Department of Defense
Fiscal Year (FY) 2024 Budget Estimates

March 2023

Army

Justification Book Volume 2b of 2

Research, Development, Test & Evaluation, Army

RDT&E − Volume II, Budget Activity 4B

Volume 2b Table of Contents

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, $15,772,215,000.00 to remain available for obligation until September 30, 2025.

The FY 2024 Overseas Operations accounted for in the base budget are as follows:

In-theater and in-CONUS expenses that remain after combat operations cease and have been previously funded in Overseas Operations $3,166,000.00.

COST STATEMENT

The following Justification Books were prepared at a cost of $365,839.52: 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.

FY 2024 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 2024.

2. Relationship of the FY 2024 Budget Submitted to Congress to the FY 2023 Budget Submitted to Congress. This paragraph provides a list of program elements/projects that are major new starts, restructures, developmental transitions, and terminated programs. Explanations for these changes can be found in the narrative sections of the Program Element R-2A Exhibits.

New Start Programs:

Budget Activity	***OSDPE / Project***	***Project Title***
02	0602146A / AM6	Modular RF Communications Technology
02	0602148A / CI4	Adaptive Avionics Technologies
02	0602141A / CIC	Fire Control Lethality Technology
02	0602182A / DA8	Quantum PNT & Radio Frequency Sensing
02	0602182A / DB4	Enabling Long Standoff 3D (ELS3D) Tech
02	0602002A / DC6	Sci & Analysis for Autonomous Sys & Counter-Auton
02	0602183A / DE2	Airborne Threat Defeat
02	0602150A / DE3	Adv Beam Control Component Development for C-CM
02	0602182A / DE6	Understanding Environment as a Threat Tech
03	0603044A / CW1	Technical-SAVVY Soldier Advanced Research
03	0603116A / DB2	Future Armaments Scalable Technologies
03	0603042A / DB5	Enabling Long Standoff 3D (ELS3D) Adv Tech
03	0603463A / DB6	Pathfinder 3D Advanced Technology
04	0604103A / DG4	NAVWAR SA
04	0603779A / DH6	Installation Resilience
05	0604802A / DC9	30mm MMPA M-SHORAD INC 3

05	0604818A / DD1	Unified Network Technology Trans & Integ (UNTTI)
05	0605206A / DG3	CI and HUMINT Equipment Program-Army (CIHEP-A)
05	0605013A / DH1	Operational Medicine Information System
05	0605216A / EFA	Joint Target Integrated Cmd & Coordination Suite
05	0605036A / EQ5	Combating Weapons of Mass Destruction (CWMD)
05	0605049A / XT4	Advanced Threat Detection System (ATDS)
06	0605601A / WD1	West Desert Test Center
07	0203735A / DD4	AMPV Improvement Program
07	0607315A / DD5	Army Power Systems Modernization

Program Element/Project Restructures:

Budget Activity	***Old OSDPE / Project: Title***	***New OSDPE / Project***
02	0602145A / CU5: Next Generation Combat Vehicle Technolog	0602141A / CIA
02	0602181A / CM7: All Domain Convergence Applied Research	0602141A / CIB
02	0602143A / AZ9: Soldier Lethality Technology	0602143A / BB4
02	0602143A / BBG: Soldier Lethality Technology	0602143A / BC2
02	0602145A / BG8: Next Generation Combat Vehicle Technology	0602144A / DG1
02	0602180A / CL7: Artificial Intelligence and Machine Learning Technologies	0602180A / DE8
03	0603040A / CL6: Artificial Intelligence and Machine Learning Technologies	0603040A / DE9
03	0603463A / AR6: Network C3I Advanced Technology	0603042A / DE7
03	0603041A / CM8: All Domain Convergence Advanced Technology	0603116A / CID
03	0603462A / BH6: Next Generation Combat Vehicle Advanced Technology	0603118A / BD9
03	0603462A / BG9: Next Generation Combat Vehicle Advanced Technology	0603119A / DG2
03	0603464A / CZ8: Long Range Precision Fires Advanced Technology	0603464A / AF2
04	0604036A / BY9: Multi-Domain Sensing System (MDSS) Adv Dev	0604036A / DD6
04	0604036A / BY9: Multi-Domain Sensing System (MDSS) Adv Dev	0604036A / DD6

05	0604818A / EJ5: Family of Heavy Vehicles	0604622A / DG7
05	0605224A / CK4: Long-Range Hypersonic Weapon	0604182A / HX2
05	0605224A / CK4: All Up Round and Canister (AUR+C)	0604182A / HX2
05	0605457A / S40: Common Hypersonic Glide Body (CHGB)	0604182A / HX2
05	0605601A / F30: Ground Support Equipment (GSE)	0604182A / HX2
05	0203744A / EB6: HX6: Test and Evaluation	0604182A / HX2
05	0605224A / CK4: Multi-Domain Intelligence	0604805A / 593
05	0605224A / CK4: Multi-Domain Intelligence	0605224A / DD8
05	0605457A / S40: Multi-Domain Intelligence	0605224A / DD9
05	0605601A / F30: Army Integrated Air and Missile Defense (AIAMD)	0605457A / SS1
06	0605601A / F30: Army Integrated Air and Missile Defense (AIAMD)	0605702A / 128
07	0203744A / EB6: Army Test Ranges and Facilities	0305219A / MQ2

Program Terminations (including transfers to Procurement and Sustainment):

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Budget Activity	***OSDPE / Project***	***Project Title***
03	0603465A / AI8	Future Vertical Lift Advanced Technology / Alternative Concept Engine Advanced Technology
03	0603463A / AV4	Network C3I Advanced Technology / Foundational S&T for Network C3I Advanced Tech
04	0305251A / DD3	Cyberspace Operations Forces and Force Support / Joint Cyber Warfighting Architecture Cyber Train
04	0604115A / AX8	Technology Maturation Initiatives / Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)
04	0604115A / AX9	Technology Maturation Initiatives / Adv Mobility Experimental Prototype Adv Tech
05	0604802A / CE3	Weapons and Munitions - Eng Dev / Precision Munition (Sniper)
05	0604802A / EU4	Weapons and Munitions - Eng Dev / 40mm HV Improved High Explosive Dual Purpose
05	0604804A / FG4	Logistics and Engineer Equipment - Eng Dev / Ultra-Lightweight Camouflage Net System (ULCANS)
05	0604822A / DV6	General Fund Enterprise Business System (GFEBS) / General Fund Enterprise Business System
05	0604854A / HB6	Artillery Systems - EMD / Mobile 155MM Howitzer
05	0605013A / 184	Information Technology Development / Installation Support Modules
07	0305204A / 11A	Tactical Unmanned Aerial Vehicles / Advanced Payload Develop & Spt

07	0305206A / EH2	Airborne Reconnaissance Systems / EMARSS ADV DEV
07	0305206A / EH3	Airborne Reconnaissance Systems / EMARSS Payloads ADV DEV
08	0608041A / DD2	Defensive CYBER - Software Prototype Development / Joint Cyber Warfighting Architecture Software

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 Defense
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

Appropriation	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment	FY 2024 Request
Research, Development, Test and Evaluation, Army	14,660,654	17,142,121	9,100	17,151,221	15,775,381
Total Research, Development, Test, & Evaluation	**14,660,654**	**17,142,121**	**9,100**	**17,151,221**	**15,775,381**

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of Defense
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Total Obligational Authority
(Dollars in Thousands)

Mar 2023

	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment	FY 2024 Request
Summary Recap of Budget Activities					
Basic Research	590,078	635,395		635,395	497,455
Applied Research	1,521,472	1,823,330		1,823,330	948,358
Advanced Technology Development	2,145,309	2,532,690		2,532,690	1,455,986
Advanced Component Development & Prototypes	3,799,417	4,631,111	6,000	4,637,111	4,420,315
System Development & Demonstration	3,178,005	4,317,752	600	4,318,352	5,639,364
Management Support	1,901,655	1,820,502		1,820,502	1,624,585
Operational Systems Development	1,416,677	1,286,510	2,500	1,289,010	1,105,748
Software And Digital Technology Pilot Programs	108,041	94,831		94,831	83,570
Total Research, Development, Test, & Evaluation	**14,660,654**	**17,142,121**	**9,100**	**17,151,221**	**15,775,381**
Summary Recap of FYDP Programs					
General Purpose Forces	559,789	372,120		372,120	404,375
Intelligence and Communications	262,480	248,995		248,995	212,694
Research and Development	13,733,825	16,382,072	9,100	16,391,172	15,055,009
Central Supply and Maintenance	101,466	132,270		132,270	75,317
Administration and Associated Activities	101				
Classified Programs	2,993	6,664		6,664	27,986
Total Research, Development, Test, & Evaluation	**14,660,654**	**17,142,121**	**9,100**	**17,151,221**	**15,775,381**

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Department of the Army
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(Dollars in Thousands)

Mar 2023

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Advanced Technology Development	2,145,309	2,532,690		2,532,690	1,455,986
Advanced Component Development & Prototypes	3,799,417	4,631,111	6,000	4,637,111	4,420,315
System Development & Demonstration	3,178,005	4,317,752	600	4,318,352	5,639,364
Management Support	1,901,655	1,820,502		1,820,502	1,624,585
Operational Systems Development	1,416,677	1,286,510	2,500	1,289,010	1,105,748
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Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
1	0601102A	Defense Research Sciences	01	U	358,521	391,642		391,642
2	0601103A	University Research Initiatives	01	U	88,797	107,160		107,160
3	0601104A	University and Industry Research Centers	01	U	122,521	121,160		121,160
4	0601121A	Cyber Collaborative Research Alliance	01	U	5,067	5,355		5,355
5	0601601A	Artificial Intelligence and Machine Learning Basic Research	01	U	15,172	10,078		10,078
	Basic Research				**590,078**	**635,395**		**635,395**
6	0602002A	Army Agile Innovation and Development-Applied Research	02	U		1,000		1,000
7	0602115A	Biomedical Technology	02	U	11,489			
8	0602134A	Counter Improvised-Threat Advanced Studies	02	U	1,904	6,192		6,192
9	0602141A	Lethality Technology	02	U	89,285	194,717		194,717
10	0602142A	Army Applied Research	02	U	28,654	27,833		27,833
11	0602143A	Soldier Lethality Technology	02	U	201,221	253,539		253,539
12	0602144A	Ground Technology	02	U	214,489	264,523		264,523
13	0602145A	Next Generation Combat Vehicle Technology	02	U	239,284	277,445		277,445
14	0602146A	Network C3I Technology	02	U	161,759	212,115		212,115
15	0602147A	Long Range Precision Fires Technology	02	U	107,454	128,529		128,529
16	0602148A	Future Verticle Lift Technology	02	U	130,108	104,348		104,348
17	0602150A	Air and Missile Defense Technology	02	U	92,926	88,768		88,768
18	0602180A	Artificial Intelligence and Machine Learning Technologies	02	U	14,486	16,068		16,068

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of the Army
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(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2024 Request
1	0601102A	Defense Research Sciences	01	U	296,670
2	0601103A	University Research Initiatives	01	U	75,672
3	0601104A	University and Industry Research Centers	01	U	108,946
4	0601121A	Cyber Collaborative Research Alliance	01	U	5,459
5	0601601A	Artificial Intelligence and Machine Learning Basic Research	01	U	10,708
	Basic Research				**497,455**
6	0602002A	Army Agile Innovation and Development-Applied Research	02	U	5,613
7	0602115A	Biomedical Technology	02	U	
8	0602134A	Counter Improvised-Threat Advanced Studies	02	U	6,242
9	0602141A	Lethality Technology	02	U	85,578
10	0602142A	Army Applied Research	02	U	34,572
11	0602143A	Soldier Lethality Technology	02	U	104,470
12	0602144A	Ground Technology	02	U	60,005
13	0602145A	Next Generation Combat Vehicle Technology	02	U	166,500
14	0602146A	Network C3I Technology	02	U	81,618
15	0602147A	Long Range Precision Fires Technology	02	U	34,683
16	0602148A	Future Verticle Lift Technology	02	U	73,844
17	0602150A	Air and Missile Defense Technology	02	U	33,301
18	0602180A	Artificial Intelligence and Machine Learning Technologies	02	U	24,142

Department of the Army
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Mar 2023

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Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
19	0602181A	All Domain Convergence Applied Research	02	U	25,019	27,360		27,360
20	0602182A	C3I Applied Research	02	U	11,954	27,868		27,868
21	0602183A	Air Platform Applied Research	02	U	6,356	41,588		41,588
22	0602184A	Soldier Applied Research	02	U	10,660	15,716		15,716
23	0602213A	C3I Applied Cyber	02	U	12,119	13,605		13,605
24	0602386A	Biotechnology for Materials - Applied Research	02	U	19,889	21,811		21,811
25	0602785A	Manpower/Personnel/Training Technology	02	U	18,414	19,649		19,649
26	0602787A	Medical Technology	02	U	124,002	80,656		80,656
	Applied Research				**1,521,472**	**1,823,330**		**1,823,330**
27	0603002A	Medical Advanced Technology	03	U	147,287	31,588		31,588
28	0603007A	Manpower, Personnel and Training Advanced Technology	03	U	13,865	15,598		15,598
29	0603025A	Army Agile Innovation and Demonstration	03	U	21,420	20,900		20,900
30	0603040A	Artificial Intelligence and Machine Learning Advanced Technologies	03	U	876	6,395		6,395
31	0603041A	All Domain Convergence Advanced Technology	03	U	20,095	45,377		45,377
32	0603042A	C3I Advanced Technology	03	U	3,036	12,716		12,716
33	0603043A	Air Platform Advanced Technology	03	U	727	17,946		17,946
34	0603044A	Soldier Advanced Technology	03	U	858	479		479
35	0603115A	Medical Development	03	U	25,540			
36	0603116A	Lethality Advanced Technology	03	U	7,772	9,796		9,796
37	0603117A	Army Advanced Technology Development	03	U	76,815	134,874		134,874

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Department of the Army
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Mar 2023

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Line No	Program Element Number	Item	Act	Sec	FY 2024 Request
19	0602181A	All Domain Convergence Applied Research	02	U	14,297
20	0602182A	C3I Applied Research	02	U	30,659
21	0602183A	Air Platform Applied Research	02	U	48,163
22	0602184A	Soldier Applied Research	02	U	18,986
23	0602213A	C3I Applied Cyber	02	U	22,714
24	0602386A	Biotechnology for Materials - Applied Research	02	U	16,736
25	0602785A	Manpower/Personnel/Training Technology	02	U	19,969
26	0602787A	Medical Technology	02	U	66,266
	Applied Research				**948,358**
27	0603002A	Medical Advanced Technology	03	U	4,147
28	0603007A	Manpower, Personnel and Training Advanced Technology	03	U	16,316
29	0603025A	Army Agile Innovation and Demonstration	03	U	23,156
30	0603040A	Artificial Intelligence and Machine Learning Advanced Technologies	03	U	13,187
31	0603041A	All Domain Convergence Advanced Technology	03	U	33,332
32	0603042A	C3I Advanced Technology	03	U	19,225
33	0603043A	Air Platform Advanced Technology	03	U	14,165
34	0603044A	Soldier Advanced Technology	03	U	1,214
35	0603115A	Medical Development	03	U	
36	0603116A	Lethality Advanced Technology	03	U	20,582
37	0603117A	Army Advanced Technology Development	03	U	136,280

Department of the Army
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Appropriation: 2040A Research, Development, Test and Evaluation, Army

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
38	0603118A	Soldier Lethality Advanced Technology	03	U	148,458	154,639		154,639
39	0603119A	Ground Advanced Technology	03	U	281,637	415,846		415,846
40	0603134A	Counter Improvised-Threat Simulation	03	U	23,920	21,486		21,486
41	0603386A	Biotechnology for Materials - Advanced Research	03	U	51,774	56,853		56,853
42	0603457A	C3I Cyber Advanced Development	03	U	61,426	41,354		41,354
43	0603461A	High Performance Computing Modernization Program	03	U	222,220	301,964		301,964
44	0603462A	Next Generation Combat Vehicle Advanced Technology	03	U	294,491	471,434		471,434
45	0603463A	Network C3I Advanced Technology	03	U	205,576	177,917		177,917
46	0603464A	Long Range Precision Fires Advanced Technology	03	U	138,482	202,830		202,830
47	0603465A	Future Vertical Lift Advanced Technology	03	U	255,323	272,551		272,551
48	0603466A	Air and Missile Defense Advanced Technology	03	U	125,027	99,147		99,147
49	0603920A	Humanitarian Demining	03	U	18,684	21,000		21,000
	Advanced Technology Development				**2,145,309**	**2,532,690**		**2,532,690**
51	0603305A	Army Missle Defense Systems Integration	04	U	56,579	118,001		118,001
52	0603308A	Army Space Systems Integration	04	U	25,401	30,945		30,945
53	0603327A	Air and Missile Defense Systems Engineering	04	U	15,000	15,000		15,000
54	0603619A	Landmine Warfare and Barrier - Adv Dev	04	U	44,933	55,953	6,000	61,953
55	0603639A	Tank and Medium Caliber Ammunition	04	U	61,641	51,488		51,488
56	0603645A	Armored System Modernization - Adv Dev	04	U	154,010	135,122		135,122
57	0603747A	Soldier Support and Survivability	04	U	2,791	4,060		4,060
58	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	U	113,365	72,314		72,314

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of the Army
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Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2024 Request
38	0603118A	Soldier Lethality Advanced Technology	03	U	102,778
39	0603119A	Ground Advanced Technology	03	U	40,597
40	0603134A	Counter Improvised-Threat Simulation	03	U	21,672
41	0603386A	Biotechnology for Materials - Advanced Research	03	U	59,871
42	0603457A	C3I Cyber Advanced Development	03	U	28,847
43	0603461A	High Performance Computing Modernization Program	03	U	255,772
44	0603462A	Next Generation Combat Vehicle Advanced Technology	03	U	217,394
45	0603463A	Network C3I Advanced Technology	03	U	105,549
46	0603464A	Long Range Precision Fires Advanced Technology	03	U	153,024
47	0603465A	Future Vertical Lift Advanced Technology	03	U	158,795
48	0603466A	Air and Missile Defense Advanced Technology	03	U	21,015
49	0603920A	Humanitarian Demining	03	U	9,068
	Advanced Technology Development				**1,455,986**
51	0603305A	Army Missle Defense Systems Integration	04	U	12,904
52	0603308A	Army Space Systems Integration	04	U	19,120
53	0603327A	Air and Missile Defense Systems Engineering	04	U	
54	0603619A	Landmine Warfare and Barrier - Adv Dev	04	U	47,537
55	0603639A	Tank and Medium Caliber Ammunition	04	U	91,323
56	0603645A	Armored System Modernization - Adv Dev	04	U	43,026
57	0603747A	Soldier Support and Survivability	04	U	3,550
58	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	U	65,567

Department of the Army
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Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
59	0603774A	Night Vision Systems Advanced Development	04	U	62,534	97,478		97,478
60	0603779A	Environmental Quality Technology - Dem/Val	04	U	22,491	76,749		76,749
61	0603790A	NATO Research and Development	04	U	3,639	3,805		3,805
62	0603801A	Aviation - Adv Dev	04	U	1,138,457	1,157,472		1,157,472
63	0603804A	Logistics and Engineer Equipment - Adv Dev	04	U	10,797	24,638		24,638
64	0603807A	Medical Systems - Adv Dev	04	U	27,768	5,598		5,598
65	0603827A	Soldier Systems - Advanced Development	04	U	25,288	23,444		23,444
66	0604017A	Robotics Development	04	U	78,309	26,555		26,555
67	0604019A	Expanded Mission Area Missile (EMAM)	04	U	26,855	258,320		258,320
68	0604020A	Cross Functional Team (CFT) Advanced Development & Prototyping	04	U		77,000		77,000
69	0604035A	Low Earth Orbit (LEO) Satellite Capability	04	U	18,922	35,509		35,509
70	0604036A	Multi-Domain Sensing System (MDSS) Adv Dev	04	U	50,548	47,915		47,915
71	0604037A	Tactical Intel Targeting Access Node (TITAN) Adv Dev	04	U	28,347	863		863
72	0604100A	Analysis Of Alternatives	04	U	9,723	10,659		10,659
73	0604101A	Small Unmanned Aerial Vehicle (SUAV) (6.4)	04	U	892	1,425		1,425
74	0604103A	Electronic Warfare Planning and Management Tool (EWPMT)	04	U				
75	0604113A	Future Tactical Unmanned Aircraft System (FTUAS)	04	U	76,349	134,719		134,719
76	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor	04	U	408,766	380,147		380,147
77	0604115A	Technology Maturation Initiatives	04	U	127,725	219,742		219,742
78	0604117A	Maneuver - Short Range Air Defense (M-SHORAD)	04	U	37,939	274,838		274,838

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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59	0603774A	Night Vision Systems Advanced Development	04	U	73,675
60	0603779A	Environmental Quality Technology - Dem/Val	04	U	31,720
61	0603790A	NATO Research and Development	04	U	4,143
62	0603801A	Aviation - Adv Dev	04	U	1,502,160
63	0603804A	Logistics and Engineer Equipment - Adv Dev	04	U	7,604
64	0603807A	Medical Systems - Adv Dev	04	U	1,602
65	0603827A	Soldier Systems - Advanced Development	04	U	27,681
66	0604017A	Robotics Development	04	U	3,024
67	0604019A	Expanded Mission Area Missile (EMAM)	04	U	97,018
68	0604020A	Cross Functional Team (CFT) Advanced Development & Prototyping	04	U	117,557
69	0604035A	Low Earth Orbit (LEO) Satellite Capability	04	U	38,851
70	0604036A	Multi-Domain Sensing System (MDSS) Adv Dev	04	U	191,394
71	0604037A	Tactical Intel Targeting Access Node (TITAN) Adv Dev	04	U	10,626
72	0604100A	Analysis Of Alternatives	04	U	11,095
73	0604101A	Small Unmanned Aerial Vehicle (SUAV) (6.4)	04	U	5,144
74	0604103A	Electronic Warfare Planning and Management Tool (EWPMT)	04	U	2,260
75	0604113A	Future Tactical Unmanned Aircraft System (FTUAS)	04	U	53,143
76	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor	04	U	816,663
77	0604115A	Technology Maturation Initiatives	04	U	281,314
78	0604117A	Maneuver - Short Range Air Defense (M-SHORAD)	04	U	281,239

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79	0604119A	Army Advanced Component Development & Prototyping	04	U	179,483	198,111		198,111
80	0604120A	Assured Positioning, Navigation and Timing (PNT)	04	U	80,858	57,620		57,620
81	0604121A	Synthetic Training Environment Refinement & Prototyping	04	U	198,815	242,468		242,468
82	0604134A	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	U	12,891	14,840		14,840
83	0604135A	Strategic Mid-Range Fires	04	U		404,291		404,291
84	0604182A	Hypersonics	04	U	305,406	238,168		238,168
85	0604403A	Future Interceptor	04	U	6,643	8,179		8,179
86	0604531A	Counter - Small Unmanned Aircraft Systems Advanced Development	04	U	18,449	35,110		35,110
87	0604541A	Unified Network Transport	04	U	33,879	36,966		36,966
88	0604644A	Mobile Medium Range Missile	04	U	275,989			
89	0604785A	Integrated Base Defense (Budget Activity 4)	04	U	2,040			
90	0305251A	Cyberspace Operations Forces and Force Support	04	U	55,895	55,599		55,599
999	999999999	Classified Programs	04	U				
	Advanced Component Development & Prototypes				**3,799,417**	**4,631,111**	**6,000**	**4,637,111**
91	0604201A	Aircraft Avionics	05	U	6,411	3,335		3,335
92	0604270A	Electronic Warfare Development	05	U	29,683	4,140		4,140
93	0604601A	Infantry Support Weapons	05	U	77,027	83,329		83,329
94	0604604A	Medium Tactical Vehicles	05	U	9,177	22,163		22,163
95	0604611A	JAVELIN	05	U	8,202	16,186		16,186

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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79	0604119A	Army Advanced Component Development & Prototyping	04	U	204,914
80	0604120A	Assured Positioning, Navigation and Timing (PNT)	04	U	40,930
81	0604121A	Synthetic Training Environment Refinement & Prototyping	04	U	109,714
82	0604134A	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	U	16,426
83	0604135A	Strategic Mid-Range Fires	04	U	31,559
84	0604182A	Hypersonics	04	U	43,435
85	0604403A	Future Interceptor	04	U	8,040
86	0604531A	Counter - Small Unmanned Aircraft Systems Advanced Development	04	U	64,242
87	0604541A	Unified Network Transport	04	U	40,915
88	0604644A	Mobile Medium Range Missile	04	U	
89	0604785A	Integrated Base Defense (Budget Activity 4)	04	U	
90	0305251A	Cyberspace Operations Forces and Force Support	04	U	
999	999999999	Classified Programs	04	U	19,200
	Advanced Component Development & Prototypes				**4,420,315**
91	0604201A	Aircraft Avionics	05	U	13,673
92	0604270A	Electronic Warfare Development	05	U	12,789
93	0604601A	Infantry Support Weapons	05	U	64,076
94	0604604A	Medium Tactical Vehicles	05	U	28,226
95	0604611A	JAVELIN	05	U	7,827

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96	0604622A	Family of Heavy Tactical Vehicles	05	U	27,406	53,014		53,014
97	0604633A	Air Traffic Control	05	U	4,244	2,623		2,623
98	0604641A	Tactical Unmanned Ground Vehicle (TUGV)	05	U		109,849		109,849
99	0604642A	Light Tactical Wheeled Vehicles	05	U	1,980			
100	0604645A	Armored Systems Modernization (ASM) - Eng Dev	05	U	118,296	63,131		63,131
101	0604710A	Night Vision Systems - Eng Dev	05	U	41,831	92,951		92,951
102	0604713A	Combat Feeding, Clothing, and Equipment	05	U	1,598	1,566		1,566
103	0604715A	Non-System Training Devices - Eng Dev	05	U	28,605	18,588		18,588
104	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	U	58,633	55,541		55,541
105	0604742A	Constructive Simulation Systems Development	05	U	21,424	29,481		29,481
106	0604746A	Automatic Test Equipment Development	05	U	8,486	5,178		5,178
107	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	U	12,182	8,189		8,189
108	0604798A	Brigade Analysis, Integration and Evaluation	05	U	20,976	21,086		21,086
109	0604802A	Weapons and Munitions - Eng Dev	05	U	287,787	285,778	600	286,378
110	0604804A	Logistics and Engineer Equipment - Eng Dev	05	U	49,201	75,669		75,669
111	0604805A	Command, Control, Communications Systems - Eng Dev	05	U	19,372	44,993		44,993
112	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	U	43,023	5,513		5,513
113	0604808A	Landmine Warfare/Barrier - Eng Dev	05	U	28,622	37,150		37,150
114	0604818A	Army Tactical Command & Control Hardware & Software	05	U	146,291	131,190		131,190
115	0604820A	Radar Development	05	U	124,832	71,259		71,259

