narrowband waveforms, and Line of Sight (LOS) and Beyond Line of Sight (BLOS) communications. Funding will allow the Army to identify and prototype solutions to mature the implementation of Automated Primary Alternate Contingency and Emergency (PACE) communications, network transport and gateway components of the Mission Partner Environment (MPE) and share network operations information through warfighting assessments and evaluations that will inform future capability sets. Funds will also be used for advanced component development and for innovative industry prototyping and evaluation efforts associated with Technical Exchange Meetings (TEM) to assess, demonstrate, prototype, and integrate emerging industry solutions to mature unified network capabilities to include development of an open standards systems architecture. Requirements for Integrated Tactical Network/Integrated Enterprise Network will align with prioritization of science & technology and industry innovation efforts in support of Army Capability Set development.				
FY 2025 Plans: Funds will be used to continue science and technology evaluation and prototyping solutions to support approved requirements documents and critical network modernization efforts to accelerate/integrate Next Generation Tactical radios, automated cyber defense tools, non-traditional waveforms, narrowband waveforms, and Line of Sight (LOS) and Beyond Line of Sight (BLOS) communications. Funding will allow the Army to identify and prototype solutions to mature the implementation of Automated Primary Alternate Contingency and Emergency (PACE) communications, network transport and gateway components of the Mission Partner Environment (MPE) and share network operations information through warfighting assessments and evaluations that will inform future capabilities. Funds will also be used for advanced component development and for innovative industry prototyping and evaluation efforts associated with Technical Exchange Meetings (TEM) and other forums to assess, demonstrate, prototype, and integrate emerging industry solutions to mature unified network capabilities to include, but not limited to, development of an open standards systems architecture. Requirements for Integrated Tactical Network/Integrated Enterprise Network will align with prioritization of science & technology and industry innovation efforts in support of the Army's modernized network of 2030/2040				
FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduced requirements associated with transitioning science & technology and industry innovation efforts.				
Title: Program Management		1.757	1.229	1.116

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Description: Program management includes overall management of program execution, major events, reporting, funding execution, and contract management, as well as participation in program planning and Integrated Product Team meetings with key stakeholders.</p> <p>FY 2024 Plans: Funds will be used to provide overall management in support of Unified Network Transport efforts, including contractor personnel and contract management support via Army Contracting Command.</p> <p>FY 2025 Plans: Funds will be used to provide overall management in support of Unified Network Transport efforts, including contractor personnel and contract management support via Army Contracting Command.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease due to reduced effort in prototyping and experimentation requirements.</p>			
Accomplishments/Planned Programs Subtotals	19.939	25.119	19.769

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

N/A

Remarks

N/A

D. Acquisition Strategy

Program Executive Office Command, Control, Communications-Tactical (PEO C3T), in partnership with the Network Cross-Functional Team (N-CFT), will align with Army network modernization priorities for technologies to be evaluated with appropriate Program Management (PM) offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in a Product Plan that authorizes a plan of execution for each capability being pursued. The various prototyping technologies will be pursued via competitively awarded contracts using best value source selection procedures. Identified Technology Readiness Level (TRL) 6 technologies will be matured, demonstrated, tested, and evaluated in realistic environments to achieve TRL 7. Selected technologies will be integrated into existing Programs of Record. A Transition Agreement (TA) is completed between the receiving PEO and the Science and Technology (S&T) community no later than halfway between the project start date and the project's first anticipated transition of any product(s) to a PEO/PM.

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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 0604541A / <i>Unified Network Transport</i>				Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</i>					