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96	0604622A	Family of Heavy Tactical Vehicles	05	U	44,197
97	0604633A	Air Traffic Control	05	U	1,134
98	0604641A	Tactical Unmanned Ground Vehicle (TUGV)	05	U	142,125
99	0604642A	Light Tactical Wheeled Vehicles	05	U	53,564
100	0604645A	Armored Systems Modernization (ASM) - Eng Dev	05	U	102,201
101	0604710A	Night Vision Systems - Eng Dev	05	U	48,720
102	0604713A	Combat Feeding, Clothing, and Equipment	05	U	2,223
103	0604715A	Non-System Training Devices - Eng Dev	05	U	21,441
104	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	U	74,738
105	0604742A	Constructive Simulation Systems Development	05	U	30,985
106	0604746A	Automatic Test Equipment Development	05	U	13,626
107	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	U	8,802
108	0604798A	Brigade Analysis, Integration and Evaluation	05	U	20,828
109	0604802A	Weapons and Munitions - Eng Dev	05	U	243,851
110	0604804A	Logistics and Engineer Equipment - Eng Dev	05	U	37,420
111	0604805A	Command, Control, Communications Systems - Eng Dev	05	U	34,214
112	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	U	6,496
113	0604808A	Landmine Warfare/Barrier - Eng Dev	05	U	13,581
114	0604818A	Army Tactical Command & Control Hardware & Software	05	U	168,574
115	0604820A	Radar Development	05	U	94,944

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116	0604822A	General Fund Enterprise Business System (GFEBS)	05	U	15,395	10,402		10,402
117	0604827A	Soldier Systems - Warrior Dem/Val	05	U	6,219	19,408		19,408
118	0604852A	Suite of Survivability Enhancement Systems - EMD	05	U	93,207	100,384		100,384
119	0604854A	Artillery Systems - EMD	05	U	25,000	48,106		48,106
120	0605013A	Information Technology Development	05	U	125,109	104,134		104,134
121	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	U	65,230	67,519		67,519
122	0605028A	Armored Multi-Purpose Vehicle (AMPV)	05	U	34,262			
123	0605030A	Joint Tactical Network Center (JTNC)	05	U	15,752	17,936		17,936
124	0605031A	Joint Tactical Network (JTN)	05	U	27,849	30,150		30,150
125	0605035A	Common Infrared Countermeasures (CIRCM)	05	U	15,982	11,523		11,523
126	0605036A	Combating Weapons of Mass Destruction (CWMD)	05	U				
127	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	05	U	7,340			
128	0605041A	Defensive CYBER Tool Development	05	U	18,811	39,029		39,029
129	0605042A	Tactical Network Radio Systems (Low-Tier)	05	U	27,688	4,426		4,426
130	0605047A	Contract Writing System	05	U	20,195	13,742		13,742
131	0605049A	Missile Warning System Modernization (MWSM)	05	U				
132	0605051A	Aircraft Survivability Development	05	U	60,127	19,123		19,123
133	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1	05	U	175,604	131,093		131,093
134	0605053A	Ground Robotics	05	U	15,763	26,809		26,809
135	0605054A	Emerging Technology Initiatives	05	U	219,284	244,047		244,047

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116	0604822A	General Fund Enterprise Business System (GFEBS)	05	U	2,965
117	0604827A	Soldier Systems - Warrior Dem/Val	05	U	11,333
118	0604852A	Suite of Survivability Enhancement Systems - EMD	05	U	79,250
119	0604854A	Artillery Systems - EMD	05	U	42,490
120	0605013A	Information Technology Development	05	U	104,024
121	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	U	102,084
122	0605028A	Armored Multi-Purpose Vehicle (AMPV)	05	U	
123	0605030A	Joint Tactical Network Center (JTNC)	05	U	18,662
124	0605031A	Joint Tactical Network (JTN)	05	U	30,328
125	0605035A	Common Infrared Countermeasures (CIRCM)	05	U	11,509
126	0605036A	Combating Weapons of Mass Destruction (CWMD)	05	U	1,050
127	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	05	U	
128	0605041A	Defensive CYBER Tool Development	05	U	27,714
129	0605042A	Tactical Network Radio Systems (Low-Tier)	05	U	4,318
130	0605047A	Contract Writing System	05	U	16,355
131	0605049A	Missile Warning System Modernization (MWSM)	05	U	27,571
132	0605051A	Aircraft Survivability Development	05	U	24,900
133	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1	05	U	196,248
134	0605053A	Ground Robotics	05	U	35,319
135	0605054A	Emerging Technology Initiatives	05	U	201,274

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136	0605143A	Biometrics Enabling Capability (BEC)	05	U	4,326	11,091		11,091
137	0605144A	Next Generation Load Device - Medium	05	U	14,835	22,439		22,439
138	0605145A	Medical Products and Support Systems Development	05	U	927			
139	0605148A	Tactical Intel Targeting Access Node (TITAN) EMD	05	U	54,972	108,987		108,987
140	0605203A	Army System Development & Demonstration	05	U	122,175	143,616		143,616
141	0605205A	Small Unmanned Aerial Vehicle (SUAV) (6.5)	05	U	2,192	6,530		6,530
142	0605206A	CI and HUMINT Equipment Program-Army (CIHEP-A)	05	U				
143	0605216A	Joint Targeting Integrated Command and Coordination Suite (JTIC2S)	05	U				
144	0605224A	Multi-Domain Intelligence	05	U	9,313	6,008		6,008
145	0605225A	SIO Capability Development	05	U	22,713			
146	0605231A	Precision Strike Missile (PrSM)	05	U	181,574	259,506		259,506
147	0605232A	Hypersonics EMD	05	U	107,404	633,499		633,499
148	0605233A	Accessions Information Environment (AIE)	05	U	16,177	10,088		10,088
149	0605235A	Strategic Mid-Range Capability	05	U		5,016		5,016
150	0605236A	Integrated Tactical Communications	05	U		12,447		12,447
151	0605450A	Joint Air-to-Ground Missile (JAGM)	05	U	2,467	2,366		2,366
152	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	U	154,257	263,545		263,545
153	0605531A	Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	05	U	49,667	14,892		14,892
154	0605625A	Manned Ground Vehicle	05	U	194,936	554,925		554,925
155	0605766A	National Capabilities Integration (MIP)	05	U	13,454	17,030		17,030

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136	0605143A	Biometrics Enabling Capability (BEC)	05	U	
137	0605144A	Next Generation Load Device - Medium	05	U	36,970
138	0605145A	Medical Products and Support Systems Development	05	U	
139	0605148A	Tactical Intel Targeting Access Node (TITAN) EMD	05	U	132,136
140	0605203A	Army System Development & Demonstration	05	U	81,657
141	0605205A	Small Unmanned Aerial Vehicle (SUAV) (6.5)	05	U	31,284
142	0605206A	CI and HUMINT Equipment Program-Army (CIHEP-A)	05	U	2,170
143	0605216A	Joint Targeting Integrated Command and Coordination Suite (JTIC2S)	05	U	9,290
144	0605224A	Multi-Domain Intelligence	05	U	41,003
145	0605225A	SIO Capability Development	05	U	
146	0605231A	Precision Strike Missile (PrSM)	05	U	272,786
147	0605232A	Hypersonics EMD	05	U	900,920
148	0605233A	Accessions Information Environment (AIE)	05	U	27,361
149	0605235A	Strategic Mid-Range Capability	05	U	348,855
150	0605236A	Integrated Tactical Communications	05	U	22,901
151	0605450A	Joint Air-to-Ground Missile (JAGM)	05	U	3,014
152	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	U	284,095
153	0605531A	Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	05	U	36,016
154	0605625A	Manned Ground Vehicle	05	U	996,653
155	0605766A	National Capabilities Integration (MIP)	05	U	15,129

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156	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	05	U	2,470	9,376		9,376
157	0605830A	Aviation Ground Support Equipment	05	U	1,158	2,959		2,959
158	0303032A	TROJAN - RH12	05	U	3,362	3,761		3,761
159	0304270A	Electronic Warfare Development	05	U	75,520	99,938		99,938
		System Development & Demonstration			**3,178,005**	**4,317,752**	**600**	**4,318,352**
160	0604256A	Threat Simulator Development	06	U	60,749	138,937		138,937
161	0604258A	Target Systems Development	06	U	41,769	64,132		64,132
162	0604759A	Major T&E Investment	06	U	91,130	142,031		142,031
163	0605103A	Rand Arroyo Center	06	U	31,087	33,631		33,631
164	0605301A	Army Kwajalein Atoll	06	U	242,279	309,005		309,005
165	0605326A	Concepts Experimentation Program	06	U	80,386	86,824		86,824
166	0605502A	Small Business Innovative Research	06	U	374,118			
167	0605601A	Army Test Ranges and Facilities	06	U	362,223	417,567		417,567
168	0605602A	Army Technical Test Instrumentation and Targets	06	U	57,584	67,962		67,962
169	0605604A	Survivability/Lethality Analysis	06	U	35,042	36,500		36,500
170	0605606A	Aircraft Certification	06	U	2,398	4,777		4,777
171	0605702A	Meteorological Support to RDT&E Activities	06	U	6,389	6,958		6,958
172	0605706A	Materiel Systems Analysis	06	U	20,771	22,004		22,004
173	0605709A	Exploitation of Foreign Items	06	U	13,631	6,186		6,186
174	0605712A	Support of Operational Testing	06	U	54,797	70,718		70,718

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156	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	05	U	27,243
157	0605830A	Aviation Ground Support Equipment	05	U	1,167
158	0303032A	TROJAN - RH12	05	U	3,879
159	0304270A	Electronic Warfare Development	05	U	137,186
	System Development & Demonstration				**5,639,364**
160	0604256A	Threat Simulator Development	06	U	38,492
161	0604258A	Target Systems Development	06	U	11,873
162	0604759A	Major T&E Investment	06	U	76,167
163	0605103A	Rand Arroyo Center	06	U	37,078
164	0605301A	Army Kwajalein Atoll	06	U	314,872
165	0605326A	Concepts Experimentation Program	06	U	95,551
166	0605502A	Small Business Innovative Research	06	U	
167	0605601A	Army Test Ranges and Facilities	06	U	439,118
168	0605602A	Army Technical Test Instrumentation and Targets	06	U	42,220
169	0605604A	Survivability/Lethality Analysis	06	U	37,518
170	0605606A	Aircraft Certification	06	U	2,718
171	0605702A	Meteorological Support to RDT&E Activities	06	U	
172	0605706A	Materiel Systems Analysis	06	U	26,902
173	0605709A	Exploitation of Foreign Items	06	U	7,805
174	0605712A	Support of Operational Testing	06	U	75,133

Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
175	0605716A	Army Evaluation Center	06	U	65,693	67,058		67,058
176	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	U	2,537	6,097		6,097
177	0605801A	Programwide Activities	06	U	90,443	89,793		89,793
178	0605803A	Technical Information Activities	06	U	31,174	37,652		37,652
179	0605805A	Munitions Standardization, Effectiveness and Safety	06	U	54,922	60,645		60,645
180	0605857A	Environmental Quality Technology Mgmt Support	06	U	1,724	1,912		1,912
181	0605898A	Army Direct Report Headquarters - R&D - MHA	06	U	48,798	53,271		53,271
182	0606002A	Ronald Reagan Ballistic Missile Defense Test Site	06	U	78,187	89,602		89,602
183	0606003A	CounterIntel and Human Intel Modernization	06	U	10,641	1,424		1,424
184	0606105A	Medical Program-Wide Activities	06	U	37,616			
185	0606942A	Assessments and Evaluations Cyber Vulnerabilities	06	U	5,466	5,816		5,816
186	0909999A	Financing for Cancelled Account Adjustments	06	U	101			
	Management Support				**1,901,655**	**1,820,502**		**1,820,502**
187	0603778A	MLRS Product Improvement Program	07	U	11,865	18,463		18,463
188	0605024A	Anti-Tamper Technology Support	07	U	8,544	9,284		9,284
189	0607131A	Weapons and Munitions Product Improvement Programs	07	U	39,994	54,674	2,500	57,174
190	0607136A	Blackhawk Product Improvement Program	07	U	14,599			
191	0607137A	Chinook Product Improvement Program	07	U	65,960	67,513		67,513
192	0607139A	Improved Turbine Engine Program	07	U	250,533	228,036		228,036
193	0607142A	Aviation Rocket System Product Improvement and Development	07	U	8,831	11,312		11,312

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2024 Request
175	0605716A	Army Evaluation Center	06	U	71,118
176	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	U	11,204
177	0605801A	Programwide Activities	06	U	93,895
178	0605803A	Technical Information Activities	06	U	31,327
179	0605805A	Munitions Standardization, Effectiveness and Safety	06	U	50,409
180	0605857A	Environmental Quality Technology Mgmt Support	06	U	1,629
181	0605898A	Army Direct Report Headquarters - R&D - MHA	06	U	55,843
182	0606002A	Ronald Reagan Ballistic Missile Defense Test Site	06	U	91,340
183	0606003A	CounterIntel and Human Intel Modernization	06	U	6,348
184	0606105A	Medical Program-Wide Activities	06	U	
185	0606942A	Assessments and Evaluations Cyber Vulnerabilities	06	U	6,025
186	0909999A	Financing for Cancelled Account Adjustments	06	U	
	Management Support				**1,624,585**
187	0603778A	MLRS Product Improvement Program	07	U	14,465
188	0605024A	Anti-Tamper Technology Support	07	U	7,472
189	0607131A	Weapons and Munitions Product Improvement Programs	07	U	8,425
190	0607136A	Blackhawk Product Improvement Program	07	U	1,507
191	0607137A	Chinook Product Improvement Program	07	U	9,265
192	0607139A	Improved Turbine Engine Program	07	U	201,247
193	0607142A	Aviation Rocket System Product Improvement and Development	07	U	3,014

Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
194	0607143A	Unmanned Aircraft System Universal Products	07	U	4,426	10,512		10,512
195	0607145A	Apache Future Development	07	U	9,700	25,074		25,074
196	0607148A	AN/TPQ-53 Counterfire Target Acquisition Radar System	07	U	46,009	61,559		61,559
197	0607150A	Intel Cyber Development	07	U	3,611	13,343		13,343
198	0607312A	Army Operational Systems Development	07	U	28,029	26,131		26,131
199	0607313A	Electronic Warfare Development	07	U	5,673	6,432		6,432
200	0607315A	Enduring Turbine Engines and Power Systems	07	U				
201	0607665A	Family of Biometrics	07	U	1,101	1,114		1,114
202	0607865A	Patriot Product Improvement	07	U	125,851	152,312		152,312
203	0203728A	Joint Automated Deep Operation Coordination System (JADOCS)	07	U	24,556	19,311		19,311
204	0203735A	Combat Vehicle Improvement Programs	07	U	272,438	194,229		194,229
205	0203743A	155mm Self-Propelled Howitzer Improvements	07	U	168,683	116,510		116,510
206	0203744A	Aircraft Modifications/Product Improvement Programs	07	U	10,000			
207	0203752A	Aircraft Engine Component Improvement Program	07	U	127	148		148
208	0203758A	Digitization	07	U	3,759			
209	0203801A	Missile/Air Defense Product Improvement Program	07	U	122	3,109		3,109
210	0203802A	Other Missile Product Improvement Programs	07	U	9,956	9,027		9,027
211	0205412A	Environmental Quality Technology - Operational System Dev	07	U	253	793		793
212	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07	U	58,516	20,180		20,180
213	0208053A	Joint Tactical Ground System	07	U	11,379	8,813		8,813

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2024 Request
194	0607143A	Unmanned Aircraft System Universal Products	07	U	25,393
195	0607145A	Apache Future Development	07	U	10,547
196	0607148A	AN/TPQ-53 Counterfire Target Acquisition Radar System	07	U	54,167
197	0607150A	Intel Cyber Development	07	U	4,345
198	0607312A	Army Operational Systems Development	07	U	19,000
199	0607313A	Electronic Warfare Development	07	U	6,389
200	0607315A	Enduring Turbine Engines and Power Systems	07	U	2,411
201	0607665A	Family of Biometrics	07	U	797
202	0607865A	Patriot Product Improvement	07	U	177,197
203	0203728A	Joint Automated Deep Operation Coordination System (JADOCS)	07	U	42,177
204	0203735A	Combat Vehicle Improvement Programs	07	U	146,635
205	0203743A	155mm Self-Propelled Howitzer Improvements	07	U	122,902
206	0203744A	Aircraft Modifications/Product Improvement Programs	07	U	
207	0203752A	Aircraft Engine Component Improvement Program	07	U	146
208	0203758A	Digitization	07	U	1,515
209	0203801A	Missile/Air Defense Product Improvement Program	07	U	4,520
210	0203802A	Other Missile Product Improvement Programs	07	U	10,044
211	0205412A	Environmental Quality Technology - Operational System Dev	07	U	281
212	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07	U	75,952
213	0208053A	Joint Tactical Ground System	07	U	203

Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
216	0303028A	Security and Intelligence Activities	07	U	24,506			
217	0303140A	Information Systems Security Program	07	U	15,680	17,209		17,209
218	0303141A	Global Combat Support System	07	U	43,643	22,600		22,600
219	0303142A	SATCOM Ground Environment (SPACE)	07	U	16,186	18,297		18,297
222	0305179A	Integrated Broadcast Service (IBS)	07	U	5,430	9,926		9,926
223	0305204A	Tactical Unmanned Aerial Vehicles	07	U	8,410	4,500		4,500
224	0305206A	Airborne Reconnaissance Systems	07	U	11,782	17,165		17,165
225	0305219A	MQ-1C Gray Eagle UAS	07	U				
226	0307665A	Biometrics Enabled Intelligence	07	U	2,066			
227	0708045A	End Item Industrial Preparedness Activities	07	U	101,466	132,270		132,270
999	999999999	Classified Programs	07	U	2,993	6,664		6,664
	Operational Systems Development				**1,416,677**	**1,286,510**	**2,500**	**1,289,010**
228	0608041A	Defensive CYBER - Software Prototype Development	08	U	108,041	94,831		94,831
	Software And Digital Technology Pilot Programs				**108,041**	**94,831**		**94,831**
Total Research, Development, Test and Evaluation, Army					**14,660,654**	**17,142,121**	**9,100**	**17,151,221**

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of the Army
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Mar 2023

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

Line No	Program Element Number	Item	Act	Sec	FY 2024 Request
216	0303028A	Security and Intelligence Activities	07	U	301
217	0303140A	Information Systems Security Program	07	U	15,323
218	0303141A	Global Combat Support System	07	U	13,082
219	0303142A	SATCOM Ground Environment (SPACE)	07	U	26,838
222	0305179A	Integrated Broadcast Service (IBS)	07	U	9,456
223	0305204A	Tactical Unmanned Aerial Vehicles	07	U	
224	0305206A	Airborne Reconnaissance Systems	07	U	
225	0305219A	MQ-1C Gray Eagle UAS	07	U	6,629
226	0307665A	Biometrics Enabled Intelligence	07	U	
227	0708045A	End Item Industrial Preparedness Activities	07	U	75,317
999	999999999	Classified Programs	07	U	8,786
	Operational Systems Development				**1,105,748**
228	0608041A	Defensive CYBER - Software Prototype Development	08	U	83,570
	Software And Digital Technology Pilot Programs				**83,570**
Total Research, Development, Test and Evaluation, Army					**15,775,381**

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

Appropriation 2040: Research, Development, Test & Evaluation, Army

Appropriation 2040: Research, Development, Test & Evaluation, Army

Program Element Table of Contents (Alphabetically by Program Element Title)

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	50.548	47.915	191.394	-	191.394	244.743	254.544	305.394	297.109	Continuing	Continuing
BY9: *Multi-Domain Sensing System Adv Dev*	-	50.548	47.915	-	-	-	244.743	254.544	305.394	297.109	Continuing	Continuing
DD6: *HADES Platform, Payloads/PED, and Integration*	-	-	-	191.394	-	191.394	-	-	-	-	0.000	191.394

Note

Starting in Fiscal Year (FY) 24, funding in project BY9 is restructured to project DD6. FY 25-28 funding will be justified in subsequent budgets to support the High Accuracy Detection and Exploitation System PoR on Project DD6. Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

A. Mission Description and Budget Item Justification

Project DD6 was a realignment of funds from BY9 and does not represent a new start. All Fiscal Year (FY) 25-28 funding will be justified in subsequent budgets to support the HADES POR on Project DD6. Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

PE 0604036A / Project BY9 was established in FY22 to support 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 HADES, HELIOS, HAP-DS, ARGOS, and 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. The High Accuracy Detection and Exploitation System (HADES) provides advanced aerial intelligence sensing capabilities for Multi-Domain Operations (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), Radio Frequency (RF)-enabled Cyber, and Air Launched Effects (ALE). Platform performance and a modular system open architecture (MOSA) increases flexibility in meeting emerging threats along with global deployment within hours vs. days/weeks.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604036A *I Multi-Domain Sensing System (MDSS) Adv Dev*

Fiscal Year 2024 base dollars in the amount of $191.394 million, justified on R-2A for Project DD6 of PE 0604036A, supports the initiation of system level prototyping of the HADES system. Funds support the acquisition of the HADES prototype aircraft and begin non-recurring engineering and design of both the aircraft and the payload for future integration and testing of the system.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	50.548	49.932	10.482	-	10.482
Current President's Budget	50.548	47.915	191.394	-	191.394
Total Adjustments	0.000	-2.017	180.912	-	180.912
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.017			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	180.912	-	180.912

Change Summary Explanation

Fiscal Year (FY) 2024 funding increase reflects the initiation of system level prototyping, acquisition of aircraft platform and components, and non-recurring engineering associated with the PoR High Accuracy Detection and Exploitation System (HADES).

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BY9: *Multi-Domain Sensing System Adv Dev*	-	50.548	47.915	-	-	-	244.743	254.544	305.394	297.109	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Starting in Fiscal Year (FY) 24, funding in project BY9 is restructured to project DD6. FY 25-28 funding will be justified in subsequent budgets to support the High Accuracy Detection and Exploitation System (HADES) PoR on Project DD6. Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

A. Mission Description and Budget Item Justification

All Fiscal Year (FY) 25-28 funding will be justified in subsequent budgets to support the HADES POR on Project DD6. Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

PE 0604036A / Project BY9 was established in FY22 to support 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 HADES, HELIOS, HAP-DS, ARGOS, and 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.

The FY24 base funding for the line is $0.000 million. All FY24 funding has been moved to DD6 Project (HADES Platform, Payloads/PED and Integration).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: SAR/MTI Development and Prototyping	26.320	30.899	-
Description: SAR/MTI development and prototyping to expand sensor performance to address MDSS requirements and ability to exploit near-peer threats.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Acquisition of SAR/MTI test articles, critical spares, and long lead items and Original Equipment Manufacturer (OEM) engineering support to integrate SAR/MTI sensors for MDSS applications ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.			
Title: Prototype Component Acquisition ***Description:*** Acquisition of prototype components, auxiliary equipment, associated software, and related items. ***FY 2023 Plans:*** Acquisition of required technical studies, documentation, architectures, data flows, designs, and subject matter expertise across a variety of areas related to the MDSS portfolio and prototypes. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.	-	0.536	-
Title: Architecture Development ***Description:*** Development of the MDSS integrated systems architecture to ensure end-to-end compatibility and sensor fusion. ***FY 2023 Plans:*** Manage and enforce the integrated systems architecture design to ensure all components functionally and physically integrate into the MDSS. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.	1.796	0.500	-
Title: SIGINT Development and Prototyping ***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. ***FY 2023 Plans:*** Acquisition of ELINT/COMINT test articles, critical spares, and long lead items and Original Equipment Manufacturer (OEM) engineering support to integrate ELINT/COMINT sensors for MDSS applications ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.	18.064	9.214	-
Title: Engineering Support	2.214	3.064	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Description: Engineering Support for MDSS development and prototype demonstration efforts for Project Director Sensors-Aerial Intelligence (PD SAI) ***FY 2023 Plans:*** Engineering support for sensor development, prototyping, and evaluation . ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.			
Title: Program Management ***Description:*** Program Management support for MDSS development and prototype demonstration efforts for Project Director Sensors-Aerial Intelligence (PD SAI) ***FY 2023 Plans:*** Program Management for sensor development, prototyping, and evaluation . ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.	2.154	2.946	-
Title: Secure Sensor System Integration Lab (SIL) ***Description:*** Establishing and maintaining a system integration lab for the payload. ***FY 2023 Plans:*** Establish a secure SIL environment to support integration and testing of Mission Equipment Package (MEP) sensors and Processing, Exploitation, and Dissemination (PED) equipment as a coherent whole. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.	-	0.756	-
Accomplishments/Planned Programs Subtotals	50.548	47.915	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 0604036A: *Multi-Domain Sensing System (MDSS) Adv Dev*	50.548	47.915	191.394	-	191.394	244.743	254.544	305.394	297.109	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

All FY24 funding has been moved to DD6 Project (HADES Platform, Payloads/PED and Integration).

D. Acquisition Strategy

In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	C/CPFF	ACC APG : APG, MD	-	2.214	Jan 2022	3.064	Feb 2023	-		-		-	0.000	5.278	-
		Subtotal	-	2.214		3.064		-		-		-	0.000	5.278	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SAR/MTI Development and Prototyping	C/IDIQ	DMEA : Sacramento, CA	-	26.320	Jun 2022	30.899	Mar 2023	-		-		-	0.000	57.219	-
SIGINT Development and Prototyping	SS/FFP	ACC APG : APG, MD	-	18.064	Jun 2022	9.214	Feb 2023	-		-		-	0.000	27.278	-
Prototype Component Acquisition	Various	ACC APG : APG, MD	-	-		0.536	Feb 2023	-		-		-	0.000	0.536	-
Architecture Development	MIPR	AVMC : Redstone, AL	-	1.796	Mar 2022	0.500	Jun 2023	-		-		-	0.000	2.296	-
Secure Sensor SIL	MIPR	APG ACC : APG MD	-	-		0.756	Feb 2023	-		-		-	0.000	0.756	-
		Subtotal	-	46.180		41.905		-		-		-	0.000	88.085	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	RO	Various : APG, MD	-	2.154	Nov 2021	2.946	Feb 2023	-		-		-	0.000	5.100	-
		Subtotal	-	2.154		2.946		-		-		-	0.000	5.100	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	50.548		47.915		-		-		-	0.000	98.463	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

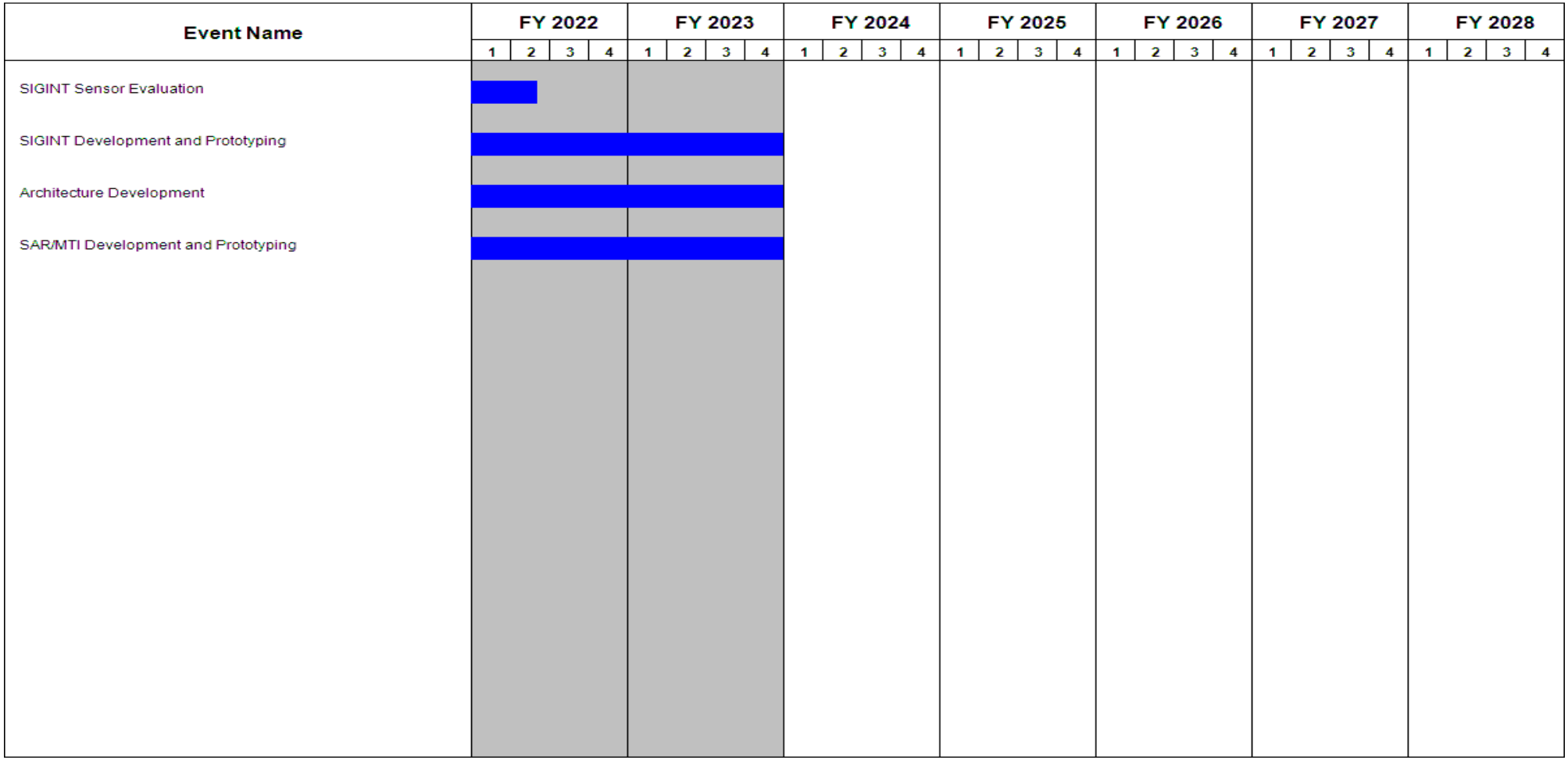


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604036A / *Multi-Domain Sensing System (MDSS) Adv Dev*	**Project (Number/Name)** BY9 / *Multi-Domain Sensing System Adv Dev*

Schedule Details

	Start		End	
Events	**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

Note

In Fiscal Year 2024, funding is moved from Project BY9 to Project DD6 to support HADES program initiation.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
DD6: *HADES Platform, Payloads/PED, and Integration*	-	-	-	191.394	-	191.394	-	-	-	-	0.000	191.394
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Starting in Fiscal Year (FY) 24, funding in project BY9 is restructured to project DD6. FY 25-28 funding will be justified in subsequent budgets to support the High Accuracy Detection and Exploitation System (HADES) PoR on Project DD6. Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

A. Mission Description and Budget Item Justification

Project DD6 is a realignment of funds from BY9 and does not represent a new start. All Fiscal Year (FY) 25-28 funding will be justified in subsequent budgets to support the HADES POR on Project DD6. Project BY9 will remain to support future development and modernization of platform agnostic, MDSS sensor capabilities IAW future Army decisions.

PE 0604036A / Project DD6 is the Army's first POR in the MDSS family of systems. The High Accuracy Detection and Exploitation System (HADES) provides advanced aerial intelligence sensing capabilities for Multi-Domain Operations (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), Radio Frequency (RF)-enabled Cyber, and Air Launched Effects (ALE). 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 2024 base dollars in the amount of $191.394 million supports the initiation of system level prototyping of the HADES system. Funds support the acquisition of the HADES prototype aircraft, and begin non-recurring engineering and design of both the aircraft and the payload for future integration and testing of the system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Prototype Acquisition and System Integration	-	-	129.594
Description: HADES prototype platforms, components, and system integration efforts associated with platform procurement and MEP integration to create the HADES system.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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 2023 to FY 2024 Increase/Decrease Statement:*** This Project, DD6, was a realignment of funds from BY9 and does not represent a new start.			
Title: Payload Acquisition and Integration Support ***Description:*** HADES payload, Processing, Exploitation and Detection (PED) Equipment, and integration support associated with developing, testing, and supporting payload architecture into the HADES Mission Equipment Package (MEP). ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This Project, DD6 was a realignment of funds from BY9 and does not represent a new start.	-	-	43.618
Title: Program Management ***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). ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This Project, DD6 was a realignment of funds from BY9 and does not represent a new start.	-	-	18.182
Accomplishments/Planned Programs Subtotals	-	-	191.394

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Program office plans to utilize the Middle Tier Acquisition (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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototype Acquisition and System Integration	TBD	TBD : TBD	-	-		-		129.594	Feb 2024	-		129.594	Continuing	Continuing	-
Payload Acquisition and Integration Support	TBD	TBD : TBD	-	-		-		43.618	Jan 2024	-		43.618	Continuing	Continuing	-
		Subtotal	-	-		-		173.212		-		173.212	Continuing	Continuing	N/A

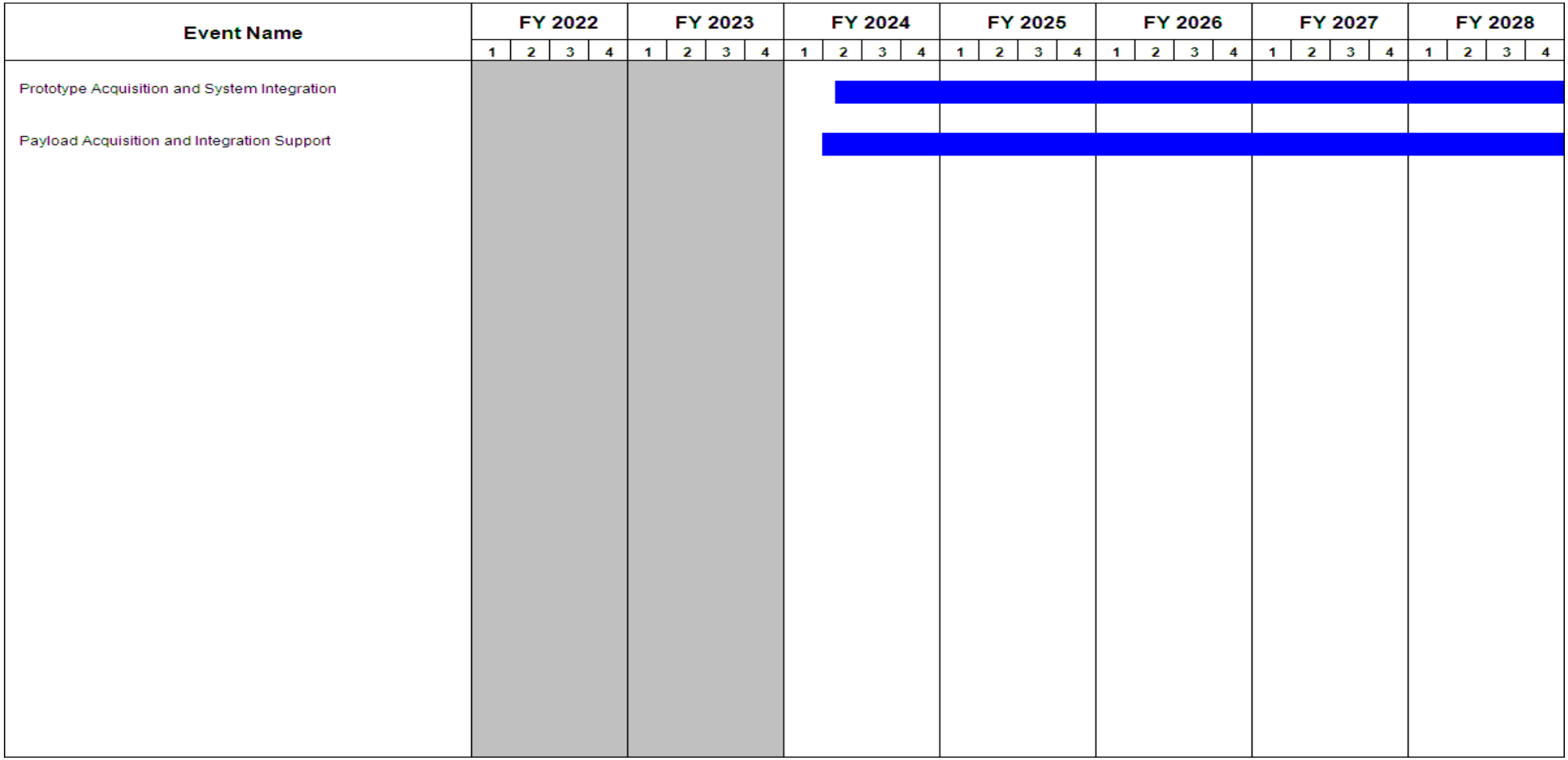
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	RO	Various : Redstone Arsenal, AL; APG, MD	-	-		-		18.182	Dec 2023	-		18.182	Continuing	Continuing	-
		Subtotal	-	-		-		18.182		-		18.182	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		191.394		-		191.394	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*



Note

FY25-28 funding will be moved from BY9 to DD6

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
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*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Acquisition and System Integration	2	2024	4	2028
Payload Acquisition and Integration Support	2	2024	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army												Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604037A *I Tactical Intel Targeting Access Node (TITAN) Adv Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	28.347	0.863	10.626	-	10.626	14.308	14.121	4.099	4.145	0.000	76.509
BY4: *Tactical Intelligence Targeting Access Node*	-	28.347	0.863	10.626	-	10.626	14.308	14.121	4.099	4.145	0.000	76.509

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 the access and sensor tasking or control capabilities of the future Tactical Space Layer assets, National assets, the Multi-Domain Sensing Systems (MDSS) as well as commercial overhead sensors. Consequently, 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 $486 million RDTE from FY22 to FY26. The TITAN program is fully funded across the Future Years Defense Program.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604037A *I Tactical Intel Targeting Access Node (TITAN) Adv Dev*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	28.347	0.863	0.594	-	0.594
Current President's Budget	28.347	0.863	10.626	-	10.626
Total Adjustments	0.000	0.000	10.032	-	10.032
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	10.032	-	10.032

Change Summary Explanation

Funding increase of $10,000K aligns program with the effort to integrate Space Force's new Space-Based ISR capabilities into the TITAN Program of Record via TENCAP.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	Project (Number/Name) BY4 / *Tactical Intelligence Targeting Access Node*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BY4: *Tactical Intelligence Targeting Access Node*	-	28.347	0.863	10.626	-	10.626	14.308	14.121	4.099	4.145	0.000	76.509
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 & 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 FY24 RDTE Dollars in the amount of $10.626M will fund continued support efforts to prototype high altitude, aerial and terrestrial sensor data feed, processing and AI/ML operational platforms. Funds will also support efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance (ISR) capabilities into TITAN.

The total cost of the TITAN Middle Tier of Acquisition effort is $486 million RDTE from FY22 to FY26. The TITAN program is fully funded across the Future Years Defense Program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Development and Prototyping of Critical RF Technologies	15.721	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. ***FY 2023 Plans:*** Continued maturation of technologies which will be incorporated into TITAN operational prototypes. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease represents transition of RF technologies from the Competitive Prototype Phase to the Prototype Maturation Phase.			
Title: Development and Prototyping of Critical Automated Processing Technologies	12.626	0.550	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 Plans:*** Continued maturation of technologies with will be incorporated into TITAN operational prototypes. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease represents transition of development of automated process technologies to the Prototype Maturation Phase and Project Linchpin.			
Title: Integration Space Based ISR ***Description:*** Fund initial efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance capabilities into TITAN program of record. ***FY 2024 Plans:*** Fund initial efforts to integrate Space-Based Intelligence, Surveillance and Reconnaissance capabilities into TITAN program of record. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase represents required funding for integration efforts providing Space Based ISR capabilities within the TITAN platform.	-	-	10.000
Title: Development and Prototyping of Critical RF Technologies (PMP) ***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.	-	-	0.626

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2024 Plans: Continued maturation of multi-link antenna tech and CMOSS implementations on TITAN platform. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Transition of Critical RF Technology maturation from the Competitive Prototype Phase to TITAN's Prototype Maturation Phase			
Accomplishments/Planned Programs Subtotals	28.347	0.863	10.626

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• BY5: *Tactical Intelligence Targeting Access Node EMD*	54.972	108.987	132.136	-	132.136	160.716	49.883	36.804	40.533	0.000	584.031
• K57311: *TITAN GROUND STATION*	-	-	0.000	-	0.000	-	268.608	221.750	335.982	0.000	826.340

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 CDD (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,

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

which will inform up-select to one vendor. The selected vendor will move on to the final prototyping phase, Prototype maturation, which includes increasing capability of their prototypes to inform final TITAN requirements and support transition decision out MTA RP to MTA RF or MS C. Multiple Soldier Touchpoints and demonstration of capability 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. Future FAR-based contracts will support both production and sustainment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	Project (Number/Name) BY4 / *Tactical Intelligence Targeting Access Node*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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	Nov 2021	0.313	Jan 2023	-		-		-	0.000	16.034	-
Development and Prototyping of Critical RF Technologies in Prototype Maturation Phase	C/CPAF	Contractor (Pending Selection) : PEO IEW&S (APG) and Contractor Facility	-	-		-		0.626	Jan 2024	-		0.626	Continuing	Continuing	Continuing
		Subtotal	-	15.721		0.313		0.626		-		0.626	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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. Bragg, JBLM, YPG, CTR FAC	-	12.626	Nov 2021	0.550	Jan 2023	-		-		-	0.000	13.176	-
Integration Space Based ISR	TBD	Contractor (Pending Selection) : TBD	-	-		-		10.000	Jan 2024	-		10.000	Continuing	Continuing	Continuing
		Subtotal	-	12.626		0.550		10.000		-		10.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	28.347		0.863		10.626		-		10.626	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

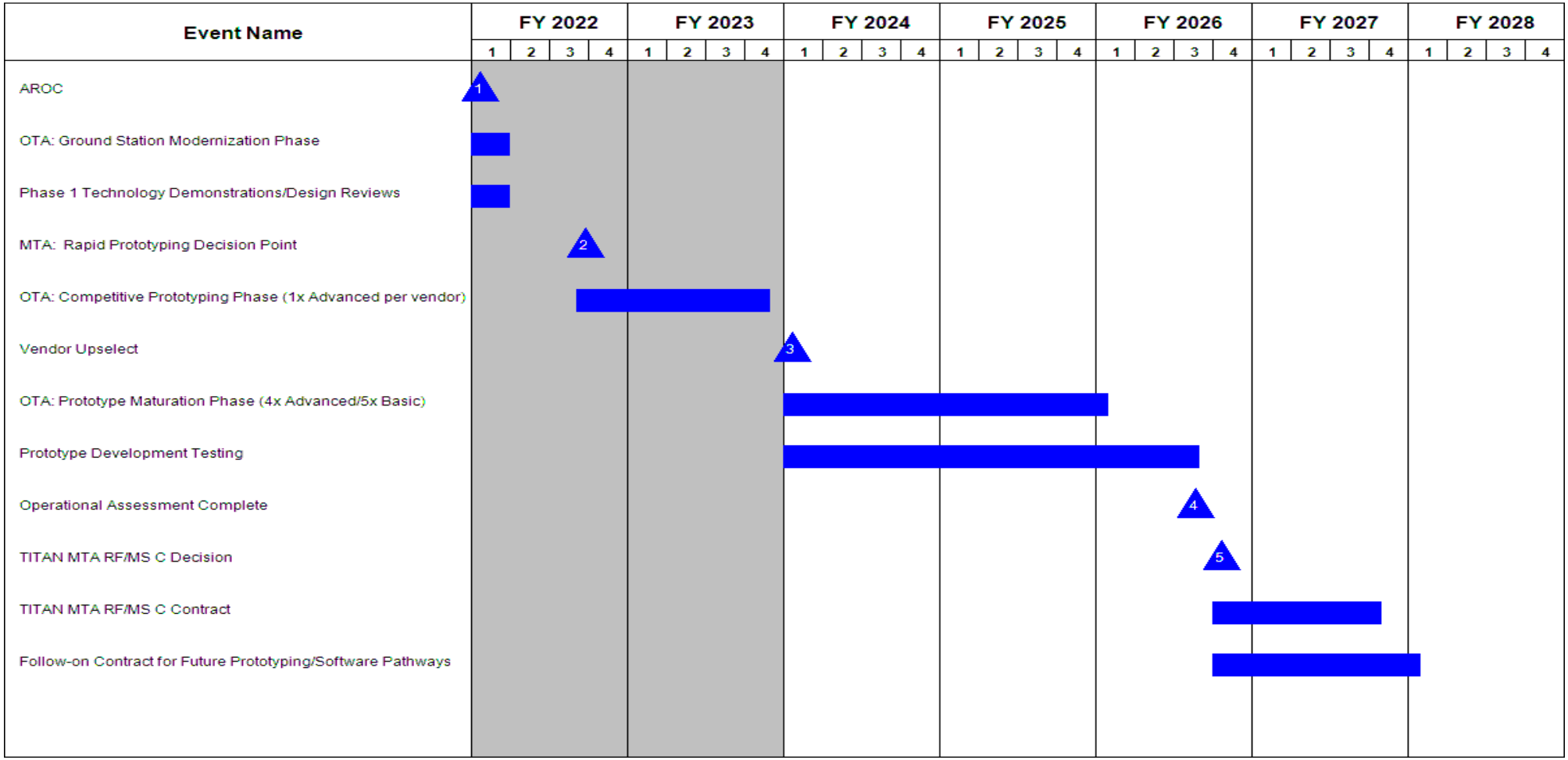


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604037A / *Tactical Intel Targeting Access Node (TITAN) Adv Dev*	**Project (Number/Name)** BY4 / *Tactical Intelligence Targeting Access Node*

Schedule Details

	Start		End	
Events	**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	4	2023
Vendor Upselect	1	2024	1	2024
OTA: Prototype Maturation Phase (4x Advanced/5x Basic)	1	2024	1	2026
Prototype Development Testing	1	2024	3	2026
Operational Assessment Complete	3	2026	3	2026
TITAN MTA RF/MS C Decision	4	2026	4	2026
TITAN MTA RF/MS C Contract	4	2026	4	2027
Follow-on Contract for Future Prototyping/Software Pathways	4	2026	1	2028

Note

Schedule Detail notes.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604100A *I Analysis Of Alternatives*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	9.723	10.659	11.095	-	11.095	11.211	11.225	11.345	11.469	0.000	76.727
EC7: *Analysis Of Alternatives*	-	9.723	10.659	11.095	-	11.095	11.211	11.225	11.345	11.469	0.000	76.727

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 Futures Command Science and Technology priority focus areas and the Army Modernization Strategy and Guidance. Work in this PE is performed by analytical agencies such as The Research and Analysis Center and Data and Analysis Center. 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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	10.091	10.659	11.046	-	11.046
Current President's Budget	9.723	10.659	11.095	-	11.095
Total Adjustments	-0.368	0.000	0.049	-	0.049
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.368	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.049	-	0.049

Change Summary Explanation

Increased funding due to revised economic assumptions.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604100A / *Analysis Of Alternatives*	Project (Number/Name) EC7 / *Analysis Of Alternatives*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EC7: *Analysis Of Alternatives*	-	9.723	10.659	11.095	-	11.095	11.211	11.225	11.345	11.469	0.000	76.727
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 Futures Command Science and Technology priority focus areas and the Army Modernization Strategy and Guidance. Work in this PE is performed by analytical agencies such as The Research and Analysis Center and The Data and Analysis Center. The Army is projecting to start work on multiple Analyses of Alternatives beginning in Fiscal Year (FY) 2024, 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 2022	FY 2023	FY 2024
Title: Analysis of Alternatives	9.723	10.270	11.095
Description: This Project provides funding for analytical support for efforts such as: Common Tactical Truck, Ship to Shore Logistics Vessel, and Counter-small Unmanned Aircraft Systems. In addition, several Analyses of Alternatives started in FY 2022 will continue to require analysis funding into FY 2024, to include Long Range Precision Munition, Directed Energy Maneuver-Short Range Air Defense, Vehicle Protection Systems, and Project Convergence.			
FY 2023 Plans: FY 2023 funding supports 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.			
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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604100A / *Analysis Of Alternatives*	**Project (Number/Name)** EC7 / *Analysis Of Alternatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase reflects planned lifecycle effort.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.389	-
Accomplishments/Planned Programs Subtotals	9.723	10.659	11.095

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604100A / *Analysis Of Alternatives*	Project (Number/Name) EC7 / *Analysis Of Alternatives*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.389		-		-		-	0.000	0.389	-
		Subtotal	-	-		0.389		-		-		-	0.000	0.389	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Analytical Support for Analyses of Alternatives	MIPR	TBD : TBD	43.097	9.723		10.270		11.095		-		11.095	0.000	74.185	-
		Subtotal	43.097	9.723		10.270		11.095		-		11.095	0.000	74.185	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.097	9.723		10.659		11.095		-		11.095	0.000	74.574	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604100A / *Analysis Of Alternatives*	**Project (Number/Name)** EC7 / *Analysis Of Alternatives*

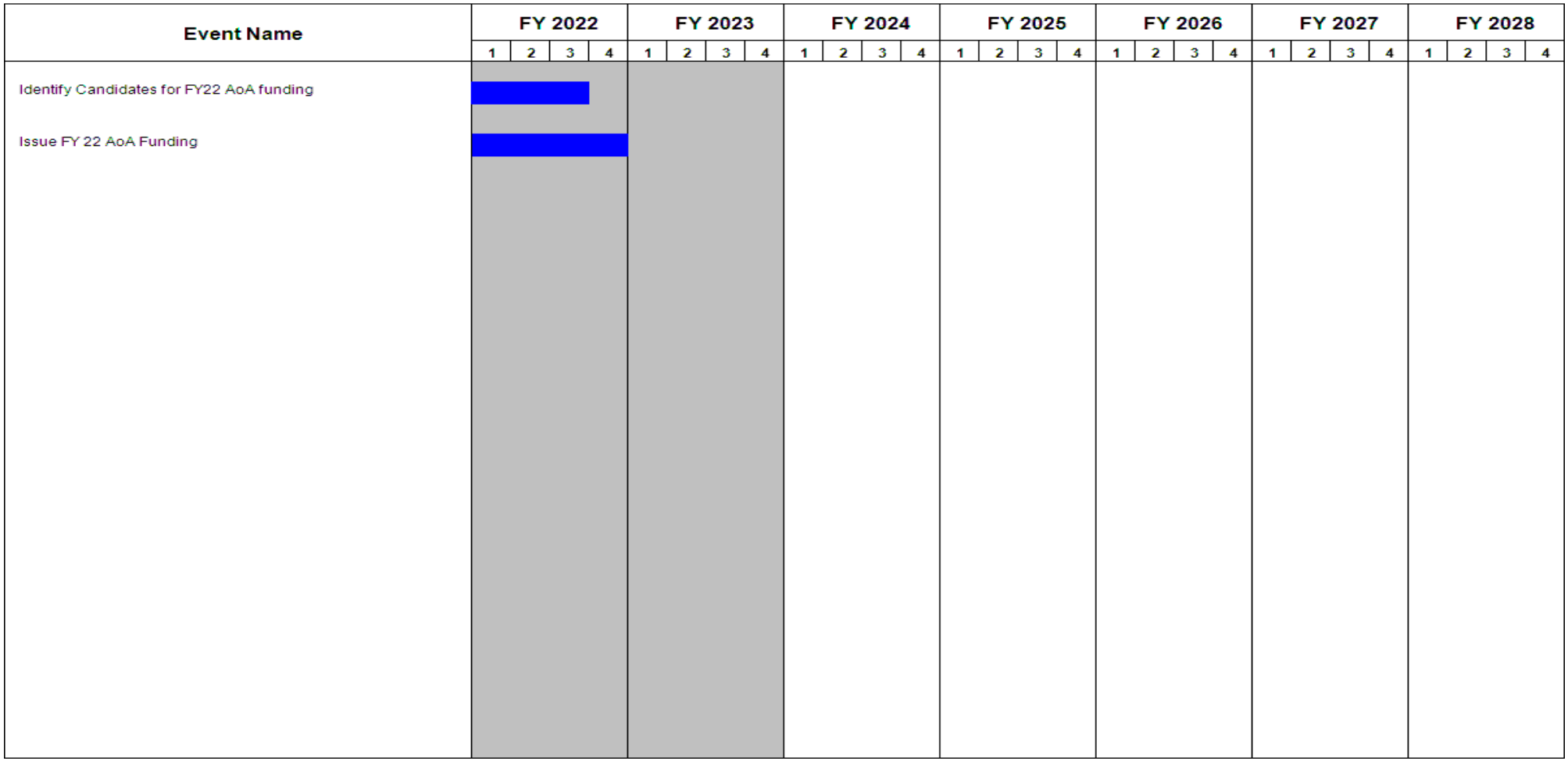


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604100A / *Analysis Of Alternatives*	**Project (Number/Name)** EC7 / *Analysis Of Alternatives*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604101A *I Small Unmanned Aerial Vehicle (SUAV) (6.4)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.892	1.425	5.144	-	5.144	1.796	1.799	1.818	1.839	Continuing	Continuing
BR6: *Small Unmanned Aircraft System (6.4)*	-	0.892	1.425	5.144	-	5.144	1.796	1.799	1.818	1.839	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Rucksack Portable Unmanned Aircraft System (RPUAS) Family of Small Unmanned Aircraft System (FoSUAS) provides battalion and below ground maneuver elements with critical situational awareness and enhanced force protection. The system provides the small unit commander an organic and responsive reconnaissance and targeting capability with real-time Full Motion Video and sensor data. Other compatible receivers, such as the One System Remote Video Terminal and appropriately equipped manned platforms may also receive the FoSUAS products.