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			
Project Management Office Support	C/Various	BAH / ACC : APG, MD	0.806	1.397	Jun 2023	1.229	Dec 2023	1.116	Dec 2024	-		1.116	0.000	4.548	-
Industry Innovation Communications Gateway	C/CPFF	NIWC-LANT / SRC : North Charleston, SC	-	0.360	Apr 2023	-		-		-		-	0.000	0.360	-
Subtotal			0.806	1.757		1.229		1.116		-		1.116	0.000	4.908	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			
Science & Technology (S&T) Maturation - Soldier Authentication	C/CPFF	CCDC/FlexTech Alliance : APG, MD	4.000	-		-		-		-		-	0.000	4.000	-
S&T Maturation - INB2	C/FFP	CodeMettle : Atlanta, GA	7.946	-		-		-		-		-	0.000	7.946	-
S&T Maturation - AppSecC	C/CPFF	CCDC / CACI : APG, MD / Chantilly, VA	2.800	-		-		-		-		-	0.000	2.800	-
S&T Maturation - TSM IC	C/CPFF	CCDC/BAH/CACI : APG, MD/Mclean, VA/Arlington, VA	1.008	-		-		-		-		-	0.000	1.008	-
S&T Maturation - Next Generation High Frequency	C/Various	CCDC / MIT-LL / L3Harris : APG, MD / Lexington, MA / Palm Bay, FL	3.696	6.731	Dec 2022	-		-		-		-	0.000	10.427	-
S&T Maturation - Non-traditional Waveforms	C/CPFF	CCDC/BAH/CACI : APG, MD	1.454	-		-		-		-		-	0.000	1.454	-
S&T Maturation - Protected Comms for Manned-Unmanned Teaming	C/CPFF	DEVCOM/BAH/CACI : APG, MD	5.650	-		-		-		-		-	0.000	5.650	-
S&T Maturation - Resilient Wideband SATCOM Interference Cancellation	C/CPFF	CCDC/BAE : APG, MD/Burlington, MA	2.000	-		-		-		-		-	0.000	2.000	-

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</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			
S&T Maturation - CMOSS Mounted Form Factor	C/Various	CCDC/Polaris Alpha/Spectranetix : APG, MD/Sunnyvale, CA	3.026	1.852	Nov 2022	-		-		-		-	0.000	4.878	-
S&T Maturation - Secured Handheld on Assured Resilient Networks at the Tactical Edge (SHARE)	C/CPFF	Two Six Technologies : Arlington, VA	1.465	-		-		-		-		-	0.000	1.465	-
S&T Maturation - Aerial Tier Networking	C/CPFF	DEVCOM/CACI/BAH : APG, MD	2.282	0.350	Jan 2023	-		-		-		-	0.000	2.632	-
Science & Technology (S&T) Maturation Prototyping & Evaluation	C/Various	DEVCOM C5ISR / PEO C3T : APG, MD	-	-		19.764	Dec 2023	13.483	Dec 2024	-		13.483	0.000	33.247	-
Industry Innovation - C5ISR Modular Open Suite of Standards (CMOSS)	C/Various	Trellisware/Spectranetix/GDMS/NGC : San Diego, CA/Sunnyvale, CA/Scottsdale, AZ	12.298	3.261	Jan 2023	-		-		-		-	0.000	15.559	-
Industry Innovation - Intra-CP Node Wireless	C/Various	L3Harris/BATS, Inc : Rochester, NY/Indianapolis, IN	1.721	-		-		-		-		-	0.000	1.721	-
Industry Innovation - SATCOM Modem Modernization & Virtualization	C/Various	Kratos/L3Harris : Colorado Springs, CO/Palm Bay, FL	3.852	0.758	Mar 2023	-		-		-		-	0.000	4.610	-
Industry Innovation - CMOSS Mounted Form Factor Chassis Software	C/CPFF	GDMS : Bloomington, MN	-	2.687	Aug 2023	-		-		-		-	0.000	2.687	-
Industry Innovation - Next Generation Blue Force Tracker CMOSS	C/CPFF	GDMS : Scottsdale, AZ	-	2.543	Aug 2023	-		-		-		-	0.000	2.543	-
Industry Innovation Prototyping & Evaluation	C/Various	Various : Various	0.261	-		4.126	Feb 2024	5.170	Feb 2025	-		5.170	0.000	9.557	-
Subtotal			53.459	18.182		23.890		18.653		-		18.653	0.000	114.184	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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</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
Protected Comms for Manned-unmanned teaming (MUM-T)	█																											
Secured Handheld on Assured Resilient Networks at the Ta...	█	█																										
Aerial Tier Networking	█	█	█																									
CMOSS Mounted Form Factor (CMFF)	█	█	█	█																								
Next Generation High Frequency (NGHF)	█	█	█	█																								
Information Repository Intelligent System (IRIS)								█																				
Non-traditional Waveforms (NTW) Millimeter Wave (mmW)								█	█	█	█	█																
Information Trust																												
Autonomous Cyber																												
Resilient Wideband SATCOM - OTM & ATH																												
PKI Modernization																												
Multi-Orbit Modem																												
Predictive Intelligent Networking (PIN)																												