The RPUAS FoSUAS provides the battalion and below ground maneuver elements with an organic, on-demand, asset to develop situational awareness, enhance force protection, and secure routes, points, and areas. The system provides the small unit commander an organic and responsive reconnaissance and targeting capability with real-time Full Motion Video and sensor data. The RPUAS FoSUAS includes a combination of three separate hand-launched mission specific configurable aircraft that do not require an improved launch/recovery. The three separate mission specific configurable Unmanned Aircraft (UA) are the Short Range Reconnaissance (SRR), the Medium Range Reconnaissance (MRR), and the Long Range Reconnaissance (LRR). In addition to the aircraft, the system contains ground control equipment, which includes an interoperable handheld ground control station (H-GCS) which incorporates the Tactical Open Government Owned Architecture (TOGA). The FoSUAS mission specific capability for MRR will utilize existing RQ-11 systems. The SRR capability utilizes the RQ-28A SRR for first generation and is prototyping the second generation air vehicle FY2022-FY2025. The LRR capability is in planning and will begin development in FY2024.

FY2024 will begin investigation of autonomous aerial resupply capabilities to provide organic logistics support to the Brigade Combat Teams.

The total cost of the Short Range Reconnaissance (SRR) Middle Tier of Acquisition effort is $30 million of RDT&E from FY20 to FY25. The SRR program is fully funded across the Future Years Defense Program.

Justification: FY 2024 Research, Development, Test, and Evaluation (RDT&E) Base funding of $5.144 million to meet Capabilities Production Document (CPD) Increment II Block II related requirements. Specifically, to conduct advanced component development activities for SRR and LRR prototype systems in high fidelity and realistic operating environments. FY 2024 is the first year of allocation of 6.4 funds for LRR and autonomous aerial resupply capability.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army					Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604101A *I Small Unmanned Aerial Vehicle (SUAV) (6.4)*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	0.926	1.425	1.801	-	1.801
Current President's Budget	0.892	1.425	5.144	-	5.144
Total Adjustments	-0.034	0.000	3.343	-	3.343
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.034	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	3.343	-	3.343

Change Summary Explanation

Increase in FY24 Current President's Budget over the Previous President's Budget is $3.343 million which has been added for the Short Range Reconnaissance (SRR), Long Range Reconnaissance (LRR) System and autonomous aerial resupply capability. These funds will investigate, develop and integrate payloads and hand controller for the LRR and begin investigation of autonomous aerial resupply capability options.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	Project (Number/Name) BR6 / *Small Unmanned Aircraft System (6.4)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BR6: *Small Unmanned Aircraft System (6.4)*	-	0.892	1.425	5.144	-	5.144	1.796	1.799	1.818	1.839	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Small Unmanned Aircraft System (FoSUAS) provides battalion and below ground maneuver elements with critical situational awareness and enhanced force protection. The system provides the small unit commander an organic and responsive reconnaissance and targeting capability with real-time Full Motion Video and sensor data. Other compatible receivers, such as the One System Remote Video Terminal and appropriately equipped manned platforms may also receive the FoSUAS products.

The Rucksack Portable Unmanned Aircraft Systems (RPUAS) FoSUAS provides the battalion and below ground maneuver elements with an organic, on-demand, asset to develop situational awareness, enhance force protection, and secure routes, points, and areas. The system provides the small unit commander an organic and responsive reconnaissance and targeting capability with real-time Full Motion Video and sensor data. The RPUAS FoSUAS includes a combination of three separate hand-launched mission specific configurable aircraft that do not require an improved launch/recovery. The three separate mission specific configurable Unmanned Aircraft (UA) are the Short Range Reconnaissance (SRR), the Medium Range Reconnaissance (MRR), and the Long Range Reconnaissance (LRR). In addition to the aircraft, the system contains ground control equipment, which includes an interoperable handheld ground control station (H-GCS) which incorporates the Tactical Open Government Owned Architecture (TOGA). The FoSUAS mission specific capability for MRR will utilize existing RQ-11 systems. The SRR capability utilizes the RQ-28A SRR for first generation and is prototyping the second generation air vehicle FY2022-FY2025. The LRR capability is in planning and will begin development in FY2024.

FY2024 will begin investigation of autonomous aerial resupply capabilities to provide organic logistics support to the Brigade Combat Teams.

The total cost of the Short Range Reconnaissance (SRR) Middle Tier of Acquisition effort is $30 million of RDT&E from FY20 to FY25. The SRR program is fully funded across the Future Years Defense Program.

Justification: FY 2024 Research, Development, Test, and Evaluation (RDT&E) Base funding of $5.144 million to meet Capabilities Production Document (CPD) Increment II Block II related requirements. Specifically, to conduct advanced component development activities for SRR and LRR prototype systems in high fidelity and realistic operating environments. FY 2024 is the first year of allocation of 6.4 funds for LRR and autonomous aerial resupply capability.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: System Engineering Program Management	0.069	0.083	0.385
Description: System Engineering Program Management (SEPM) support during development and integration of components for SRR & LRR air vehicles.			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	**Project (Number/Name)** BR6 / *Small Unmanned Aircraft System (6.4)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2023 Plans: System Engineering and Program Management support of advanced component development activities for SRR. ***FY 2024 Plans:*** System Engineering and Program Management support of advanced component development activities for SRR. LRR. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in FY2024 is due to adding SEPM costs for Component Development for LRR.			
Title: SRR Component Development and Integration ***Description:*** Engineering to develop and to integrate new, advanced components into SRR. ***FY 2023 Plans:*** Advanced component development efforts for SRR. ***FY 2024 Plans:*** Advanced component development efforts for SRR. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from 2023 to 2024 continues component development efforts for SRR.	0.400	0.595	0.688
Title: LRR Component Development and Integration ***Description:*** Engineering to develop and to integrate new, advanced components into LRR. Components under consideration may include radio, payloads and A-PNT. ***FY 2024 Plans:*** Advanced component development efforts for LRR ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase for FY2024 is due to beginning component development for LRR.	-	-	2.913
Title: SRR Component Test and Evaluation ***Description:*** Testing to evaluate components for the SRR air vehicle. ***FY 2023 Plans:*** Integration, test, and evaluation of advanced components for the SRR system. ***FY 2024 Plans:***	0.423	0.695	0.790

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	**Project (Number/Name)** BR6 / *Small Unmanned Aircraft System (6.4)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Integration, test, and evaluation of advanced components for the SRR system. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 continues component test and evaluation efforts for SRR.			
Title: LRR Component Test and Evaluation ***Description:*** Testing to evaluate components for the LRR air vehicle. ***FY 2024 Plans:*** Integration, test, and evaluation of advanced components for the LRR system. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in FY2024 for component test and evaluation efforts for LRR.	-	-	0.368
Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***Description:*** Funding Transferred in accordance with Title 15 USC §638 ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.052	-
Accomplishments/Planned Programs Subtotals	0.892	1.425	5.144

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• BR7: *Small Unmanned Aircraft System (6.5)*	2.192	6.530	31.284	-	31.284	24.542	19.909	13.706	13.744	Continuing	Continuing
• A00010: *SMALL UNMANNED AIRCRAFT SYSTEM*	16.005	-	0.000	-	0.000	-	-	-	-	0.000	16.005
• A12511: *SHORT RANGE RECONNAISSANCE*	-	10.598	20.769	-	20.769	20.937	20.550	20.534	20.492	Continuing	Continuing
• A12513: *LONG RANGE RECONNAISSANCE*	-	-	0.000	-	0.000	-	-	50.400	76.420	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	**Project (Number/Name)** BR6 / *Small Unmanned Aircraft System (6.4)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The Short Range Reconnaissance utilizes Middle Tier Acquisition pathway for rapid prototyping. The Medium Range Reconnaissance is in sustainment. The Long Range Reconnaissance will complete an Acquisition Shaping Panel in FY 2023.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	Project (Number/Name) BR6 / *Small Unmanned Aircraft System (6.4)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering Program Management	Various	Various : Various	0.136	0.069		0.083	Oct 2022	0.385	Oct 2023	-		0.385	Continuing	Continuing	Continuing
Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)	TBD	TBD : TBD	-	-		0.052	Sep 2023	-		-		-	0.000	0.052	-
		Subtotal	0.136	0.069		0.135		0.385		-		0.385	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SRR Component development and Integration	Various	ACC Redstone : Redstone Arsenal	0.542	0.400	Jun 2022	0.595	Feb 2023	0.688	Feb 2024	-		0.688	Continuing	Continuing	Continuing
LRR Component Development and Integration	Various	ACC Redstone : Redstone Arsenal, AL	-	-		-		2.913	Jan 2024	-		2.913	Continuing	Continuing	Continuing
		Subtotal	0.542	0.400		0.595		3.601		-		3.601	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SRR Component Test and Evaluation	Various	ACC Redstone : Redstone Arsenal	0.650	0.423	Aug 2022	0.695	Aug 2023	0.770	Aug 2024	-		0.770	Continuing	Continuing	Continuing
LRR Component Test and Evaluation	Various	ACC Redstone : Redstone Arsenal	-	-		-		0.388	Jul 2024	-		0.388	Continuing	Continuing	Continuing
		Subtotal	0.650	0.423		0.695		1.158		-		1.158	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	Project (Number/Name) BR6 / *Small Unmanned Aircraft System (6.4)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.328	0.892		1.425		5.144		-		5.144	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	**Project (Number/Name)** BR6 / *Small Unmanned Aircraft System (6.4)*

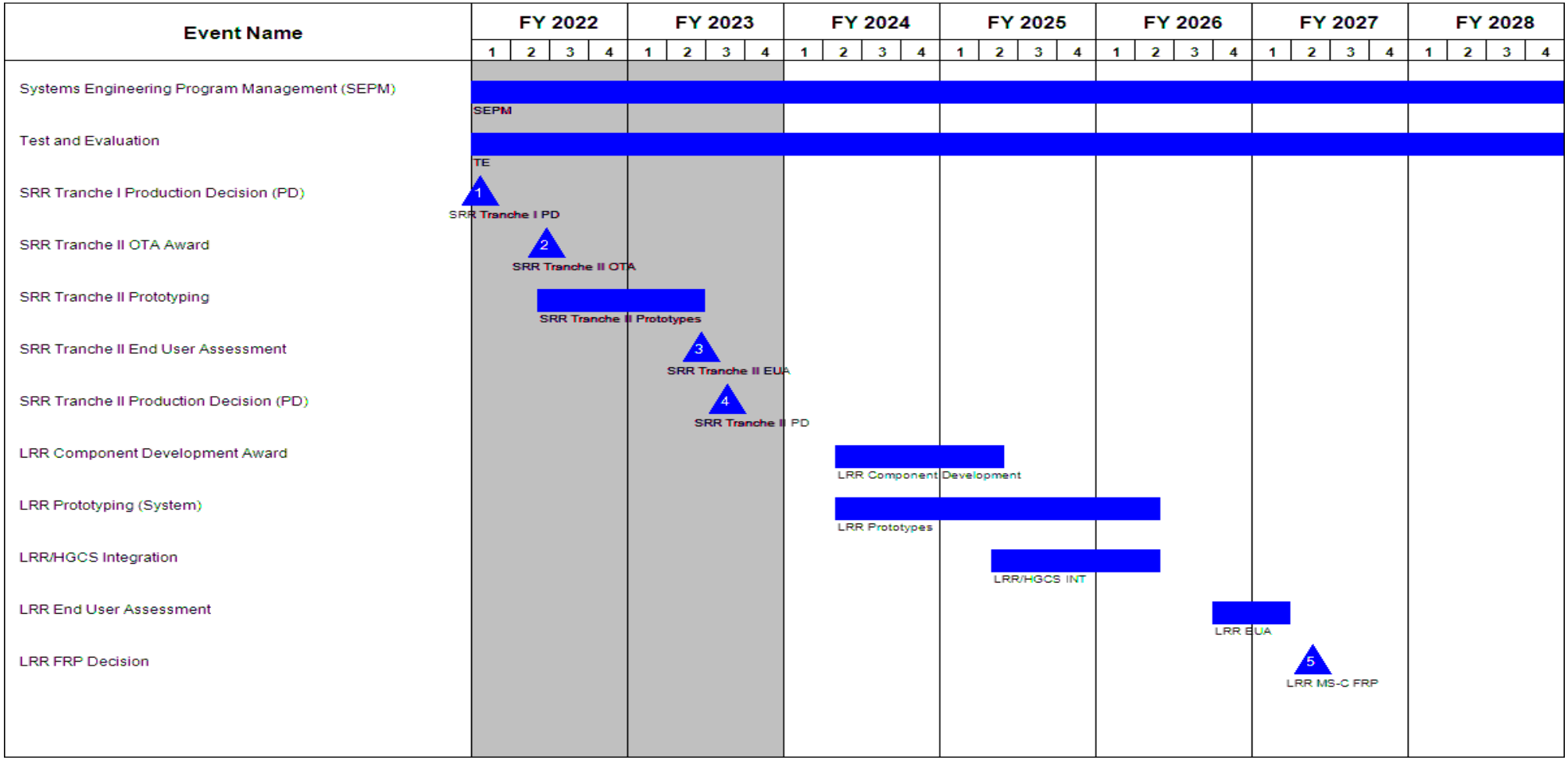


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604101A / *Small Unmanned Aerial Vehicle (SUAV) (6.4)*	**Project (Number/Name)** BR6 / *Small Unmanned Aircraft System (6.4)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Tactical Open Government Owned Architecture Development	4	2014	4	2014
Tactical Open Government Architecture Test Event 2	3	2015	3	2015
Systems Engineering Program Management (SEPM)	2	2018	4	2028
SRR Tranche I OTA Award	3	2019	3	2019
SRR Tranche I Prototyping	3	2018	4	2019
Test and Evaluation	4	2018	4	2028
SRR/HGCS Integration	2	2018	4	2020
SRR Tranche I End User Assessment	4	2020	4	2020
SRR Tranche I Production Decision (PD)	1	2022	1	2022
SRR Tranche II OTA Award	2	2022	2	2022
SRR Tranche II Prototyping	2	2022	2	2023
SRR Tranche II End User Assessment	2	2023	2	2023
SRR Tranche II Production Decision (PD)	3	2023	3	2023
LRR Component Development Award	2	2024	2	2025
LRR Prototyping (System)	2	2024	2	2026
LRR/HGCS Integration	2	2025	2	2026
LRR End User Assessment	4	2026	1	2027
LRR FRP Decision	2	2027	2	2027

Note

Schedule events shown prior to Fiscal Year (FY) 2021 are for informational purposes only.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604103A *I Electronic Warfare Planning and Management Tool (EWPMT)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	2.260	0.000	2.260	0.000	0.000	0.000	0.000	0.000	2.260
DG4: *NAVWAR SA*	-	-	-	2.260	-	2.260	-	-	-	-	0.000	2.260

Note

Electronic Warfare Planning and Management Tool (EWPMT) is a new start in FY 2024.

A. Mission Description and Budget Item Justification

Navigation Warfare Situational Awareness (NAVWAR-SA) a new start effort in FY 2024. 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 Position, Navigation, and Timing (PNT) on the battlefield.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	2.260	-	2.260
Total Adjustments	0.000	0.000	2.260	-	2.260
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	2.260	-	2.260

Change Summary Explanation

FY 2024 RDTE dollars for the new start effort NAVWAR-SA in the amount of $2.260 million allows for the transition and integration of the NAVWAR Plexus software into the Electronic Warfare and Planning Management Tool (EWPMT) baseline.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604103A / *Electronic Warfare Planning and Management Tool (EWPMT)*	Project (Number/Name) DG4 / *NAVWAR SA*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
DG4: *NAVWAR SA*	-	-	-	2.260	-	2.260	-	-	-	-	0.000	2.260
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

NAVWAR SA is a new start within the Electronic Warfare Planning and Management Tool (EWPMT) program in FY 2024.

A. Mission Description and Budget Item Justification

Navigation Warfare Situational Awareness (NAVWAR-SA) a new start effort in FY 2024. Is a system of systems approach for detecting, geo-locating, and determining the impact of Global Positioning System (GPS) in a contested environment and the effects on Position, Navigation, and Timing (PNT) on the battlefield.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: NAVWAR SA	-	-	2.260
Description: The integration of NAVWAR-SA Plexus into EWPMT includes the development of Application Program Interfaces (API) and testing. The Tactical NAVWAR Plexus preserves the effectiveness of Maneuvers and Fires missions by enabling the Commander to understand when 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 2023 to FY 2024 Increase/Decrease Statement:*** This is the initial funding on this line.			
Accomplishments/Planned Programs Subtotals	-	-	2.260

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Transition the Plexus software and integrate into EWPMT utilizing agile development and existing contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604103A / *Electronic Warfare Planning and Management Tool (EWPMT)*	Project (Number/Name) DG4 / *NAVWAR SA*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract - EWPMT Fielding, Training, Support and Product Improvement	C/CPFF	TBD : TBD	-	-		-		1.000	Apr 2024	-		1.000	0.000	1.000	Continuing
		Subtotal	-	-		-		1.000		-		1.000	0.000	1.000	N/A

Remarks

FY24 funds in the amount of $1.000 million for NAVWAR SA transition and integration into EWPMT Baseline.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical and Engineering Support	Various	Various : Variou	-	-		-		1.260	Nov 2023	-		1.260	0.000	1.260	Continuing
		Subtotal	-	-		-		1.260		-		1.260	0.000	1.260	N/A

Remarks

FY24 funds in the amount of $1.260 million for NAVWAR SA integration and test support.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		2.260		-		2.260	0.000	2.260	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604103A / *Electronic Warfare Planning and Management Tool (EWPMT)*	**Project (Number/Name)** DG4 / *NAVWAR SA*

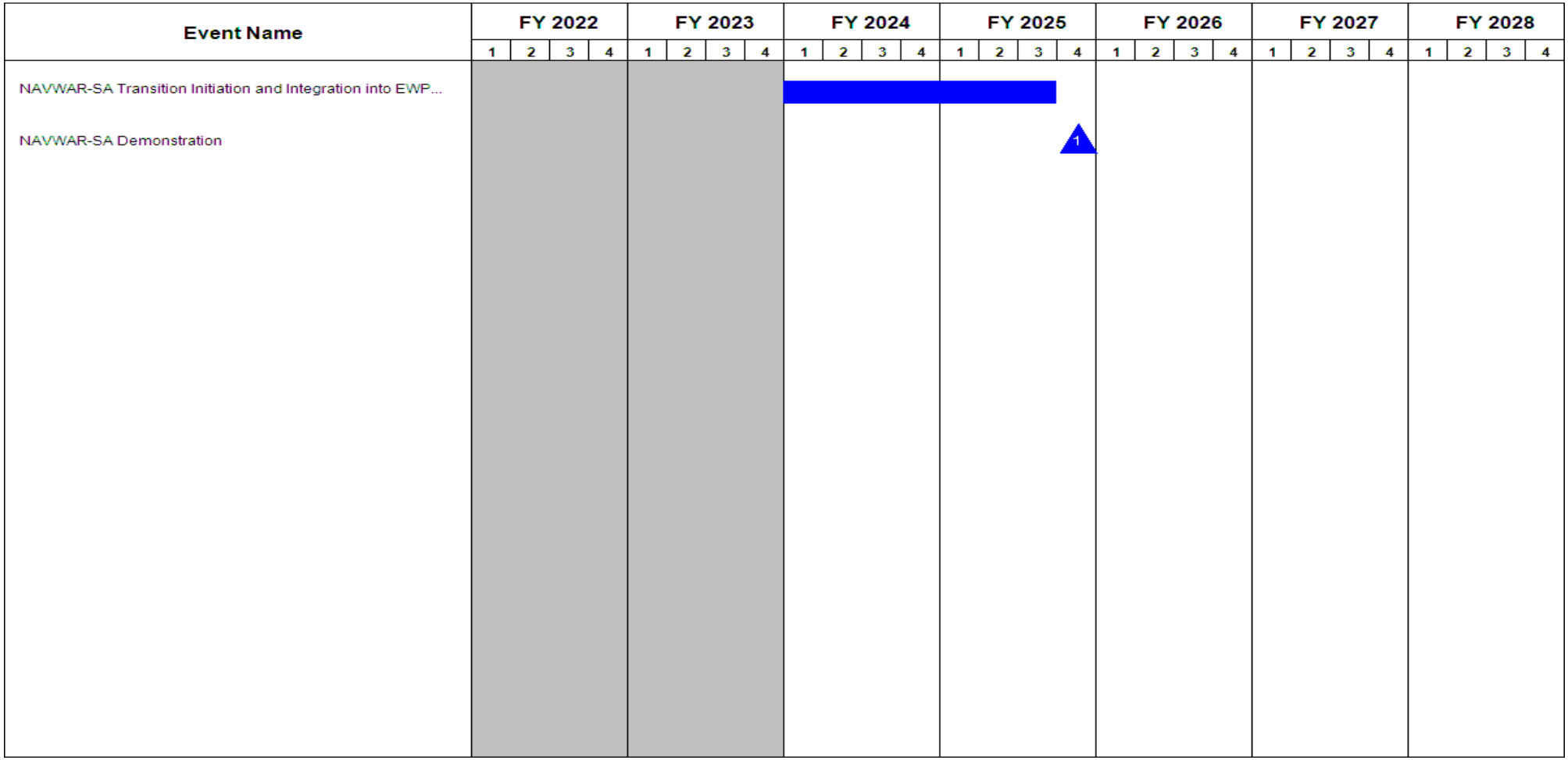


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604103A / *Electronic Warfare Planning and Management Tool (EWPMT)*	**Project (Number/Name)** DG4 / *NAVWAR SA*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NAVWAR-SA Transition Initiation and Integration into EWPMT Baseline	1	2024	3	2025
NAVWAR-SA Demonstration	4	2025	4	2025

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604113A *I Future Tactical Unmanned Aircraft System (FTUAS)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	76.349	134.719	53.143	-	53.143	41.961	60.420	30.543	30.883	Continuing	Continuing
EX8: *Future Unmanned Aircraft System (FUAS)*	-	76.349	134.719	53.143	-	53.143	41.961	60.420	30.543	30.883	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Future Unmanned Aircraft System (FUAS) is a critical system in the cross-domain capabilities concept that will employ 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 Future Tactical UAS (FTUAS), Air Launched Effects (ALE), and Scalable Control Interface (SCI). Current FTUAS efforts are based on requirements from AROC approved Abbreviated Capability Development Document (A-CDD) signed 12 August 2021. Manned, optionally-manned, and unmanned systems will penetrate defense-in-depth environments by employing ALE 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 for the Brigade Combat Team (BCT), and ALE. The FTUAS seeks to replace the RQ-7Bv2 Shadow assets within the BCTs. Key attributes of the FTUAS BCT focus on Rapid Deployability, Expeditionary Maneuver, and Mobility for adaptive and agile operations. FTUAS will consist of an aircraft subsystem that 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.

ALE extends tactical and operational reach, lethality, and protection to the advanced team as an attritable 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 ALE efforts are based on requirements from AROC approved A-CDD signed 28 May 2020.

Justification: Fiscal Year (FY) 2024 FUAS Research Development Technology & Evaluation (RDT&E) Base funding of $53.143 million will be utilized for the following:
1) $19.439 million to support ALE Systems Integration activities to include test and evaluation activities to support a rapid fielding decision
2) $5.528 million provides SEPM to support ALE
3) $10.808 million to support FTUAS component development and competitive prototyping and integration efforts,
4) $14.550 million provides Test and Evaluation to support FTUAS
5) $2.818 million provides SEPM to support FTUAS

The total cost of the ALE Middle Tier of Acquisition effort is $75 million RDT&E from FY22 to FY24. The ALE is fully funded across the Future Years Defense Program. FTUAS Inc 2:

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604113A *I Future Tactical Unmanned Aircraft System (FTUAS)*

The total cost of the FTUAS Inc 2 Middle Tier of Acquisition effort is $125 million RDT&E from FY22 to FY25. The FTUAS Inc 2 is fully funded across the Future Years Defense Program.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	76.349	95.719	40.344	-	40.344
Current President's Budget	76.349	134.719	53.143	-	53.143
Total Adjustments	0.000	39.000	12.799	-	12.799
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	39.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	12.799	-	12.799

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: EX8: *Future Unmanned Aircraft System (FUAS)*		
Congressional Add: *Program Increase- Micro-IFF for FTUAS*	5.000	-
Congressional Add: *Program Increase- Future Unmanned Aircraft Systems*	15.000	-
Congressional Add: *Program Increase: Acceleration of Future Tactical Unmanned Aircraft System (FTUAS) Increment 1*	-	16.000
Congressional Add: *Program Increase: Protected Bandwidth Efficient Common DataLink (BE-CDL) Mode 303*	-	15.000
Congressional Add: *Program Increase: Micro-Integrated Transponder With Embedded Crypto*	-	8.000
Congressional Add Subtotals for Project: EX8	20.000	39.000
Congressional Add Totals for all Projects	20.000	39.000

Change Summary Explanation

FY24 funding in the amount of $12.799 million moved from ACFT/A00510/A00511 Air Launched Effects to PE 0604113A/ Future Tactical Unmanned Aircraft Systems (FTUAS) Project EX8/ Future Unmanned Aircraft Systems (FUAS) RDTE line to be used on the Air Launched Effects effort.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	Project (Number/Name) EX8 / *Future Unmanned Aircraft System (FUAS)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EX8: *Future Unmanned Aircraft System (FUAS)*	-	76.349	134.719	53.143	-	53.143	41.961	60.420	30.543	30.883	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Future Unmanned Aircraft System (FUAS) is a critical system in the cross-domain capabilities concept that will employ 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 Future Tactical UAS (FTUAS), Air Launched Effects (ALE), and Scalable Control Interface (SCI). Current FTUAS efforts are based on requirements from AROC approved Abbreviated Capability Development Document (A-CDD) signed 12 August 2021. Manned, optionally-manned, and unmanned systems will penetrate defense-in-depth environments by employing ALE 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 for the Brigade Combat Team (BCT), and ALE. The FTUAS seeks to replace the RQ-7Bv2 Shadow assets within the BCTs. Key attributes of the FTUAS BCT focus on Rapid Deployability, Expeditionary Maneuver, and Mobility for adaptive and agile operations. FTUAS will consist of an aircraft subsystem that 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.