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</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 Hardening for Quantum																												
Industry Innovation Prototyping & 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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Application Security with Containers (AppSec-C)	2	2020	2	2021
Integrated Network Operations Battalion and Below (INB2)	2	2020	2	2022
Tactical Scalable Mobile Ad-hoc Networking (MANET) Interference Cancellation	4	2020	2	2021
Tactical IdAM -- Soldier Authentication	2	2020	4	2021
C5ISR/EW Modular Open Suite of Standards (CMOSS)	4	2020	1	2021
Resilient Wideband SATCOM - Interference Cancellation	3	2021	3	2022
Protected Comms for Manned-unmanned teaming (MUM-T)	1	2021	1	2023
Secured Handheld on Assured Resilient Networks at the Tactical Edge (SHARE)	2	2022	2	2023
Aerial Tier Networking	2	2022	4	2023
CMOSS Mounted Form Factor (CMFF)	2	2021	4	2024
Next Generation High Frequency (NGHF)	1	2023	4	2024
Information Repository Intelligent System (IRIS)	1	2024	4	2024
Non-traditional Waveforms (NTW) Millimeter Wave (mmW)	1	2024	4	2025
Information Trust	3	2024	3	2027
Autonomous Cyber	1	2025	4	2026
Resilient Wideband SATCOM - OTM & ATH	1	2025	4	2026
PKI Modernization	1	2026	4	2027
Multi-Orbit Modem	1	2026	4	2028
Predictive Intelligent Networking (PIN)	1	2027	4	2029
Tactical Hardening for Quantum	1	2029	4	2030
Industry Innovation Prototyping & Evaluation	4	2020	4	2029

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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 0604541A / <i>Unified Network Transport</i>	Project (Number/Name) BT5 / <i>Integrated Tactical Network/Enterprise Network</i>

Note

Industry Innovation Prototyping and Evaluation projects are awarded following Technical Exchange Meetings (TEM) and are continuous activities; Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will engage industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Record.

Changes from PB24 Schedule:

- Science and Technology (S&T) projects are evaluated based on ongoing forums with the S&T community. PEO C3T tracks changes to the S&T efforts, including but not limited to - titles, descriptions, Technology Readiness Level (TRL), planned program transition and transfer agreement status. PEO C3T utilizes this information to prioritize the S&T projects by fiscal year.
- Non-traditional Waveforms (NTW) Millimeter Wave (mmW) is projected to conclude in FY 2025.
- Next Generation High Frequency (NGHF) is projected to conclude in FY 2024.
- Adaptive Network Optimization Narrowband is removed from the schedule pending further technology maturation.
- Warrior Robust Enhanced Network (WREN) Enhancements is removed from the schedule pending further technology maturation.
- Dynamic Access Control-Tactical (DAC-T), previously captured on the BT5 schedule, is now captured under project BT3 (Common Operating Environment).
- Relay for Air Non-LOS Ground Environment (RANGE) is removed from the schedule pending further technology maturation.
- Multi-Orbit Modem is projected to commence in FY 2026 with two sub-tasks scheduled through FY 2028.
- Network Obscuration is removed from the 6.4 RDTE schedule for Unified Network Transport.
- Resilient Wideband SATCOM - On-the-Move and At-the-Halt - is projected to commence in FY 2025.
- Information Repository Intelligent System (IRIS) is identified as a 6.4 RDTE effort projected to begin in FY 2024.
- Autonomous Cyber is projected to commence in FY 2025
- Information Trust, previously captured on the BT3 schedule, is now captured under project BT5 (Integrated Tactical Network/Enterprise Network) and is projected to commence in mid-FY 2024.
- PKI Modernization, previously captured on the BT3 schedule, is now captured under project BT5 (Integrated Tactical Network/Enterprise Network).
- Tactical Hardening for Quantum, previously captured on the BT3 schedule, is now captured under project BT5 (Integrated Tactical Network/Enterprise Network) and is projected to commence in FY 2029.
- High-Altitude: WGS Ka Band Surrogate (HAWKS) is removed from the 6.4 RDTE schedule for Unified Network Transport.
- The schedule for Industry Innovation Prototyping & Evaluation extends through FY 2029 to reflect the continuous nature of industry engagements.