ALE extends tactical and operational reach, lethality, and protection to the advanced team as an attritable 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 ALE efforts are based on requirements from AROC approved A-CDD signed 28 May 2020.

Justification: Fiscal Year (FY) 2024 FUAS Research Development Technology & Evaluation (RDT&E) Base funding of $53.143 million will be utilized for the following:
1) $19.439 million to support ALE Systems Integration activities to include test and evaluation activities to support a rapid fielding decision
2) $5.528 million provides SEPM to support ALE
3) $10.808 million to support FTUAS component development and competitive prototyping and integration efforts,
4) $14.550 million provides Test and Evaluation to support FTUAS
5) $2.818 million provides SEPM to support FTUAS

The total cost of the ALE Middle Tier of Acquisition effort is $75 million RDT&E from FY22 to FY24. The ALE is fully funded across the Future Years Defense Program. FTUAS Inc 2:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

The total cost of the FTUAS Inc 2 Middle Tier of Acquisition effort is $125 million RDT&E from FY22 to FY25. The FTUAS Inc 2 is fully funded across the Future Years Defense Program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Air Launched Effects (ALE) Systems Integration ***Description:*** ALE Systems Integration in preparation for a Materiel Development Decision (MDD), and to inform requirements. The PM conducts System Integration of the Prototype ALE and integration of the system onto a host launch platform. ***FY 2023 Plans:*** Fund the ALE Small Prototype (Increment 1A) integration of proposed material solution approaches and integration of prototype ALE onto a launch platform and include required testing in support of platform integration. Continue to support the development of the Modular Open Systems Architecture and Scalable Control Interface (SCI) required for ALE. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** ALE FY2024 RDTE funding decreases due to incorporating additional technologies for the ALE-S Prototype.	19.225	24.860	19.439
Title: Air Launched Effects (ALE) Systems Engineering/Program Management ***Description:*** SEPM ***FY 2023 Plans:*** Funds Systems Engineering/Program Management efforts in support of Air Launched Effects ***FY 2024 Plans:*** Funding for SEPM aligns with current ALE strategy ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease in Systems Engineering/Program Management funding required as FTUAS transitions to procurement phase.	0.775	5.617	5.528
Title: Future Tactical Unmanned Aircraft System (FTUAS) System Engineering/Program Management ***Description:*** SEPM ***FY 2023 Plans:***	1.500	4.283	2.818

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding to continue SEPM to support FTUAS milestone decision requirements and program execution. ***FY 2024 Plans:*** Align to FTUAS acquisition strategy. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY23 SEPM was required to provide systems engineering support during the Development phase of the program. This shifts to Procurement of FTUAS systems beginning in FY24, so funding requirements for RDTE SEPM will subsequently decrease.			
Title: Future Tactical Unmanned Aircraft System (FTUAS) System Integration ***Description:*** The FTUAS will be a runway independent Group 3 unmanned aircraft that provides the Brigade Combat Teams with expeditionary, intelligence, surveillance, and reconnaissance (ISR) with improved target location and designation. ***FY 2023 Plans:*** Continue to fund competitive prototypes, development / integration, and test of required FTUAS components (Artificial Intelligence, Miniaturized Mode 5/S IFF, Scalable Control Interface (SCI), Communications Relay Payloads) and systems. ***FY 2024 Plans:*** Continue to fund competitive prototypes, development / integration, and test of required FTUAS systems. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FTUAS plan to transition into procurement phase.	34.849	60.959	10.808
Title: Future Tactical Unmanned Aircraft System (FTUAS) Test and Evaluation ***FY 2024 Plans:*** FTUAS will conduct developmental and qualification testing for the Increment 2 system. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** New line added to support FTUAS testing efforts and FTUAS prototypes.	-	-	14.550
Accomplishments/Planned Programs Subtotals	56.349	95.719	53.143

	FY 2022	FY 2023
Congressional Add: Program Increase- Micro-IFF for FTUAS ***FY 2022 Accomplishments:*** Awarded multiple Micro Identify Friend/Foe (Micro-IFF) contracts to add capabilities to the existing model ZPX-C capability.	5.000	-
Congressional Add: Program Increase- Future Unmanned Aircraft Systems	15.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

	FY 2022	FY 2023
FY 2022 Accomplishments: Awarded Future Tactical Unmanned Aircraft System (FTUAS) Increment 1 Other Transaction Agreement (OTA) Awarded Future Tactical Unmanned Aircraft System (FTUAS) Inc 0		
Congressional Add: Program Increase: Acceleration of Future Tactical Unmanned Aircraft System (FTUAS) Increment 1 ***FY 2023 Plans:*** Award Scope to Accelerate Future Tactical Unmanned Aircraft System (FTUAS) Increment 1.	-	16.000
Congressional Add: Program Increase: Protected Bandwidth Efficient Common DataLink (BE-CDL) Mode 303 ***FY 2023 Plans:*** Award Protected Bandwidth Efficient Common DataLink (BE-CDL) Mode 303 Scope.	-	15.000
Congressional Add: Program Increase: Micro-Integrated Transponder With Embedded Crypto ***FY 2023 Plans:*** Award Micro-Integrated Transponder With Embedded Crypto Scope.	-	8.000
Congressional Adds Subtotals	20.000	39.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• A01311: *Future Tactical Unmanned Aircraft System (TUAS)*	-	-	53.453	-	53.453	113.701	147.399	147.533	124.422	0.000	586.508
• A00511: *Air Launched Effects*	-	-	0.000	-	0.000	39.693	101.021	101.056	100.850	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Aviation Platform - Requirements Development Division (AP-RDD) prepared an Initial Capabilities Document (ICD) that was approved by the AROC on 6 Mar 2019.

The Future Vertical Lift Cross Functional Team (FVL CFT) oversaw a demonstration effort in FY 2019 - 2021 that informed the Future Tactical Unmanned Aircraft System (FTUAS) requirement to develop capability that will ultimately replace the RQ-7Bv2 Shadow TUAS within the Brigade Combat Team (BCT) formation. The 12-month demonstration included 20 Soldier touchpoints (new equipment training, field training exercises, and Combat Training Center rotations) across five BCTs and included the training of 61 operators and 56 maintainers. The demonstration resulted in over 1,500 flight hours across more than 500 separate flights to inform the FTUAS Abbreviated Capability Development Document (A-CDD) for Increment 2 approved 12 August 2021. The directed requirement for Increment 1 was approved 7 January 2022. AAE approved Increment 1 as an urgent capability acquisition on 26 May 2022. Increment 2 received Middle Tier Acquisition authority in 4QFY2022 to conduct Rapid Prototyping. Increment 2 will request follow-on acquisition pathway decision authority in FY2024.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

AP-RDD - Prepared ALE Initial Capability Refinement Document (ICRD) that was approved by GEN John M. Murray, CG, AFC on 21 Oct 2019.

The plan to acquire ALE is through an incremental approach that allows rapid prototyping and fielding of technology to field available capabilities while continuing S&T efforts to mature and transition emerging technologies to fully realize required capabilities. This is accomplished through multiple prototype development activities for the air vehicle, payloads, and mission system architecture through, experiments, simulations, and demonstrations conducted in parallel and/or sequential timelines. The objective of this incremental effort is to develop and exhibit multiple ALE prototypes to enable a rapid transition from prototype to operational implementation in the force.

The ALE Prototyping effort is a Commercial Off the Shelf (COTS)/Government Off the Shelf (GOTS) system to enable technology maturation, systems integration, and potential initial capabilities. The ALE program of record will be purpose built utilizing parallel efforts informed by S&T investments and information learned from the demonstration and testing of the ALE Prototyping effort. Additional increments will leverage the mission system architecture, payload technologies and interfaces from the initial increment and seek to extend the range of ALE for missions in support of LRPF.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	Project (Number/Name) EX8 / *Future Unmanned Aircraft System (FUAS)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management (SEPM)	Various	PM TUAS : Redstone Arsenal	7.584	1.500		4.283	Mar 2023	2.000	Feb 2024	-		2.000	Continuing	Continuing	-
		Subtotal	7.584	1.500		4.283		2.000		-		2.000	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Launched Effects (ALE) Systems Integration	Various	PM TUAS : Redstone Arsenal	42.100	20.000	Mar 2023	30.477	Nov 2022	24.967	Mar 2024	-		24.967	Continuing	Continuing	-
Future Tactical Unmanned Aircraft System (FTUAS)	Various	PM TUAS : Redstone Arsenal	33.758	54.849		99.959	Jun 2023	11.626	Feb 2024	-		11.626	Continuing	Continuing	-
		Subtotal	75.858	74.849		130.436		36.593		-		36.593	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	TBD	AMTC, ATEC, RTC, and ACC : Redstone	-	-		-		14.550	Dec 2023	-		14.550	Continuing	Continuing	-
		Subtotal	-	-		-		14.550		-		14.550	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	83.442	76.349		134.719		53.143		-		53.143	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

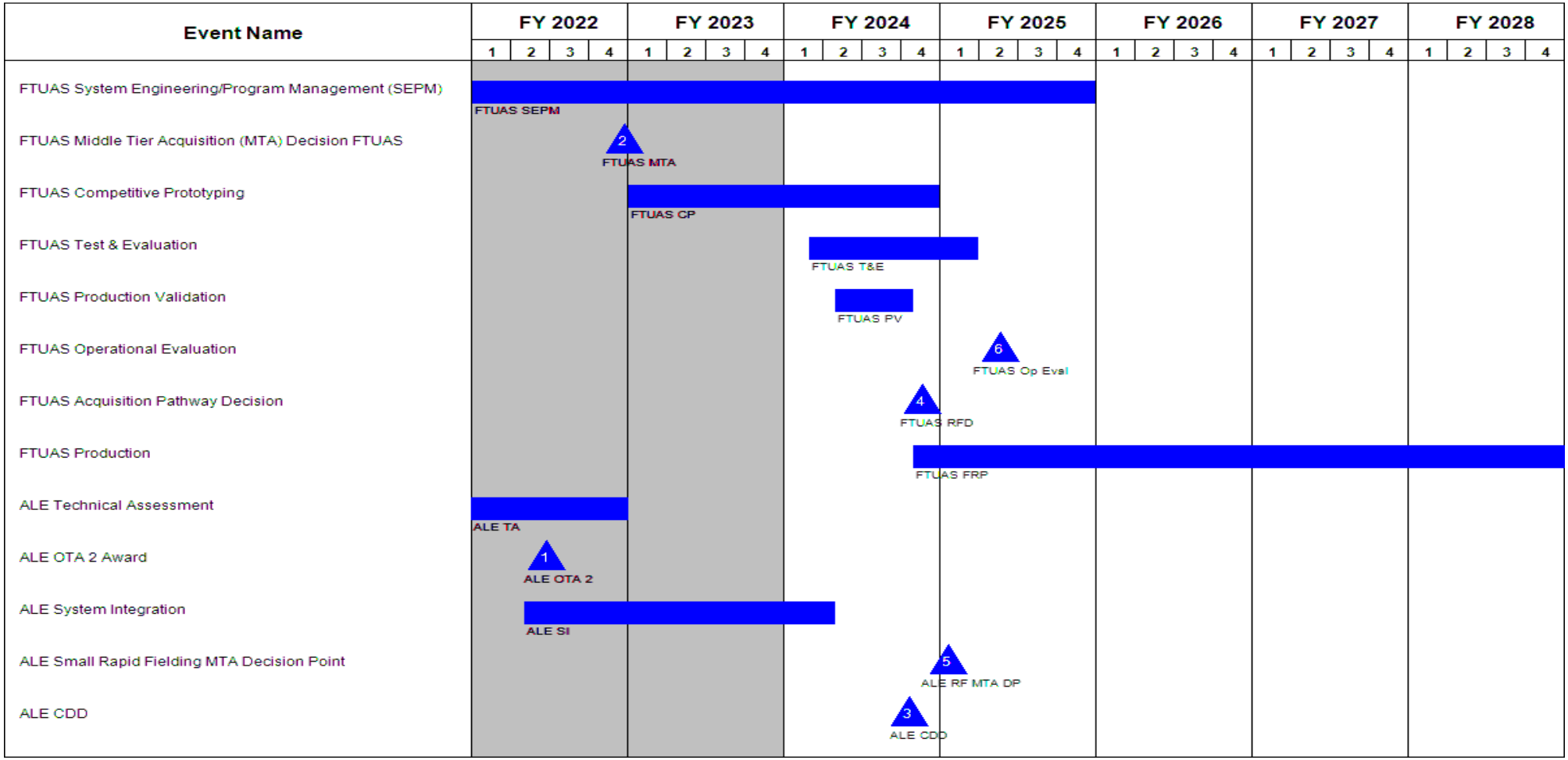


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

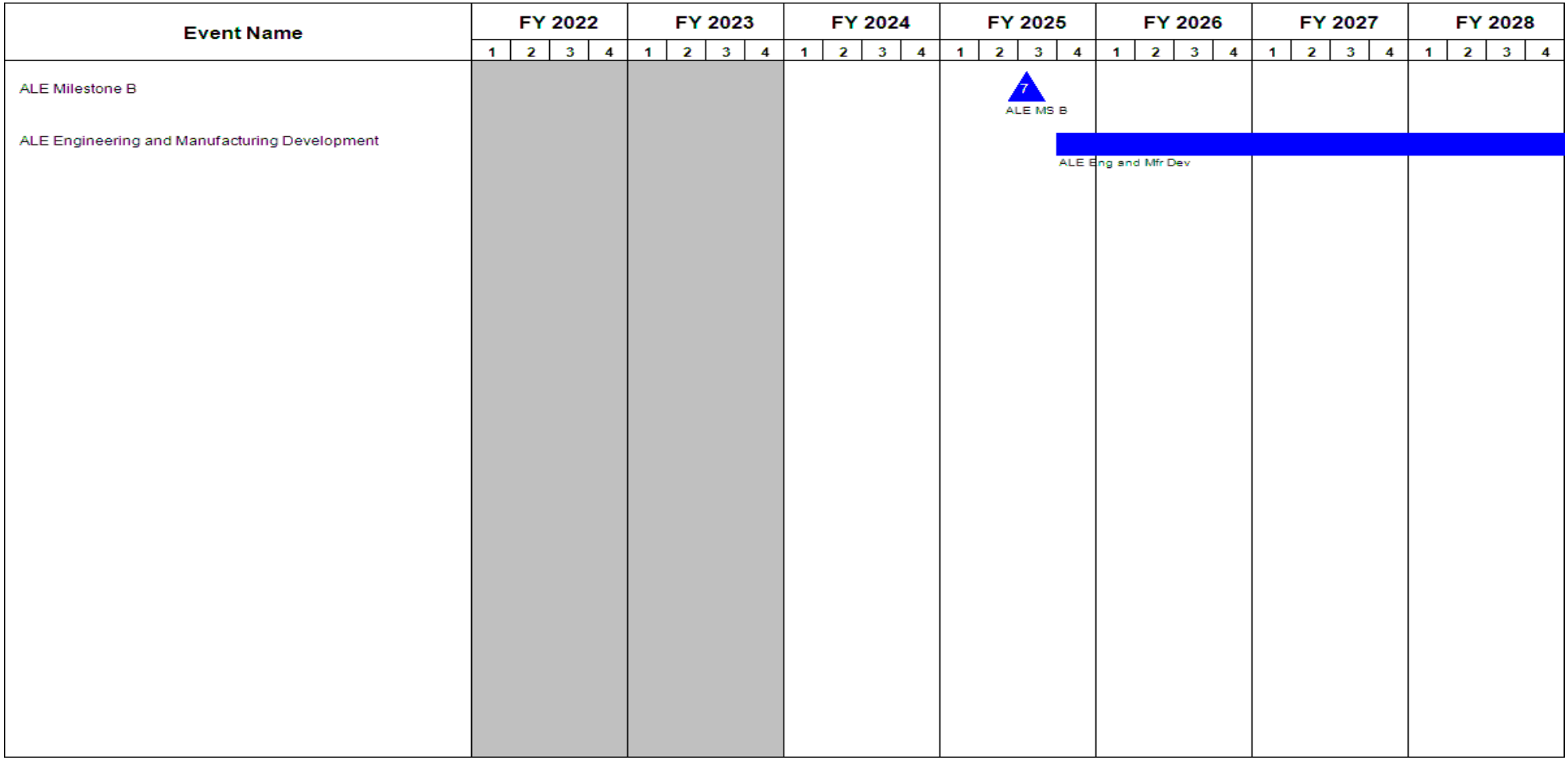


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTUAS Multi Domain Task Force Demonstration (MDTF)	1	2019	4	2020
FTUAS System Engineering/Program Management (SEPM)	1	2019	4	2025
FTUAS Demonstration (APA Funded)	3	2020	2	2021
FTUAS A- CDD AROC	4	2021	4	2021
FTUAS Middle Tier Acquisition (MTA) Decision FTUAS	4	2022	4	2022
FTUAS Competitive Prototyping	1	2023	4	2024
FTUAS Test & Evaluation	1	2024	1	2025
FTUAS Production Validation	2	2024	4	2024
FTUAS Operational Evaluation	2	2025	2	2025
FTUAS Acquisition Pathway Decision	4	2024	4	2024
FTUAS Production	4	2024	4	2031
ALE RFI	2	2019	2	2019
ALE A-CDD AROC	3	2020	3	2020
ALE OTA 1	4	2020	4	2020
ALE Technical Assessment	4	2020	4	2022
ALE Multi-Vendor Demonstrations	4	2020	4	2021
ALE RFI 2	2	2021	2	2021
ALE OTA 2 Award	2	2022	2	2022
ALE System Integration	2	2022	2	2024
ALE Small Rapid Fielding MTA Decision Point	1	2025	1	2025
ALE CDD	4	2024	4	2024
ALE Milestone B	3	2025	3	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604113A / *Future Tactical Unmanned Aircraft System (FTUAS)*	**Project (Number/Name)** EX8 / *Future Unmanned Aircraft System (FUAS)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ALE Engineering and Manufacturing Development	4	2025	3	2030

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604114A *I Lower Tier Air Missile Defense (LTAMD) Sensor*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	408.766	380.147	816.663	-	816.663	118.939	122.544	89.261	90.257	Continuing	Continuing
EX2: *Lower Tier Air Missile Defense (LTAMD) Capability*	-	408.766	380.147	816.663	-	816.663	118.939	122.544	89.261	90.257	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 sensor intended to sense and track Tactical Ballistic Missiles and Air Breathing Threats; expand the battlespace for Missile Segment Enhancement interceptor; and provide 360-degree sensing capability, surveillance, and fire control in the Lower Tier Army Integrated Air and Missile Defense (IAMD) ballistic missile defense battlespace.

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 Section 804 Rapid Prototyping authority. The sensor/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 increases sensor/ radar performance to maximize the inherent PATRIOT Advanced Capability (PAC-3) Missile Segment Enhanced (MSE) Interceptor capabilities to engage threats in addition to addressing critical capability gaps, providing modernized technology, and increasing reliability and maintainability.

FY 2024 funds in the amount of $816.663 million will fund three (3) sensors in FY 2024 to support the Pacific Deterrence initiative (PDI) to provide an Early Operational Capability. The program acquired two (2) prototype sensors in prior years to support Initial Operational Test and Evaluation (IOT&E) and transition from MTA to MCA. FY 2024 funding will fund an additional two (2) sensors to support LTAMDS testing culminating with Initial Operational Test and Evaluation (IOT&E) in FY 2026/2027. FY 2024 funds of $383.688 million supports the Pacific Deterrence Initiative (PDI).

FY 2024 funding continues prototype Environmental Qualification testing; completes Primary Sector Operational Assessment with an Integrated Fires test campaign; completes Full Sector Contractor Verification Testing (CVT); and supports Development Test & Evaluation (DTE).

Additionally, funding in FY 2024 continues software development to counter evolving threats; supports digital modeling and simulation efforts; critical Program Protection / Anti-Tamper capabilities; Large Tactical Power System (LTPS) prototype development; 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; and supports AMD survivability efforts.

LTAMDS will transition from Middle Tier of Acquisition (MTA) to Major Capability Acquisition (MCA) in 1Q FY 2024. FY 2024 funding continues MCA walk-up activities to include required entry criteria, system verification, development of appropriate milestone documentation, and initiation of contract award activities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604114A *I Lower Tier Air Missile Defense (LTAMD) Sensor*

The total cost of the LTAMDS Middle Tier of Acquisition effort is $1,463 million RDT&E from FY 2019 to FY 2024. The LTAMDS is fully funded across the Future Years Defense Program.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	297.629	382.147	89.187	-	89.187
Current President's Budget	408.766	380.147	816.663	-	816.663
Total Adjustments	111.137	-2.000	727.476	-	727.476
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-12.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	111.137	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	727.476	-	727.476

Change Summary Explanation

Realignment of funds from 2032 Missile Procurement, PE 7265C12000 / Lower Tier Air and Missile Defense (AMD) Sensor to 2040 RDTE, PE 0604114A / EX2: Lower Tier Air Missile Defense (LTAMD) Capability from the original PB23 submission due to a delay in LTAMDS development. PB23 included the cost of procuring LTAMDS radars in MSLS based on a planned 1Q FY 2024 Milestone C (MS C) decision. The revised plan is to acquire operational test sensors and capability for the Pacific Deterrence Initiative (PDI) prior to the MS C using RDT&E funds.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EX2: *Lower Tier Air Missile Defense (LTAMD) Capability*	-	408.766	380.147	816.663	-	816.663	118.939	122.544	89.261	90.257	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 sensor intended to sense and track Tactical Ballistic Missiles and Air Breathing Threats; expand the battlespace for Missile Segment Enhancement interceptor; and provide 360-degree sensing capability, surveillance, and fire control in the Lower Tier Army Integrated Air and Missile Defense (IAMD) ballistic missile defense battlespace.

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 Section 804 Rapid Prototyping authority. The sensor/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 increases sensor/ radar performance to maximize the inherent PATRIOT Advanced Capability (PAC-3) Missile Segment Enhanced (MSE) Interceptor capabilities to engage threats in addition to addressing critical capability gaps, providing modernized technology, and increasing reliability and maintainability.

FY 2024 funds in the amount of $816.663 million will fund three (3) sensors in FY 2024 to support the Pacific Deterrence initiative (PDI) to provide an Early Operational Capability. The program acquired two (2) prototype sensors in prior years to support Initial Operational Test and Evaluation (IOT&E) and transition from MTA to MCA. FY 2024 funding will fund an additional two (2) sensors to support LTAMDS testing culminating with Initial Operational Test and Evaluation (IOT&E) in FY 2026/2027. FY 2024 funds of $383.688M support the Pacific Deterrence Initiative (PDI).

FY 2024 funding continues prototype Environmental Qualification testing; completes Primary Sector Operational Assessment with an Integrated Fires test campaign; completes Full Sector Contractor Verification Testing (CVT); and supports Development Test & Evaluation (DTE).

Additionally, funding in FY 2024 continues software development to counter evolving threats; supports digital modeling and simulation efforts; critical Program Protection / Anti-Tamper capabilities; Large Tactical Power System (LTPS) prototype development; 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; and supports AMD survivability efforts.

LTAMDS will transition from Middle Tier of Acquisition (MTA) to Major Capability Acquisition (MCA) in 1Q FY 2024. FY 2024 funding continues MCA walk-up activities to include required entry criteria, system verification, development of appropriate milestone documentation, and initiation of contract award activities.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

The total cost of the LTAMDS Middle Tier of Acquisition effort is $1,463 million RDT&E from FY 2019 to FY 2024. The LTAMDS MTA is fully funded across the Future Years Defense Program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Lower Tier Missile Defense Sensor	408.766	366.637	816.663

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.

FY 2023 Plans:

UMR
- Provide four prototypes under UMR
- Complete prototype Developmental Test and Evaluation
- Complete Operational Demonstration
- Continue Operational Assessment

P3I
- Buildup of P3I Test Assets to support DT/OT and IOTE
- Software Development Activities to include Non-Cooperative Target Recognition, Electronic Protection, and continue software development tasks with IBCS.
- Activities needed to support a MS C decision
- Digital Modeling and Simulation activities
- Support Large Tactical Power System (LTPS) development
- Critical Design Review of P3I configuration

Integration
- Continue integration with IBCS
- Continue integration with PATRIOT family of interceptors (PAC-2, GEM-T, PAC-3, PAC-3 MSE)
- Continue Development and integration of Large Tactical Power System (LTPS)

FY 2024 Plans:

MTA Rapid Prototyping Program:
- Continue Environmental Qualification, Government Development, and Operational Testing
- Complete Primary Sector Operational Assessment
- Complete Full Sector (360 degree) CVT

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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 2022	FY 2023	FY 2024
- 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. Early Operational Capability: - 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 Integration: - 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 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The FY 2023 to FY 2024 increase is due to realignment of MSLS (2032) to RDTE (2040) from the original PB23 submission due to LTAMDS integration delays.			
Title: FY 2023 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	13.510	-
Accomplishments/Planned Programs Subtotals	408.766	380.147	816.663

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• C12101: *Lower Tier Air and Missile Defense Sensor*	33.473	13.460	6.625	-	6.625	546.059	639.032	638.033	1,078.103	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 for testing and Urgent Materiel Release (UMR) 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 and will support Contractor Verification Testing (CVT) and USG Development and Operational Testing.

LTAMDS will transition from Middle Tier of Acquisition to Major Capability Acquisition in 1Q FY2024. In 1Q FY 2024, 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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	MIPR	Various : Redstone Arsenal, AL	20.765	4.250	Oct 2021	4.780	Oct 2022	4.950	Nov 2023	-		4.950	Continuing	Continuing	-
Systems Engineering and Technical Assistance (SETA)	Various	Systems Engineering and Technical Assistance : Huntsville, AL	22.509	7.500	Oct 2021	7.655	Oct 2022	7.930	Feb 2024	-		7.930	Continuing	Continuing	-
SBIR/STTR	TBD	NA : NA	-	-		13.510		-		-		-	0.000	13.510	-
		Subtotal	43.274	11.750		25.945		12.880		-		12.880	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Support	C/Various	University Affiliated Research Center (UARC); MIT; The Federally Funded Research and Development Center (FFRDC) : Various	16.849	12.500	Oct 2021	12.880	Oct 2022	13.920	Nov 2023	-		13.920	Continuing	Continuing	-
OGA Development and Integration Activities	C/Various	Various : Various	-	34.319	Dec 2021	54.430	Dec 2022	37.970	Dec 2023	-		37.970	Continuing	Continuing	-
Rapid Prototyping	C/FFP	Raytheon : Various	556.175	103.461	Feb 2022	-		-		-		-	Continuing	Continuing	-
Pre-Planned Product Improvements	Various	Raytheon : Various	-	59.556	Jan 2022	212.930	Jan 2023	67.063	Feb 2024	-		67.063	Continuing	Continuing	-
IOT&E (2) / PDI Assets (3)	TBD	Raytheon : Various	-	-		-		613.670	Nov 2023	-		613.670	Continuing	Continuing	-
Supplemental PATRIOT battery	TBD	Raytheon : Various	-	122.000	Jun 2022	-		-		-		-	Continuing	Continuing	-
		Subtotal	573.024	331.836		280.240		732.623		-		732.623	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/Various	Army Laboratories, S3I System Integration Laboratory, CCDC : Various	2.454	8.920	Dec 2021	8.930	Dec 2022	10.550	Dec 2023	-		10.550	Continuing	Continuing	-
		Subtotal	2.454	8.920		8.930		10.550		-		10.550	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Planning/Targets/ Interceptors/U.S. Other Government Agencies (OGAs)	MIPR	RDEC, SED, WSMR-T&E Support : Huntsville, AL; White Sands, NM	92.084	56.260	Feb 2022	65.032	Feb 2023	60.610	Feb 2024	-		60.610	Continuing	Continuing	-
		Subtotal	92.084	56.260		65.032		60.610		-		60.610	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	710.836	408.766		380.147		816.663		-		816.663	Continuing	Continuing	N/A

Remarks

- Two (2) sensors delivered in FY26 will support IOT&E; three (3) will support PDI.
- Realign FY24 MSLS (2032) to RDTE (2040) due to a delay in LTAMDS development.
- Rapid Prototyping Test Activities schedule shift due to technical and integration challenges.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

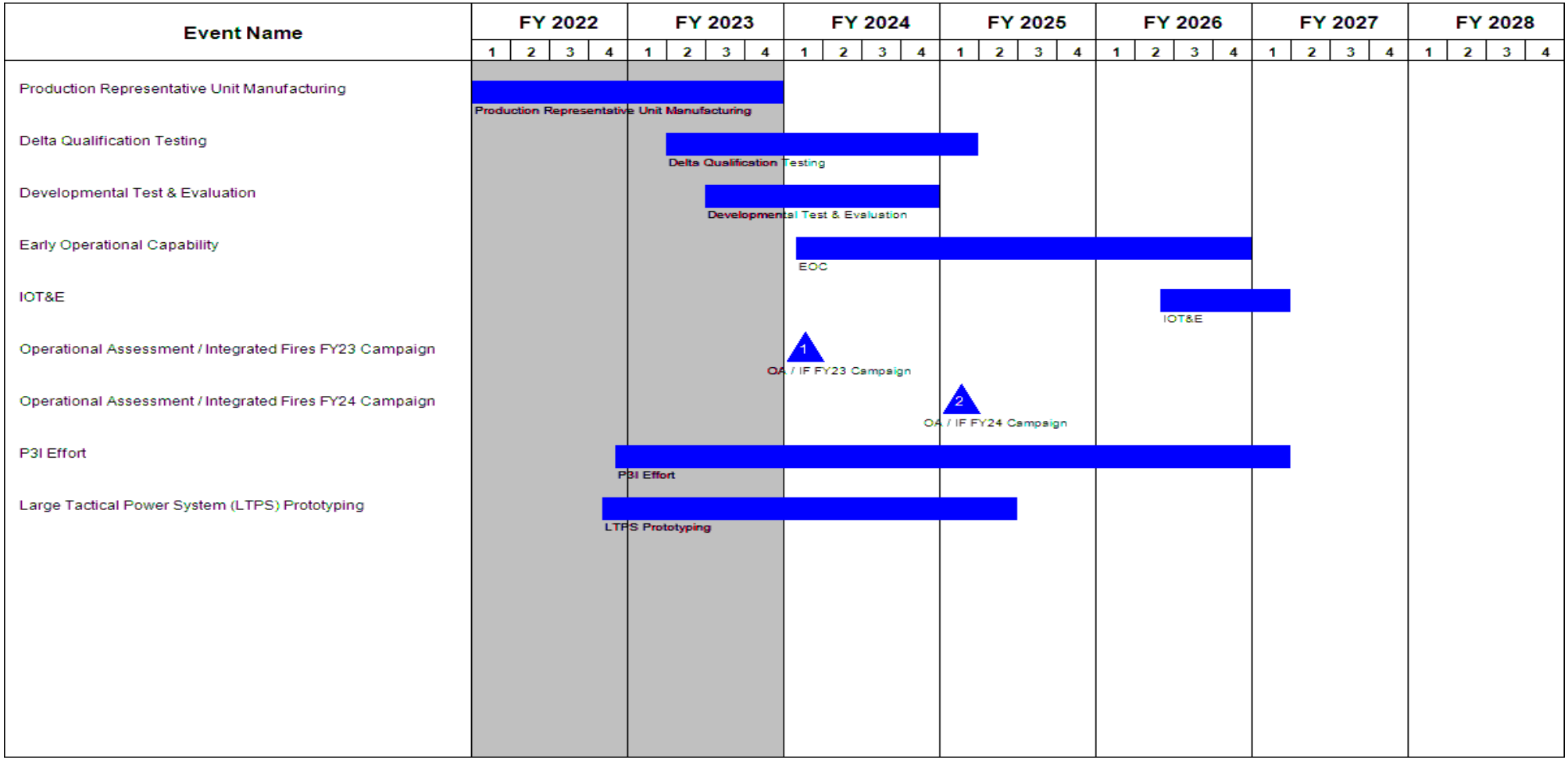


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604114A / *Lower Tier Air Missile Defense (LTAMD) Sensor*	**Project (Number/Name)** EX2 / *Lower Tier Air Missile Defense (LTAMD) Capability*

Schedule Details

	Start		End	
Events	**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
Delta Qualification Testing	2	2023	1	2025
Developmental Test & Evaluation	3	2023	4	2024
Early Operational Capability	1	2024	4	2026
IOT&E	2	2026	1	2027
Operational Assessment / Integrated Fires FY23 Campaign	1	2024	1	2024
Operational Assessment / Integrated Fires FY24 Campaign	1	2025	1	2025
P3I Effort	4	2022	1	2027
Large Tactical Power System (LTPS) Prototyping	4	2022	2	2025

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	127.725	219.742	281.314	-	281.314	256.495	256.806	259.545	262.374	0.000	1,664.001
AX3: *Technology Maturation Initiatives*	-	47.723	170.050	281.314	-	281.314	256.495	256.806	259.545	262.374	0.000	1,534.307
AX5: *Next Generation Close Combat Missile*	-	0.482	-	-	-	-	-	-	-	-	0.000	0.482
AX8: *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	-	23.799	23.407	-	-	-	-	-	-	-	0.000	47.206
AX9: *Adv Mobility Experimental Prototype Adv Tech*	-	12.044	15.234	-	-	-	-	-	-	-	0.000	27.278
AY2: *Army Operational Fires*	-	36.451	11.051	-	-	-	-	-	-	-	0.000	47.502
CE4: *Emerging Technology Initiatives Development*	-	7.226	-	-	-	-	-	-	-	-	0.000	7.226

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
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*

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, AX5, AX8, AX9, AY2, and CE4.

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 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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	132.561	269.756	255.077	-	255.077
Current President's Budget	127.725	219.742	281.314	-	281.314
Total Adjustments	-4.836	-50.014	26.237	-	26.237
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-50.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.836	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	26.237	-	26.237
• FFRDC Transfer	-	-0.014	-	-	-

Change Summary Explanation

Increase in FY24 funding from PB23 to PB24 in Technology Maturation Initiatives to support new efforts approved by the Technology Maturation Board.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX3 / *Technology Maturation Initiatives*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
AX3: *Technology Maturation Initiatives*	-	47.723	170.050	281.314	-	281.314	256.495	256.806	259.545	262.374	0.000	1,534.307
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 2022	FY 2023	FY 2024
Title: Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	26.044	14.770	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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 Plans:*** Mature Augmented Reality (A/R) technologies and optimize A/R performance. Assess A/R effectiveness at Soldier touch points. Demonstrate A/R capabilities for air and ground vehicle users and applications. Mature and demonstrate end-state vehicle computing and information processing capabilities in both air and ground platforms. Mature and demonstrate networked enabled operations in mission-based operational scenarios. Demonstrate improved line of sight head tracking capability with existing aviation head mounted display systems. Mature and demonstrate applications to IVAS tactical heads up display software to enable seamless transition from dismounted to mounted on-the-move operations. Mature and transition a government-owned hardware, software and interface baseline ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease in funding in FY 2024 represents finalization of required integration to complete transition of technology and architecture to a Program of Record and includes multiple user evaluations and touch points.			
Title: Universal MDO Fire Control and SA Systems ***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. ***FY 2023 Plans:*** Mature and assess Universal 360 multi-spectral sensing system prototypes including day, low-light, and thermal technologies with on-sensor Aided Target Recognition (AiTR) capabilities on Main Battle Tank (MBT) prototype. Mature and document the	11.080	20.041	32.650

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
government controlled, platform-agnostic data framework, architecture, and interface specifications. Demonstrate and assess through virtual prototyping the sensor data structure, Universal 360 sensor bandwidth, and intelligent data sharing/distribution. Evaluate scalability of the Universal 360 sensor system and architecture across multiple ground vehicle system requirements. Mature Artificial Intelligence (AI) software architecture, AI-enabled tracking, and advanced data and target location capabilities focusing on near-vehicle threats and driving obstacles. Integrate Advance Targeting Lethality Automated Systems (ATLAS) Technology Maturation Initiative AiTR algorithms. Evaluate AiTR detection, identification, and tracking effectiveness in the AiTR evaluation lab. Mature vehicle crew helmet mounted display technologies and assess effectiveness through data collection at Warfighter touch points. Improve head tracking hardware and software to enable precise tracking for visual information display to enable see through armor and improved situational awareness. Integrate the Integrated Vision Augmented System Ground Technology Maturation Initiative hardware, software, architecture/interface baseline and helmet mounted display crew user experiences. Demonstrate Universal 360 sensor data on select crew, troop, and fire control systems. Fabricate and integrate mid-program prototypes of platform-agnostic Universal 360 sensors, architecture, and display technologies on ground vehicle platforms. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding represents planned lifecycle of effort.			
Title: Anubis Software Defined Chipset for M-Code and Advanced PNT Applications	10.599	20.908	16.490
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. ***FY 2023 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Initiate security certification process with U.S. Space Force and enable M-Code capability on core SoC components. Develop initial GPS receiver reference designs for selected form factor (mounted, dismounted, or munition). ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease in FY 2024 funding is due to change in focus from design, purchase of long lead items, and beginning fabrication of prototypes to completing fabrication and testing of prototypes.			
Title: Target Seeking (TS) - Extended Range (ER) Seeker (TS-ER) ***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. ***FY 2023 Plans:*** Mature and integrate seeker hardware. Perform open-loop testing of seeker hardware. Perform live fire gun hardening All-Up-Round testing. Will demonstrate integrated seeker performance in open-loop and closed-loop demonstrations. Perform live fire gun hardening all round up testing. Demonstrate integrated seeker performance in open-loop and closed-loop demonstrations. Deliver an integrated terminal seeker. ***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	-	17.170	20.087

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding represents planned lifecycle of effort			
Title: Autonomous Operations for Unmanned Aerial Systems (UAS) ***Description:*** Autonomous Operations for Unmanned Aerial Systems (UAS) will provide Army aircraft reconnaissance, targeting and weapon options to engage and defeat threat targets at standoff. It will provide manned and unmanned aircraft capabilities to operate dispersed as part of the larger collaborative lethality network or as autonomous contributors for reconnaissance, surveillance, and target acquisition (RSTA). ***FY 2023 Plans:*** Transition products to enable autonomous operations for RSTA missions using 5 or more Air Launched Effects (ALE) collaborating under a single human supervisor while operating in contested environments. Identify candidate Science and Technology (S&T) products and integrate and align them to the Program Manager's (PM) Unmanned Aerial Systems (UAS) Family of Systems Architecture and Requirements Specification for ALE, Gray Eagle and Scalable Control Interface (SCI) Programs of Record. Analyze, test and integrate ALE S&T autonomy software and platform components to meet PM's UAS Requirements Specification for ALE. Develop an Integration and Test Plan to standardize approach and metrics to integrate ALE S&T components aligned to Abbreviated- Capability Development Document (A-CDD) for ALE and ALE Use Cases. Perform flight test risk reduction efforts of S&T autonomy software and control interfaces in operationally relevant environments against pacing threats. Perform communications testing to determine communications waveforms, link budgets and other requirements to support the autonomy and control interfaces. Integrate into the Army network through integration activities and Project Convergence 21. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:***	-	12.236	33.167

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding increase in FY 2024 due to completing first prototype builds and performing first live air testing including all required safety releases and flight requirements.			
Title: Air Launched Effects (ALE) Off-board Survivability ***Description:*** This effort will develop a new variant of the ALE Family of Systems focused on protection of the manned helicopter fleet in contested environments. The effort will mature multispectral payloads that offload survivability and targeting functions from manned platforms. ***FY 2023 Plans:*** Implement multiple survivability and targeting payloads using off-board ALE platforms to relay critical information to manned systems for battlespace situational awareness and tactics execution. Complete system architecture development and optimization including required communications and artificial intelligence/machine learning-based data fusion backbone. Mature high payoff payload technologies that perform survivability and targeting functions in low-Size, Weight and Power (SWaP) packages suitable for off-board use and demonstrate payloads and associated tactics, techniques and procedures on test bed platform. Development air vehicle prototype including a digital twin for sizing and payload optimization analyses followed by SWaP-optimized integration of payloads to demonstrate performance and tactics in free flight test flights in operationally relevant environments. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funding represents planned lifecycle of effort and increased flight testing to reduce risk on payload performance.	-	27.489	32.307
Title: Tactical Analytics Architecture (TA2) ***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. ***FY 2023 Plans:*** Develop prototype software services that integrates COP data, information and knowledge-sharing across echelons and warfighting functions including Maneuver, Integrated Air and Missile Defense, Fires, Intel, Logistics, etc. Using emerging data	-	21.582	27.156

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
fabrics and processing frameworks, develop necessary application programming interfaces to demonstrate sharing of data, algorithms, and machine learning tools; and translate across different architectures and standards. Transition/mature emerging COP visualization services, and AI-enabled decision support tools being developed under Project Convergence. Incorporate real-time sensor updates for dynamic situation understanding pay-offs that include fast, accurate automated recommendations for target development, target selection, target/weapons pairing, synchronization of fires, air space and target de-confliction, route planning, automated integration of data services across warfighting functions, AI-enabled electronic warfare for assured interoperability between mission command and intelligence systems, to include tactical server and cloud hosted capability, with a focus on sensor to shooter and sustainment integration. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funding increase due to the need to conduct initial prototype testing of initial systems.			
Title: Tactical Navigation Warfare (NAVWAR) Plexus ***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. ***FY 2023 Plans:*** Will initiate modernization of the NAVWAR sensor interface for integration with data fusion algorithms. Will complete development of the heat map algorithms for displaying degraded and denied areas. Will integrate the heat map algorithms into Electronic Warfare (EW) software system to create the COP. Will also initiate interface integration of the field artillery system to the EW software system. ***FY 2024 Plans:***	-	8.267	13.402

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase in FY 2024 due to increase in scope of work and testing with transitions to PoRs.			
Title: Assured Navigation for Future Tactical Unmanned Aerial Systems (FTUAS) ***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. ***FY 2023 Plans:*** Initiate maturation of low altitude vision based navigation, and determine sensor requirements. Begin miniaturization of the prototype sensor package and processing module that will be designed, tested, and transitioned. Begin optimization of VBN algorithms for low-altitude applications. ***FY 2024 Plans:*** 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 increase is due to inclusion of first system prototype builds and flight testing.	-	5.492	7.774
Title: Common Hypersonic Glide Body (CHGB) Seeker Integration ***Description:*** 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,	-	5.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 Plans:*** Will integrate sensor hardware, update flight software, and integrate capability into weapon control and mission planning software and tools. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** CHGB Seeker Integration TMI funding provided for FY23 only.			
Title: Reconfigurable Aperture Precision Targeting Radar (RAPTR) for Vehicle and Dismount Exploitation Radar (VADER) (RADER) ***Description:*** 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. ***FY 2023 Plans:*** Initiate design and build of a dual band Active Electronically Scanned Array (AESA) to augment current surveillance radar range, accuracy and survivability. Initiate design and production of integrated circuit chip package optimized to address performance and manufacturing deficiencies from S&T chip spins. Initiate open architecture hardware and software upgrades to accommodate upgraded signal processor and enable sharable digital interface for multifunction aperture. Initiate long lead material procurement to support fabrication, unit test, and integration. ***FY 2024 Plans:*** 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:***	-	10.888	13.267

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY2024 program cost is consistent with project life cycle costs. Scope includes testing on FY23 prototype, iteration to the FY23 prototype and adding new radar modes.			
Title: Lethality Smart Systems (LSS) ***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). ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Begins effort in FY 2024 to conduct Soldier touch points and developmental test activities and early prototype development.	-	-	6.012
Title: Lightweight Polymers for Modern Small Caliber Apps - Ammo Casing Only ***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. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Begins effort in FY 2024 to survey, formulate and refine commercial polymers.	-	-	5.701
Title: Optical Threat Detection	-	-	9.743

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Begins effort in FY 2024 for design initiation, fabrication and assembly of prototype sensor system. .			
Title: Solid State High Power Microwave System (SS-HPM) ***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. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** New start effort in FY 2024 approved by the Technology Maturation Board.	-	-	9.329
Title: Collaborative Links for Integrated Fires (CLIF) ***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	-	-	9.474

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
capacity. The CLIF approach is modular and enables the rapid integration of new seeker and collaborative modalities to outpace emerging threats. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Begins effort in FY 2024 to conduct design trade studies of technology integration.			
Title: Multi-Network, Multi-Waveform Software Defined Radio ***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 provides hardware commonality across platforms. Prototypes will be evaluated supporting Army ground and air applications. The cited work is consistent with the Army Modernization Strategy. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Begins effort in FY 2024 for porting of multiple military communication waveforms.	-	-	10.667
Title: Consolidated prototype platform for Joint Common Artificial Intelligence / Autonomous Operations, Data architectures, and Power systems ***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. ***FY 2024 Plans:***	-	-	26.237

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Begins effort in FY 2024 for development of a common data fabric and communication system for remote platform ISR data			
Title: SBIR & STTR Adjustment ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	6.207	-
Accomplishments/Planned Programs Subtotals	47.723	170.050	281.314

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR & STTR Adjustment	TBD	Various : Various	-	-		6.207		-		-		-	0.000	6.207	-
		Subtotal	-	-		6.207		-		-		-	0.000	6.207	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Vision Augmented System (IVAS) for Air and Ground Vehicle Platforms	TBD	DEVCOM C5ISR : Fort. Belvoir, VA	-	-		-		7.851		-		7.851	0.000	7.851	-
IVAS - Design Platform Augmented Reality (AR) Architecture	TBD	C5ISR Fort Belvoir, VA; : TBD	1.473	3.548		0.403		-		-		-	0.000	5.424	-
IVAS - AR Architecture Implementation, Integration, and Fabrication	TBD	C5ISR Fort Belvoir, VA; : TBD	4.895	6.554		4.527		-		-		-	0.000	15.976	-
IVAS - Systems Engineering - Interfaces, Head Pose Tracking, Position, Navigation, Timing, Power	TBD	C5ISR Fort Belvoir, VA; : TBD	4.276	6.183		3.628		-		-		-	0.000	14.087	-
IVAS - Software Engineering - AR User Experiences	TBD	C5ISR Fort Belvoir, VA; : TBD	3.841	2.451		1.445		-		-		-	0.000	7.737	-
IVAS - Capability Demonstration	TBD	C5ISR Fort Belvoir, VA; : TBD	0.357	3.812		0.494		-		-		-	0.000	4.663	-
IVAS - Software/Hardware Integration - IVAS and Pilot / Crew Helmet Mounted Displays	TBD	C5ISR Fort Belvoir, VA; : TBD	0.758	3.496		4.273		-		-		-	0.000	8.527	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Universal 360 MDO Fire Control and SA Systems	TBD	DEVCOM C5ISR : Ft. Belvoir, VA	-	-		-		32.650		-		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	-
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		8.737		-		-		-	0.000	11.097	-
Anubis: COTS-based M-Code GPS Receiver	TBD	DEVCOM-ARL : TBD	-	10.599		20.908		16.490		-		16.490	0.000	47.997	-
Target Seeking - Extended Range (ER) Seeker (TS-ER)	TBD	PEO Ammo : Picatinny Arsenal, NJ	-	-		17.170		20.087		-		20.087	0.000	37.257	-
Autonomous Operations for Unmanned Aerial Systems (UAS)	TBD	DEVCOM AvMC : TBD	-	-		12.236		33.167		-		33.167	0.000	45.403	-
Air Launched Effects (ALE) Off-board Survivability	TBD	DEVCOM AvMC : TBD	-	-		27.489		32.307		-		32.307	0.000	59.796	-
Artificial Intelligence (AI) Enabled Operations / TA2	TBD	AFC : TBD	-	-		21.582		27.156		-		27.156	0.000	48.738	-
Tactical NAVWAR Plexus	TBD	DEVCOM C5ISRC : TBD	-	-		8.267		13.402		-		13.402	0.000	21.669	-
Assured NAV for FTUAS	TBD	TBD : TBD	-	-		5.492		7.774		-		7.774	0.000	13.266	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Common Hypersonic Glide Body (CHGB) Seeker Integration	C/Various	RCCTO : Various : Various	-	-		5.000		-		-		-	0.000	5.000	-
Reconfigurable Aperture Precision Targeting Radar (RAPTR) for Vehicle and Dismount Exploitation Rada	TBD	DEVCOM C5ISR : TBD	-	-		10.888		13.267		-		13.267	0.000	24.155	-
Lethality Smart System (LSS)	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		-		6.012		-		6.012	0.000	6.012	-
Lightweight Polymers for Modern Small Caliber Apps	TBD	DEVCOM ARL : TBD	-	-		-		5.701		-		5.701	0.000	5.701	-
Optical Threat Detection	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		-		9.743		-		9.743	0.000	9.743	-
Solid State High Power Microwave System	TBD	RCCTO : Various	-	-		-		9.329		-		9.329	0.000	9.329	-
Collaborative Links for Integrated Fires	TBD	PEO Ammo : Picatinny Arsenal, NJ	-	-		-		9.474		-		9.474	0.000	9.474	-
Multinetwork - 5G Capability	TBD	DEVCOM C5ISR : Fort Belvoir, VA	-	-		-		10.667		-		10.667	0.000	10.667	-
Prototype Platform for Common Data architectures, and Power Systems	TBD	TBD : TBD	-	-		-		26.237		-		26.237	0.000	26.237	-
		Subtotal	15.600	47.723		163.843		281.314		-		281.314	0.000	508.480	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.600	47.723		170.050		281.314		-		281.314	0.000	514.687	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