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</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	-	55.599	-	2.270	-	2.270	2.142	1.984	1.931	1.981	0.000	65.907
DD3: <i>Joint Cyber Warfighting Architecture Cyber Train</i>	-	55.599	-	-	-	-	-	-	-	-	0.000	55.599
FA8: <i>Cyberspace Operations Forces and Force Support</i>	-	-	-	2.270	-	2.270	2.142	1.984	1.931	1.981	0.000	10.308

Note

Project FA8 / Cyberspace Operations Forces and Force Support is a new start within the Cyberspace Operations Forces and Force Support program in FY 2025

A. Mission Description and Budget Item Justification

U.S. Army Cyber Command (ARCYBER) is the supporting Army Headquarters under United States Cyber Command to operate and defend Army networks and deliver cyberspace effects against adversaries to defend the nation. ARCYBER pursues research and development of cyber-peculiar capabilities across ARCYBER's lines of effort in coordination with other cyber acquisition and research entities to satisfy ARCYBER's time-sensitive operational requirements.

This funding supports pilot and prototype capabilities to enter into Cooperative Research and Development Agreements (CRADAs) and Educational Partnership Agreements (EPAs) to provide rapid solutions to cyber via Technology Transfer (T2) mechanism. T2 enables ARCYBER to "SPIN OUT" its research and development advancements to industry and "SPIN IN" the best solutions from the private sector for the purpose of transitioning new capabilities to our warfighter. Will also have the authority for "Dual use" technologies that have both military and commercial markets to be transferred and transitioned. ARCYBER Technology and Innovation Center (ArCTIC) T2 fosters an environment where numerous promising approaches and solutions are able to be assessed in parallel to influence future capabilities. T2 provides ARCYBER the ability to influence future programs of record by prototyping solutions and assessing them against real-world environments to determine operational impact if transitioned and scaled. T2 activities will extend and promote this culture across all Army and partner scientific research and prototype endeavors. The ArCTIC capability and research areas are narrow enough to ensure that ArCTIC is remaining true to its core competencies, and broad enough so that the lab can accelerate development efforts across various technology readiness levels (TRLs) and capability categories.

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</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	55.599	0.000	0.000	-	0.000
Current President's Budget	55.599	0.000	2.270	-	2.270
Total Adjustments	0.000	0.000	2.270	-	2.270
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	2.270	-	2.270

Change Summary Explanation

Funding increase to initiate Agile Solutions Pursuit Program within project FA8.

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>				Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</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
DD3: <i>Joint Cyber Warfighting Architecture Cyber Train</i>	-	55.599	-	-	-	-	-	-	-	-	0.000	55.599
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Persistent Cyber Training Environment (PCTE) supports the United States Cyber Command (USCC) by enabling the critical need for the DoD Cyber Mission Force (CMF) to train at the individual, team, and force level. PCTE provides the DoD CMF with a standardized training capability that maximizes shared content across the Services to include emulated network environments and has the ability to connect to other range environments and cyber training assets. The PCTE platform is aligned to the outputs of the Office of the Under Secretary of Defense for Acquisition & Sustainment OUSD (A&S) and Chairman of the Joint Chiefs of Staff (CJCS) J6 led, "Cyber Range Evaluation of Alternatives (EOA) Findings and Issue Paper Deliberations," dated 17 November 2015. The Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) was designated as the DoD Acquisition Lead for the PCTE and the program is directed by the 2016 National Defense Authorization Act, Section 1645. With the Joint Requirements Oversight Council (JROC) validation of the Information System - Capability Development Document (ISCDD)

on 4 November 2019, the PCTE program quickly achieved Milestone B on 6 December 2019. Through ongoing rapid prototyping efforts, the PCTE platform has fulfilled the critical need for a CMF standardized training capability upon release of PCTE Version 2 in Fourth Quarter Fiscal Year 2020, and continues to do so with ongoing version releases.

FY 2023 PCTE funding will focus on United States Cyber Command (USCC) priorities within platform releases to include enhancing current capability fidelity while introducing additional features. Areas of planned feature updates and enhancements include CMF learning management system, assessment and readiness capabilities, cloud based cyber terrain replication, distributed platform consolidation, cloud migration, and infrastructure consumption model implementation. The PCTE platform will continue collaboration with all stakeholders within the Joint Cyber Warfighting Architecture (JCWA), and continue initial integration efforts across the JCWA portfolio as prioritized through USCC. The PCTE platform will maintain accreditations at all required classification levels to serve DoD CMF user training at the Unclassified, Secret, and Top Secret data classification levels. Platform infrastructure and licensing will be maintained to support the full DoD CMF user base.