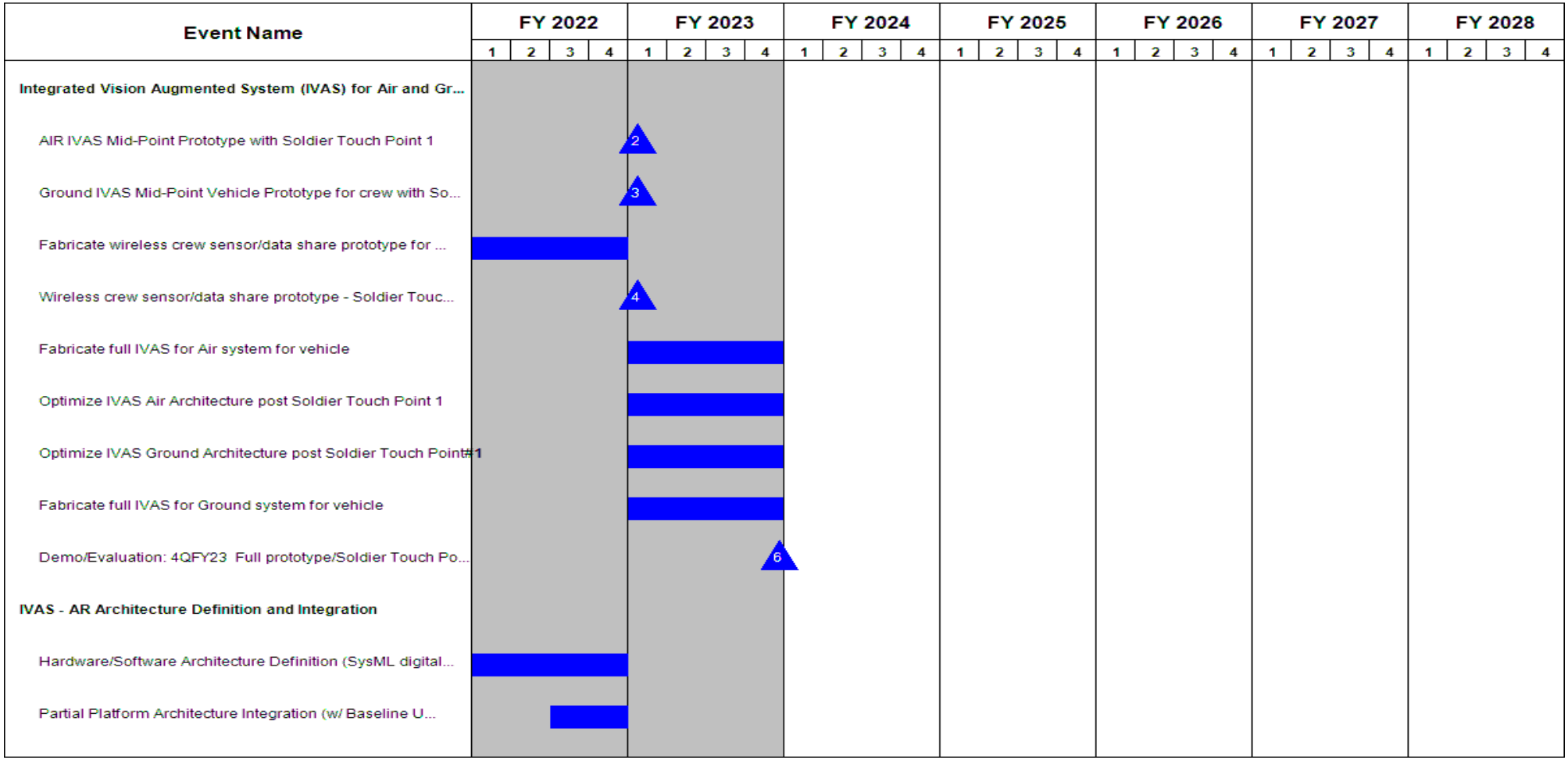


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

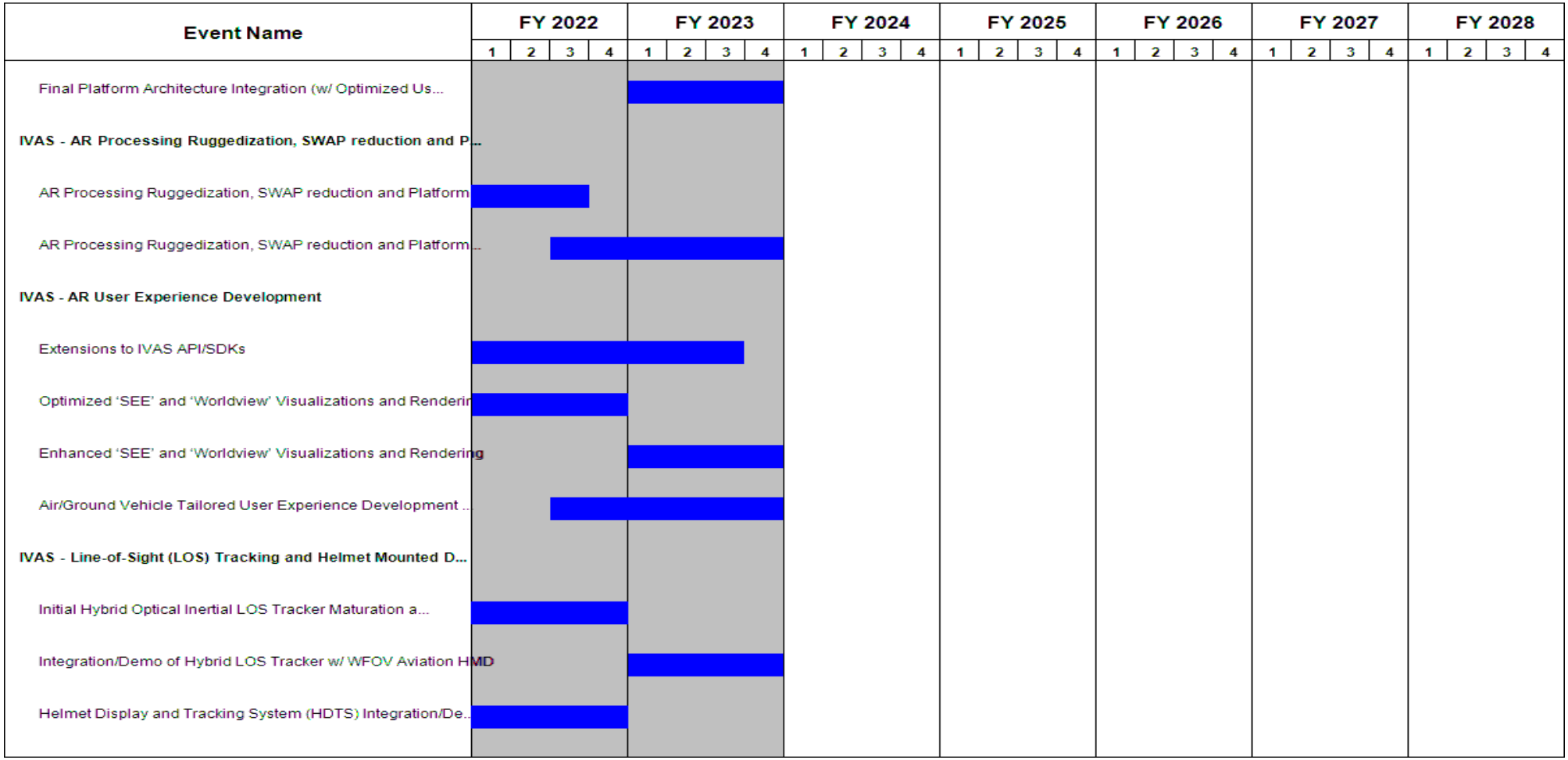


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

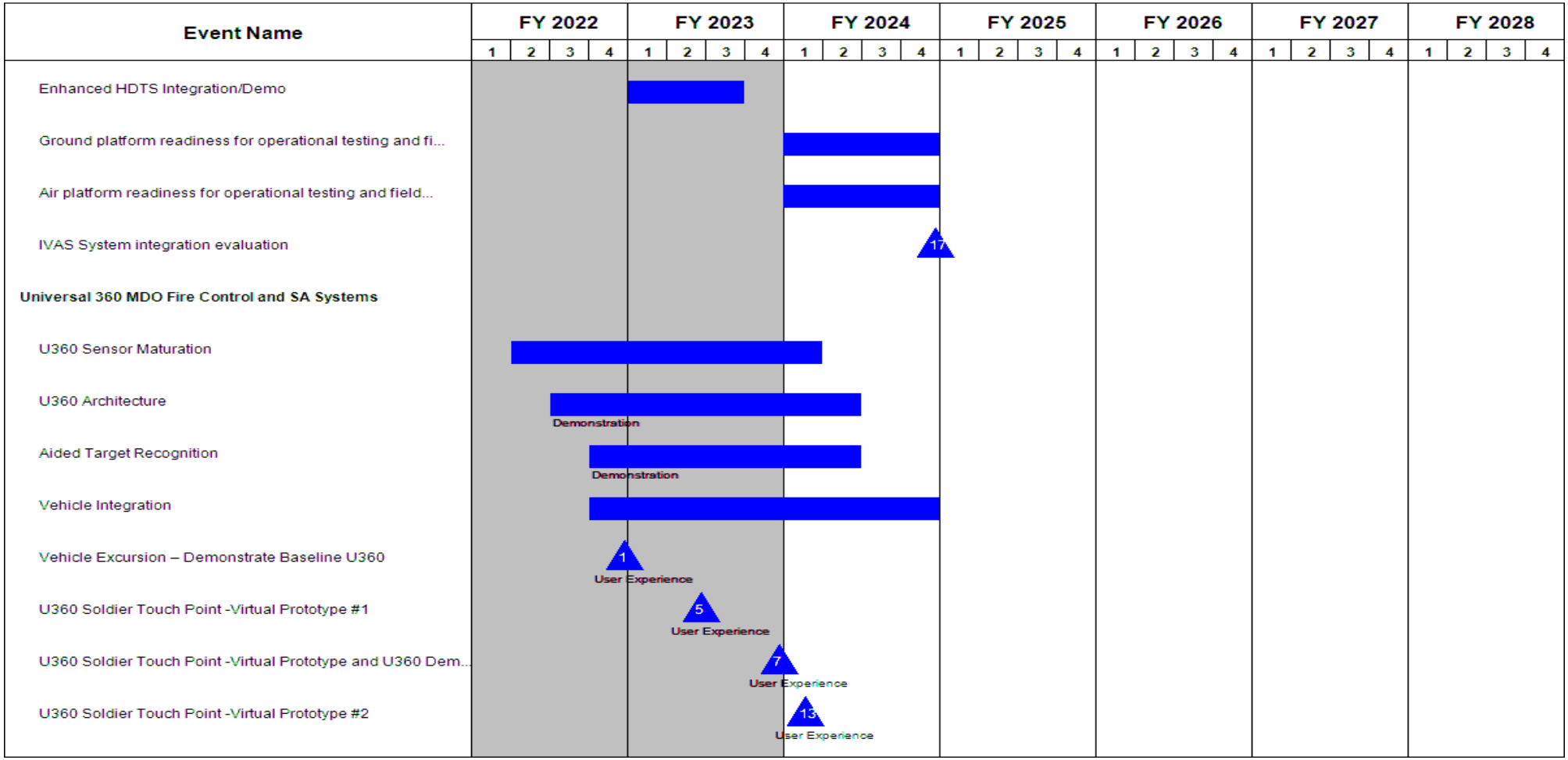


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

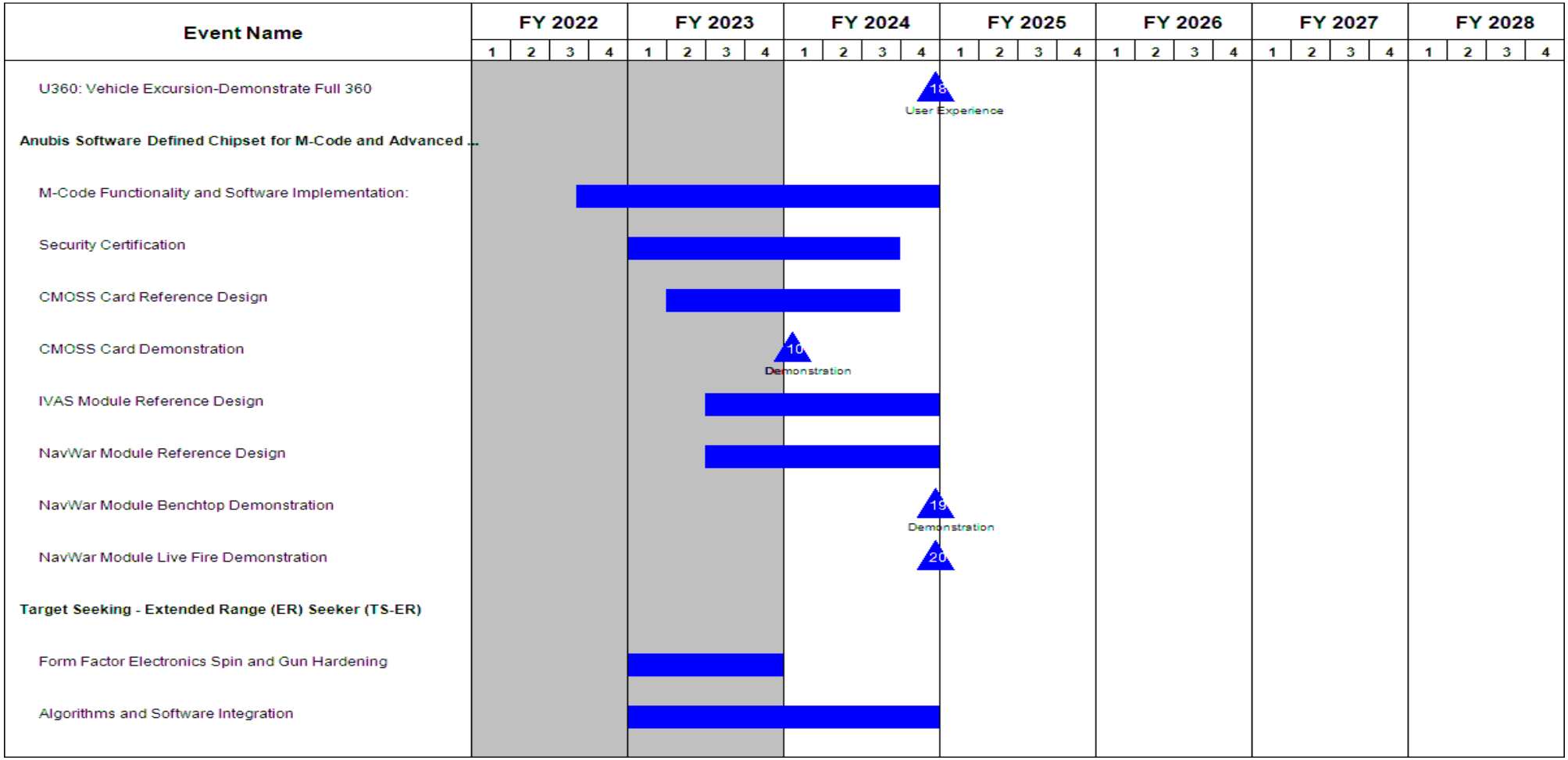


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

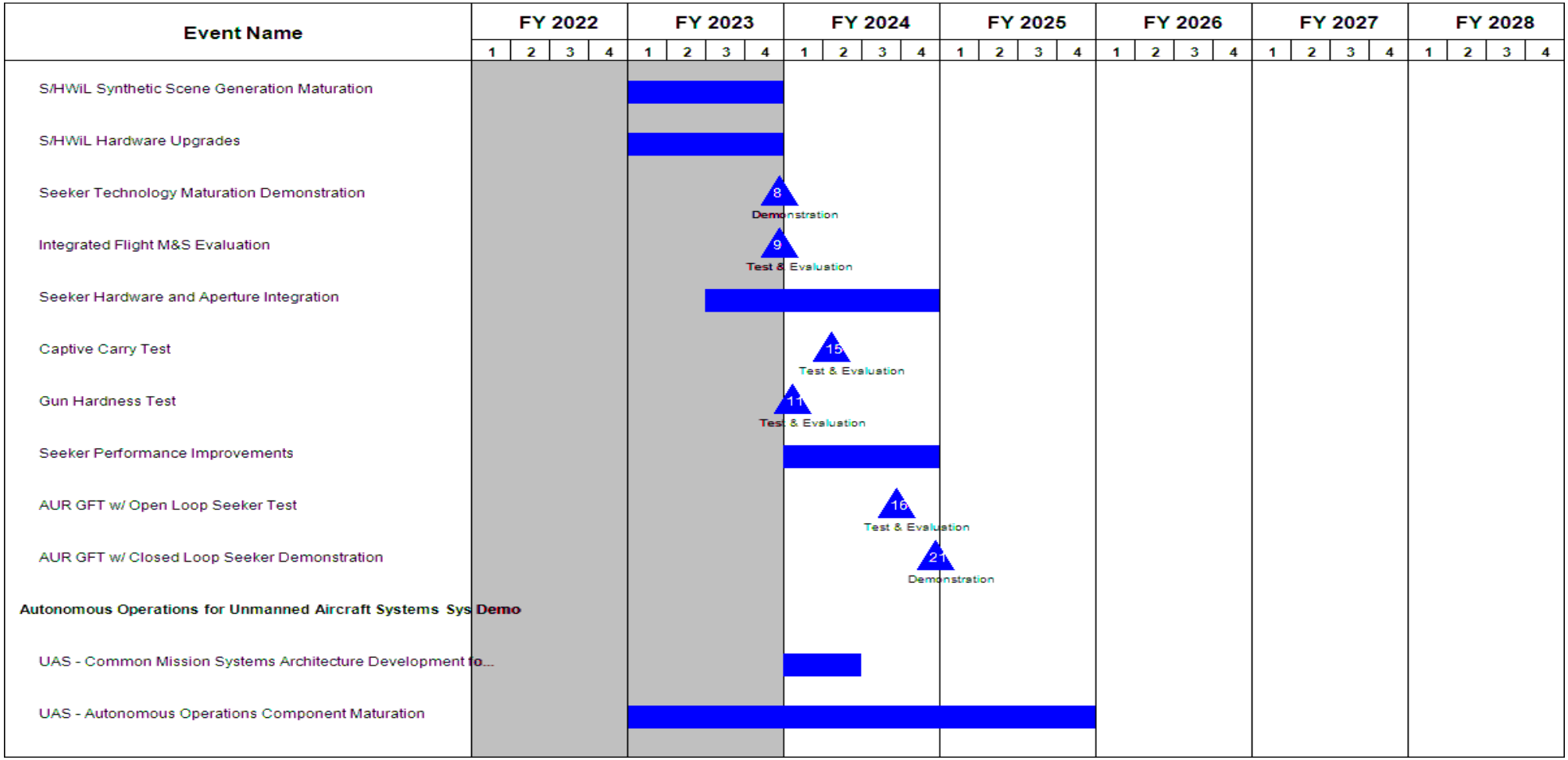


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

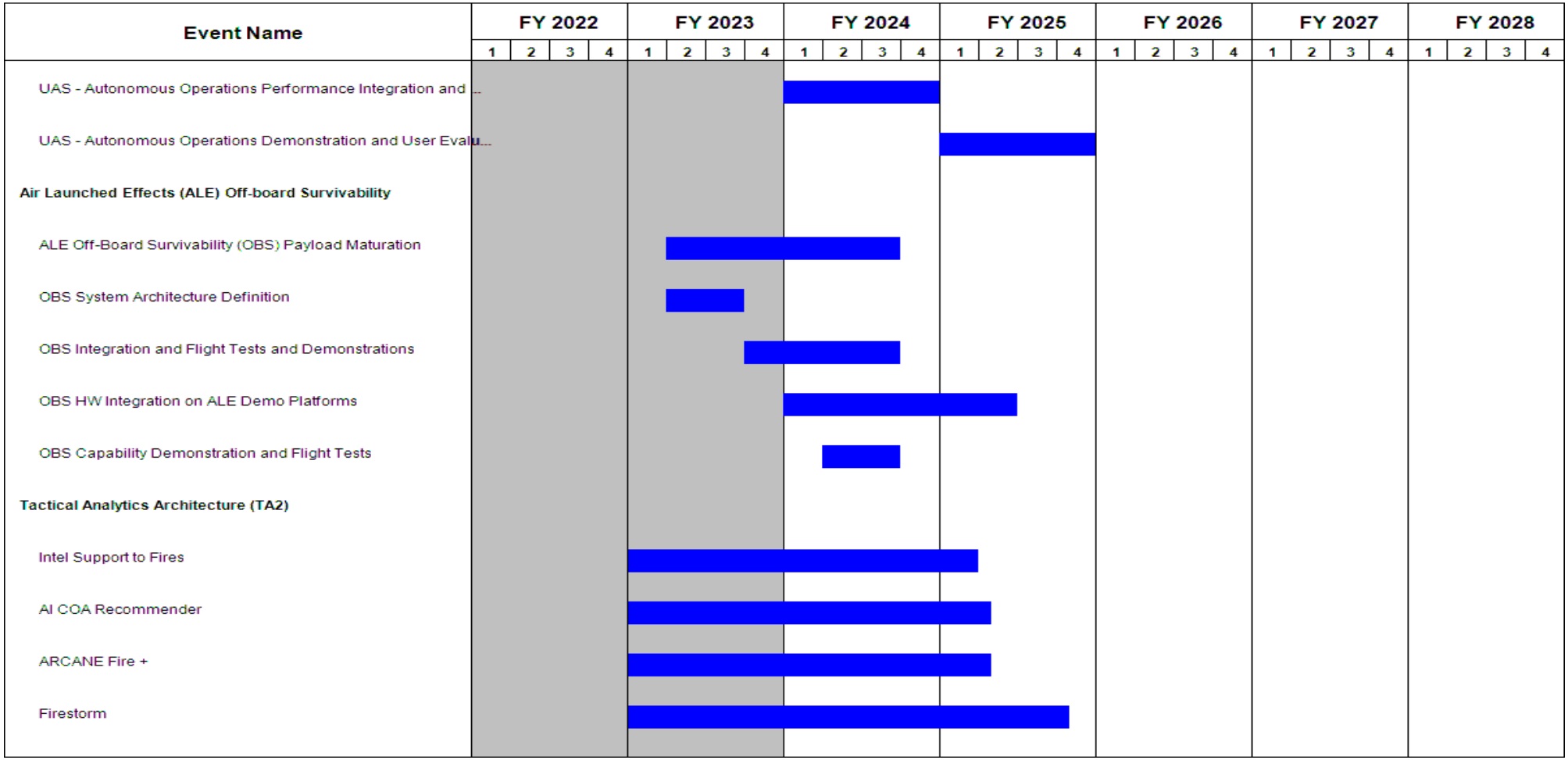


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

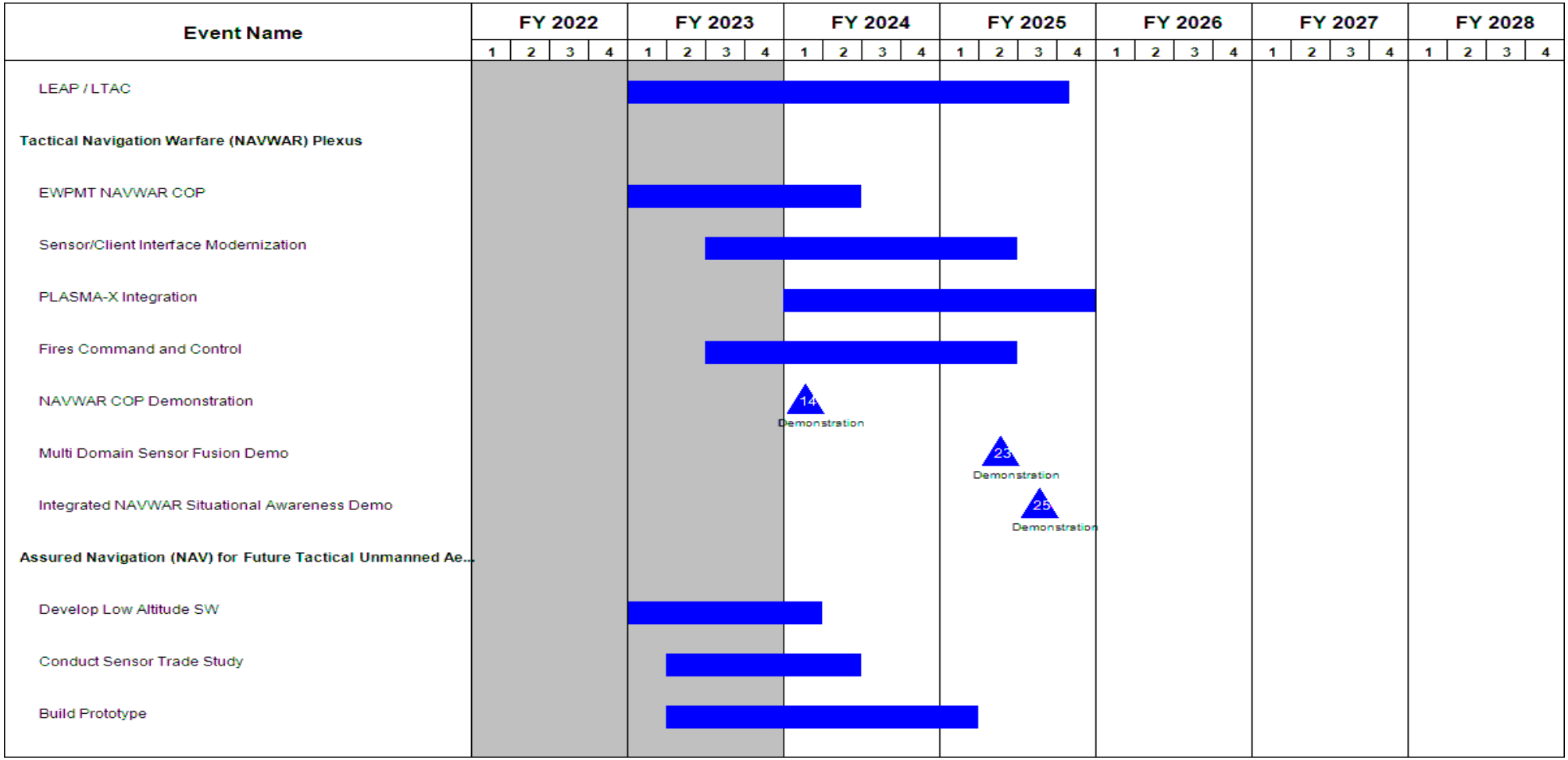


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

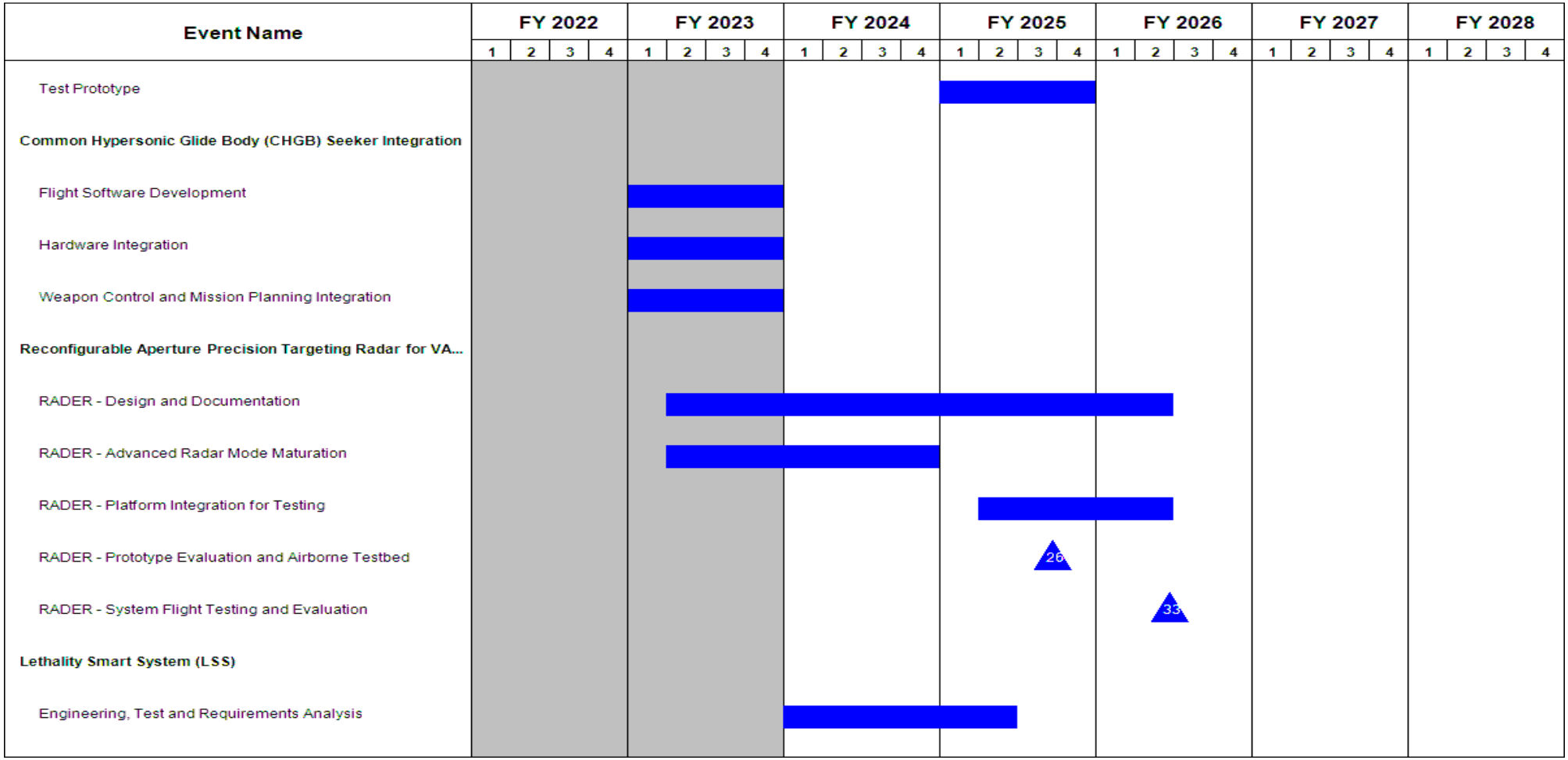


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

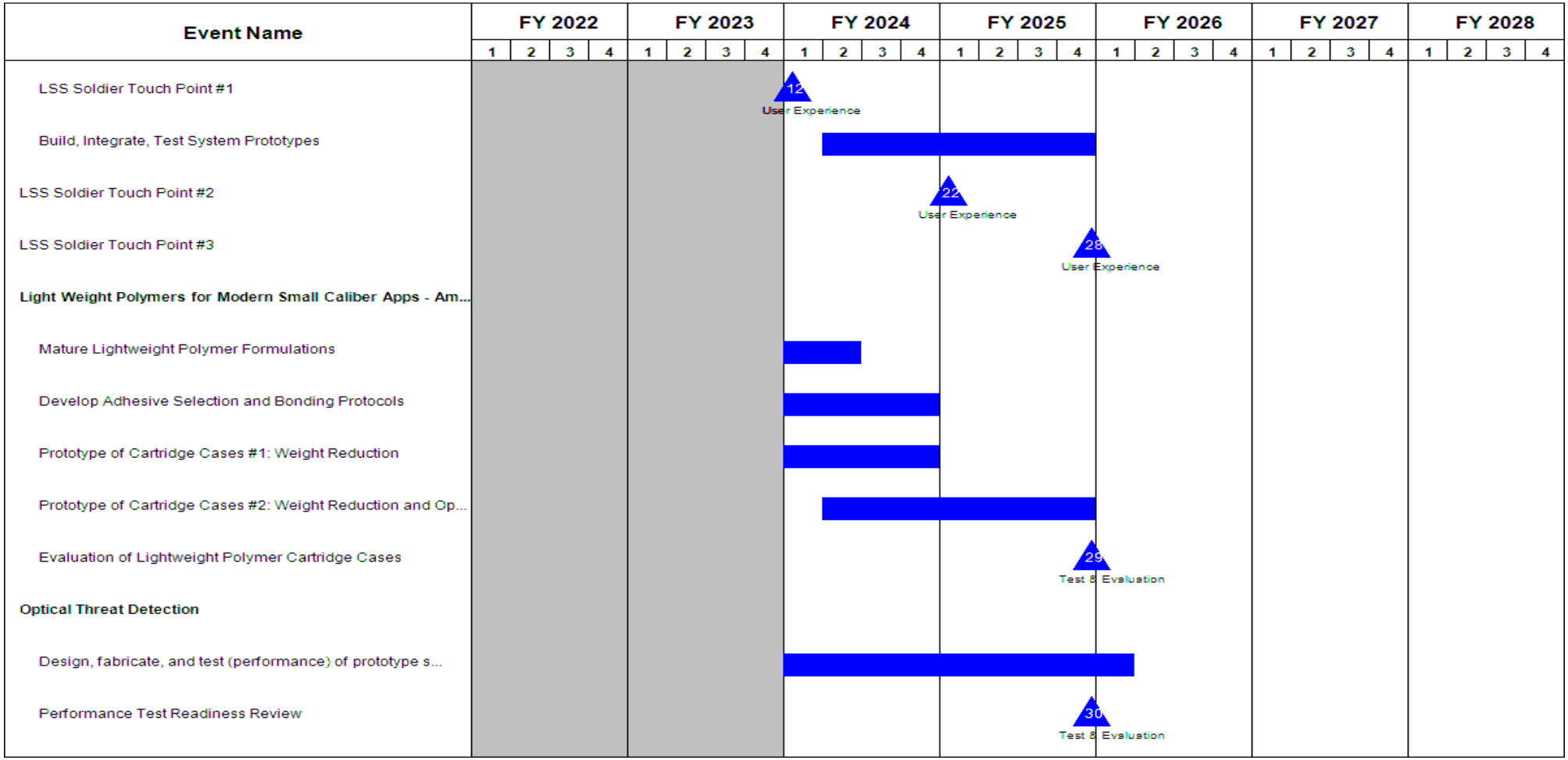


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

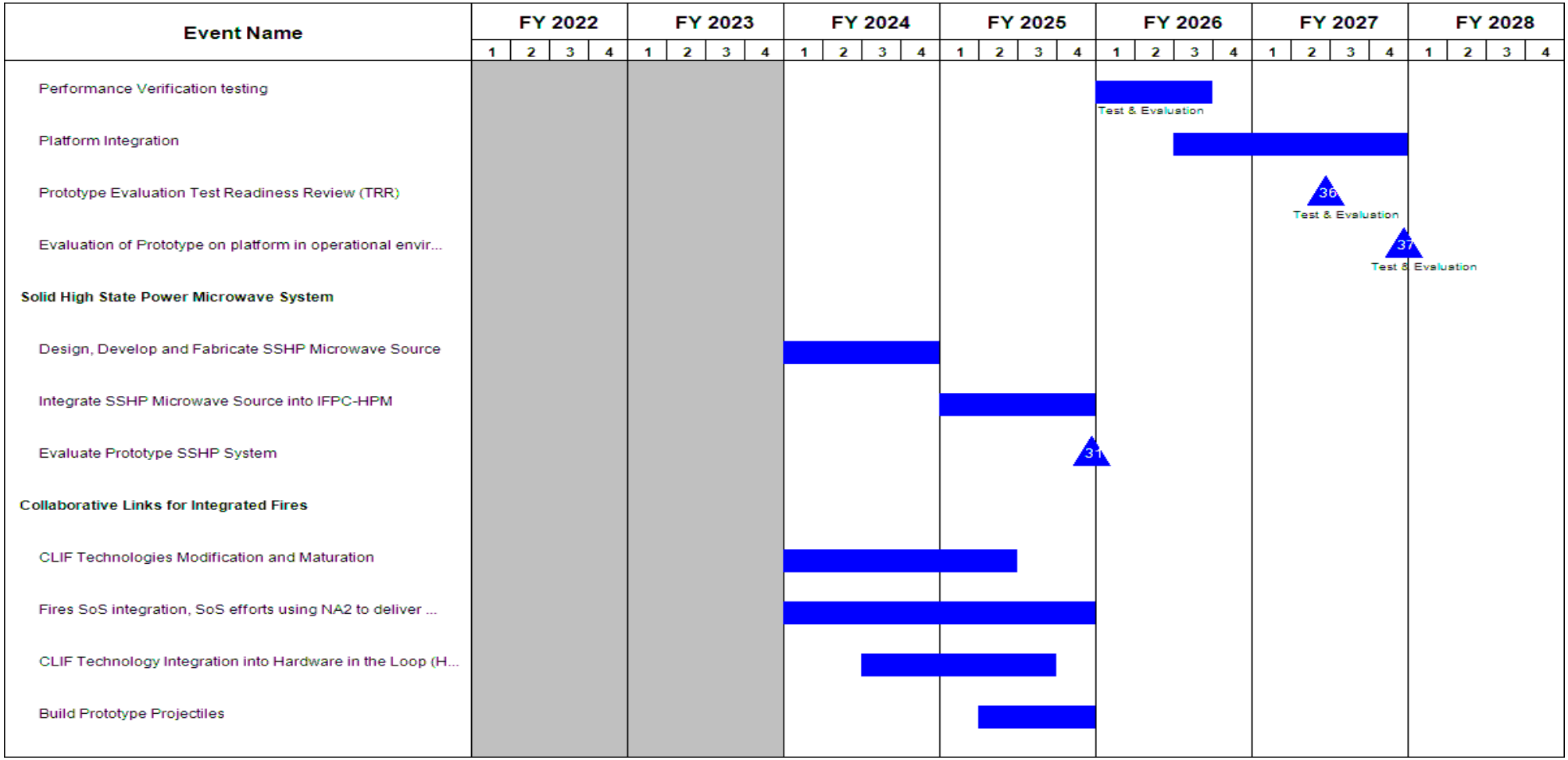


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

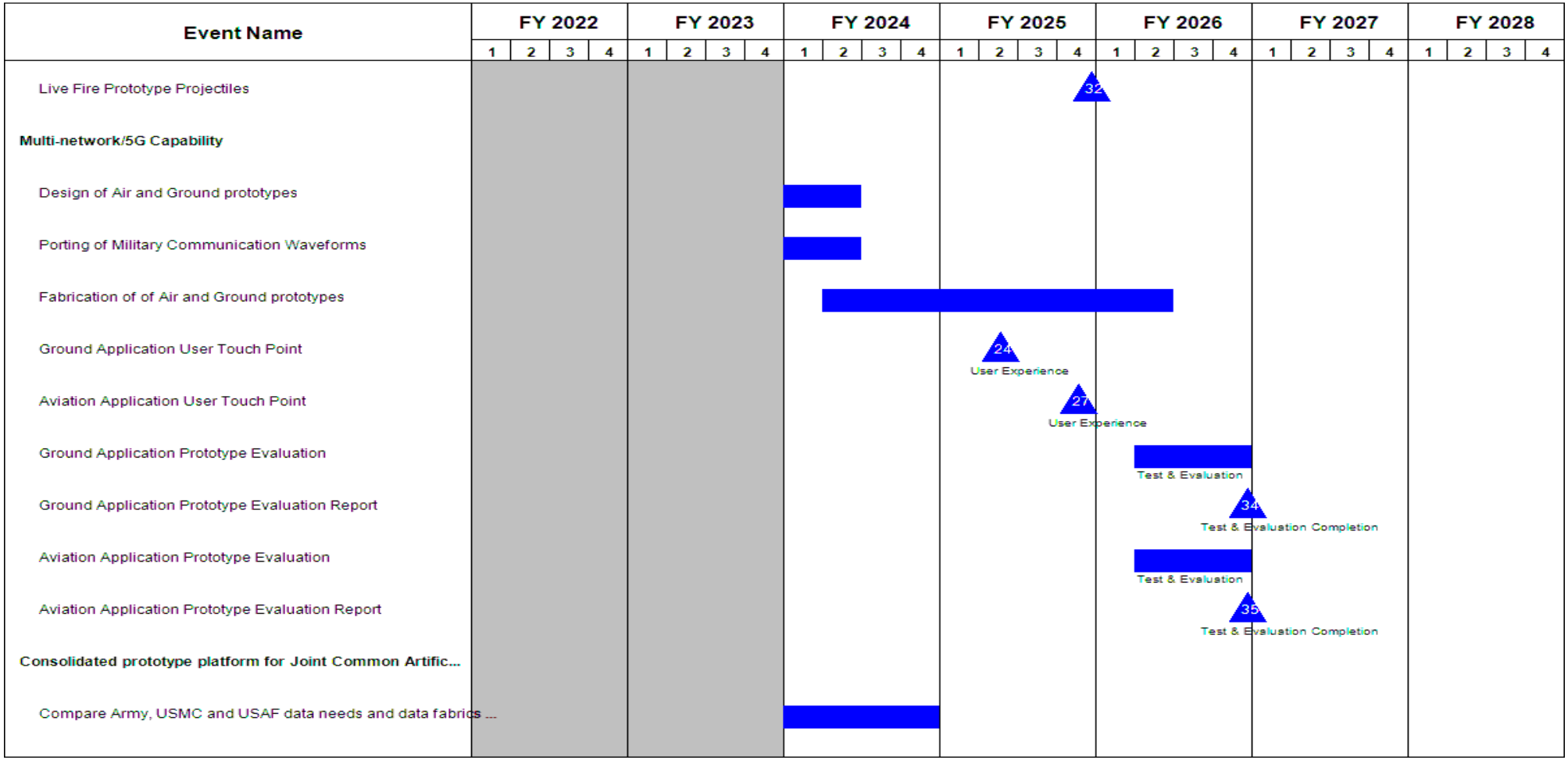


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

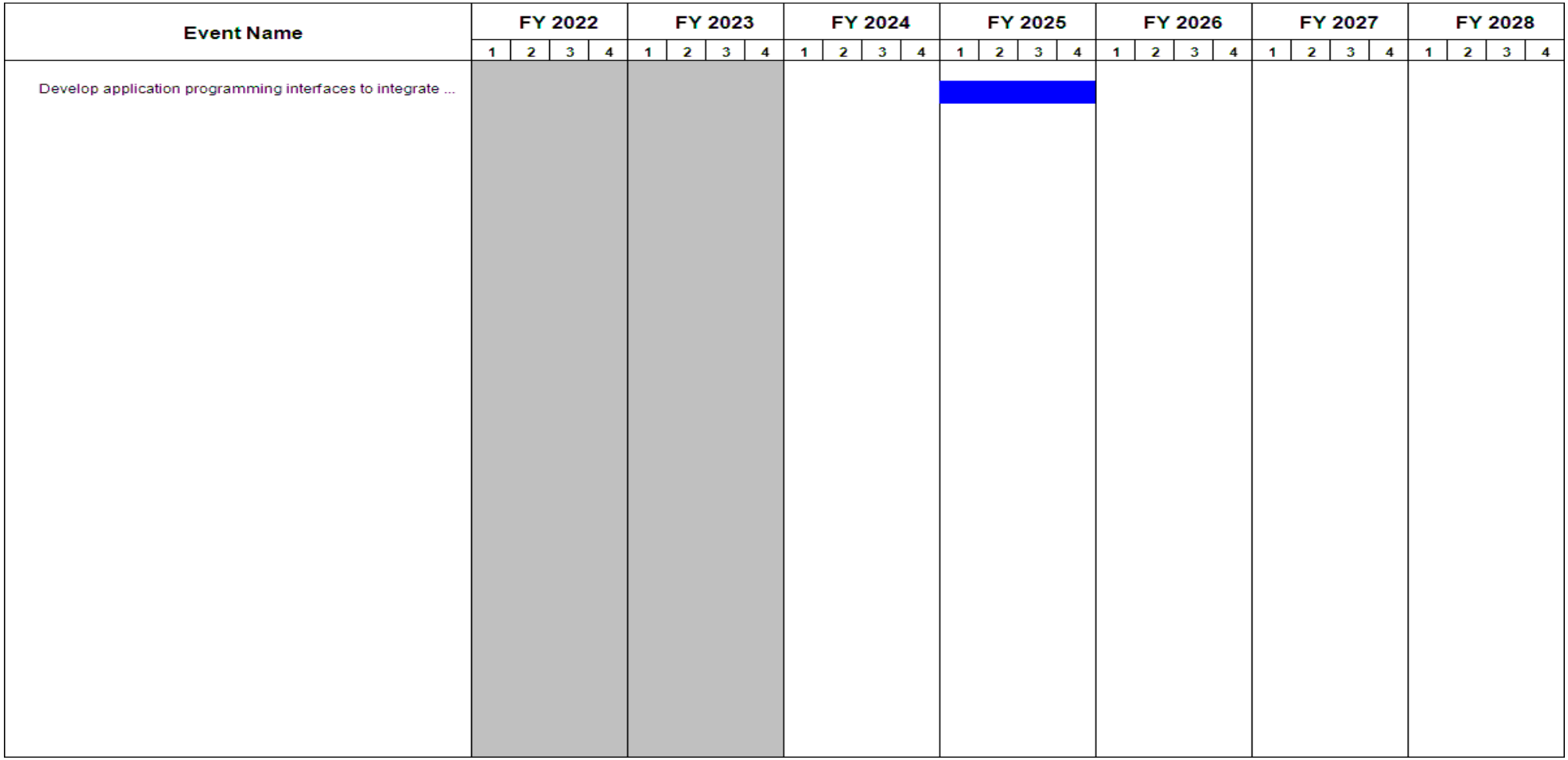


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

Schedule Details

	Start		End	
Events	**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

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**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

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**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 - Common Mission Systems Architecture Development for Autonomous Ops	1	2024	2	2024
UAS - Autonomous Operations Component Maturation	1	2023	4	2025
UAS - Autonomous Operations Performance Integration and Demonstration	1	2024	4	2024
UAS - Autonomous Operations Demonstration and User Evaluations	1	2025	4	2025
Air Launched Effects (ALE) Off-board Survivability	1	2023	3	2024
ALE Off-Board Survivability (OBS) Payload Maturation	2	2023	3	2024
OBS System Architecture Definition	2	2023	3	2023
OBS Integration and Flight Tests and Demonstrations	4	2023	3	2024
OBS HW Integration on ALE Demo Platforms	1	2024	2	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
OBS Capability Demonstration and Flight Tests	2	2024	3	2024
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	2	2025
Firestorm	1	2023	4	2025
LEAP / LTAC	1	2023	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	1	2024	1	2024
Multi Domain Sensor Fusion Demo	2	2025	2	2025
Integrated NAVWAR Situational Awareness Demo	3	2025	3	2025
Assured Navigation (NAV) for Future Tactical Unmanned Aerial Systems (FTUAS)	1	2023	4	2025
Develop Low Altitude SW	1	2023	1	2024
Conduct Sensor Trade Study	2	2023	2	2024
Build Prototype	2	2023	1	2025
Test Prototype	1	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

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RADER - Design and Documentation	2	2023	2	2026
RADER - Advanced Radar Mode Maturation	2	2023	4	2024
RADER - Platform Integration for Testing	2	2025	2	2026
RADER - Prototype Evaluation and Airborne Testbed	3	2025	3	2025
RADER - 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	1	2024	1	2024
Build, Integrate, Test System Prototypes	2	2024	4	2025
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	2	2024
Develop Adhesive Selection and Bonding Protocols	1	2024	4	2024
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
Design, fabricate, and test (performance) of prototype system	1	2024	1	2026
Performance Test Readiness Review	4	2025	4	2025