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

	FY 2023	FY 2024	FY 2025
Title: Event Management for Persistent Cyber Training Environment (PCTE)	43.543	-	-
Description: Design, build and iterate PCTE capabilities; build upon individual training features supporting operational force training requirements; develop improved readiness functions, event scheduling, allocation and management for PCTE, to include event design, planning and execution, supported by standardized training assessment tools and capabilities.			
Title: Environment Operations and Management for Persistent Cyber Training Environment (PCTE)	4.814	-	-

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Description: Develop PCTE with mission-relevant terrain and realistic vignettes/scenarios as part of a system (syllabus) of individual and collective training that includes certification and real-world mission rehearsals.			
Title: Physical and Virtual Connectivity for the Persistent Cyber Training Environment (PCTE) Description: PCTE has procured, installed and is maintaining Regional Compute and Storage (RCS) nodes which enable on demand, reliable, and secure virtual access from wherever participants are geographically located. Additionally, the PCTE RCS infrastructure create a core cyber exercise network and event management platform to support Cyber Mission Force (CMF) training at the Unclassified, Secret, and Top Secret data classification levels.	5.510	-	-
Title: Persistent Cyber Training Environment (PCTE) Test and Evaluation Description: Persistent Cyber Training Environment (PCTE) integration, development, and operational testing that will include validation and verifications (V&V), operational assessments (OA), and testing in association with cyber training exercises and incorporated throughout the Product Manager (PM) Development Operations (DevOps) process. An Operational Test Authority (OTA) has been incorporated, in coordination with the Director, Operational Test and Evaluation (DOT&E), to conduct operational testing leveraging DevOps testing processes.	1.732	-	-
Accomplishments/Planned Programs Subtotals	55.599	-	-

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

N/A

Remarks

D. Acquisition Strategy

The Persistent Cyber Training Environment (PCTE) program employs an incremental acquisition strategy leveraging the use of existing cyber contracts and Other Transaction Authority (OTA) vehicles to provide specified capabilities that will be integrated into a cohesive training platform. The next step in the acquisition strategy is developing a long term contract vehicle that will continue enabling the PCTE platform to achieve scalability, optimization, innovation, and quality standards to meet the dynamic needs of the Cyber Mission Force (CMF) user base. The Product Manager awarded an integration focused Single Award Indefinite Delivery/Indefinite Quantity (ID/IQ) contract to serve PCTE as well as other cyber community customers called the Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology (TRIDENT) contract on Q1 FY2022. The Cyber TRIDENT contract enables PCTE to provide iterative capability provided to the Cyber Mission Forces (CMF) in Capability Drops (CDs) that either improve or add features. These CDs will be based on requirements contained and further developed as part of the PCTE Information System - Capability Development Document (IS-CDD). This is a major capability acquisition that will continue to deliver capability in line with Information Technology (IT) Box requirements strategy.

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</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			
PCTE Development and Integration Support	C/IDDQ	Various : Various	181.750	1.764	Feb 2023	-		-		-		-	0.000	183.514	-
PCTE Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology (TRIDENT) Contract	C/IDDQ	Various : Various	24.581	13.363	Mar 2023	-		-		-		-	0.000	37.944	-
PCTE Development and Integration - Other Contracts	Option/ FFP	various : various	72.097	38.740	Mar 2023	-		-		-		-	0.000	110.837	-
Subtotal			278.428	53.867		-		-		-		-	0.000	332.295	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			
PCTE Government Test and Evaluation	Option/ Various	various : various	13.111	1.732	Mar 2023	-		-		-		-	0.000	14.843	-
Subtotal			13.111	1.732		-		-		-		-	0.000	14.843	N/A

Remarks
Validation and Verification tests at CMF existing training events will be conducted with every capability drop utilizing Cyber Mission Force operators

	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	291.539	55.599	-	-	-	-	0.000	347.138	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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</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
Platform Releases (v1.0 - v8.0) - (IS-CDD 1)	Platform Releases (v1.0 - v8.0) - (IS-CDD 1)																											
PCTE v6.0	1																											
PCTE v7.0		2																										
PCTE v8.0			3																									
Platform Releases (v9.0 - vX.0) - (IS-CDD 2)					Platform Releases (v9.0 - vX.0) - (IS-CDD 2)																							
PCTE v9.0					4																							
PCTE v10.0									5																			
PCTE v11.0										6																		
PCTE v12.0											7																	
PCTE v13.0												8																

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) DD3 / <i>Joint Cyber Warfighting Architecture Cyber Train</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Platform Releases (v1.0 - v8.0) - (IS-CDD 1)	2	2022	2	2024
PCTE v4.0	2	2022	2	2022
PCTE v5.0	4	2022	4	2022
PCTE v6.0	2	2023	2	2023
PCTE v7.0	4	2023	4	2023
PCTE v8.0	2	2024	2	2024
Platform Releases (v9.0 - vX.0) - (IS-CDD 2)	4	2024	4	2026
PCTE v9.0	4	2024	4	2024
PCTE v10.0	2	2025	2	2025
PCTE v11.0	4	2025	4	2025
PCTE v12.0	2	2026	2	2026
PCTE v13.0	4	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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>				Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</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
FA8: <i>Cyberspace Operations Forces and Force Support</i>	-	-	-	2.270	-	2.270	2.142	1.984	1.931	1.981	0.000	10.308
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Cyberspace Operations Forces and Force Support is a new start within the Cyberspace Operations Forces and Force Support program in FY 2025.

A. Mission Description and Budget Item Justification

This project funding supports pilot and prototype capabilities to enter into Cooperative Research and Development Agreements (CRADAs) and Educational Partnership Agreements (EPAs) to provide rapid solutions to cyber via Technology Transfer (T2) mechanism. T2 enables ARCYBER to "SPIN OUT" its research and development advancements to industry and "SPIN IN" the best solutions from the private sector for the purpose of transitioning new capabilities to our warfighter. Will also have the authority for "Dual use" technologies that have both military and commercial markets to be transferred and transitioned.

ARCYBER Technology and Innovation Center (ArCTIC) T2 fosters an environment where numerous promising approaches and solutions are able to be assessed in parallel to influence future capabilities. T2 provides ARCYBER the ability to influence future programs of record by prototyping solutions and assessing them against real-world environments to determine operational impact if transitioned and scaled. T2 activities will extend and promote this culture across all Army and partner scientific research and prototype endeavors. The ArCTIC capability and research areas are narrow enough to ensure that ArCTIC is remaining true to its core competencies, and broad enough so that the lab can accelerate development efforts across various technology readiness levels (TRLs) and capability categories.

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

	FY 2023	FY 2024	FY 2025
Title: Agile Solutions Pursuit Program	-	-	2.270
Description: ARCYBER Technology and Innovation Center (ArCTIC) T2 fosters an environment where numerous promising approaches and solutions are able to be assessed in parallel to influence future capabilities. T2 provides ARCYBER the ability to influence future programs of record by prototyping solutions and assessing them against real-world environments to determine operational impact if transitioned and scaled. T2 activities will extend and promote this culture across all Army and partner scientific research and prototype endeavors. The ArCTIC capability and research areas are narrow enough to ensure that ArCTIC is remaining true to its core competencies, and broad enough so that the lab can accelerate development efforts across various technology readiness levels (TRLs) and capability categories.			
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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 Base dollars in the amount of \$2.270 will be used to support the Line of Effort (LOE): Design, build, and deliver integrated capabilities for the future fight. Funds will initiate up to 3 different prototypes per year with the goal of focusing on internal R&D and external partnerships on the broad classes of ARCYBER capabilities based on operational requirements. <i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> This effort is a new start in FY25.			
Accomplishments/Planned Programs Subtotals	-	-	2.270

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks
D. Acquisition Strategy Not identified yet.

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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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</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				
Platform Releases (v1.0 – v8.0) - (IS-CDD 1)	[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 0305251A / <i>Cyberspace Operations Forces and Force Support</i>	Project (Number/Name) FA8 / <i>Cyberspace Operations Forces and Force Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prototype Releases (A-C) - (Risk Reduction Efforts)	4	2018	4	2019
PCTE vA	4	2018	4	2018
PCTE vB	2	2019	2	2019
PCTE vC	4	2019	4	2019
Platform Releases (v1.0 - v8.0) - (IS-CDD 1)	2	2020	4	2025
PCTE v1.0	2	2020	2	2020
PCTE v2.0	4	2020	4	2020
PCTE v3.0	2	2021	2	2021
PCTE v4.0	2	2022	2	2022
PCTE v5.0	4	2022	4	2022