Performance Verification testing	1	2026	3	2026
Platform Integration	3	2026	4	2027
Prototype Evaluation Test Readiness Review (TRR)	2	2027	2	2027
Evaluation of Prototype on platform in operational environment	4	2027	4	2027
Solid High State Power Microwave System	1	2024	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX3 / *Technology Maturation Initiatives*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
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	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	2	2025	4	2025
Live Fire Prototype Projectiles	4	2025	4	2025
Multi-network/5G Capability	1	2024	4	2026
Design of Air and Ground prototypes	1	2024	2	2024
Porting of Military Communication Waveforms	1	2024	2	2024
Fabrication of of Air and Ground prototypes	2	2024	2	2026
Ground Application User Touch Point	2	2025	2	2025
Aviation Application User Touch Point	4	2025	4	2025
Ground Application Prototype Evaluation	2	2026	4	2026
Ground Application Prototype Evaluation Report	4	2026	4	2026
Aviation Application Prototype Evaluation	2	2026	4	2026
Aviation Application Prototype Evaluation Report	4	2026	4	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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX5 / *Next Generation Close Combat Missile*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
AX5: *Next Generation Close Combat Missile*	-	0.482	-	-	-	-	-	-	-	-	0.000	0.482
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project demonstrates a prototype close combat missile with a multi-pulse, boost-sustain flight propulsion system providing extended range and decreased time of flight. Activities mature proof-of-principle hardware into an integrated tactical-representative design, and demonstrate a prototype missile with lethality overmatch of emerging threats.

Work in this PE complements PE 0603462A (Next Generation Combat Vehicle Advanced Technology).

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 2022	FY 2023	FY 2024
Title: Next Generation Close Combat Missile	0.482	-	-
Description: This effort demonstrates a prototype close combat missile with a multi-pulse, boost-sustain flight propulsion system providing extended range and decreased time of flight.			
Accomplishments/Planned Programs Subtotals	0.482	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX5 / *Next Generation Close Combat Missile*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Next Generation Close Combat Missile	Various	AvMC : Huntsville, AL	10.443	0.482		-		-		-		-	0.000	10.925	-
		Subtotal	10.443	0.482		-		-		-		-	0.000	10.925	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.443	0.482		-		-		-		-	0.000	10.925	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX5 / *Next Generation Close Combat Missile*

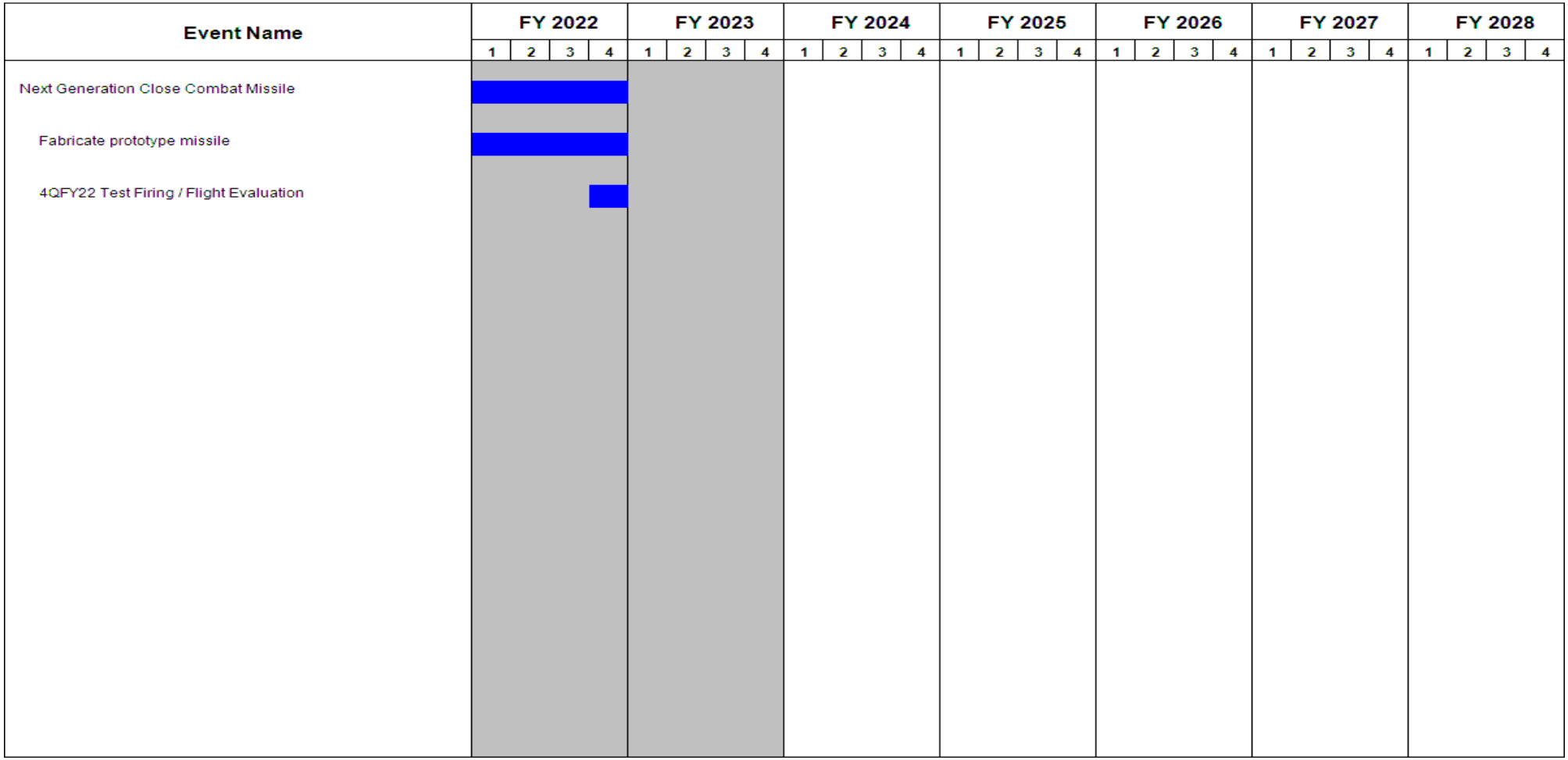


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX5 / *Next Generation Close Combat Missile*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Next Generation Close Combat Missile	1	2019	4	2022
Fabricate prototype missile	1	2022	4	2022
4QFY22 Test Firing / Flight Evaluation	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
AX8: *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	-	23.799	23.407	-	-	-	-	-	-	-	0.000	47.206
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 2022	FY 2023	FY 2024
Title: Advanced Targeting and Lethality Automated System (ATLAS)	23.799	22.553	-
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.			
FY 2023 Plans: Integrate and demonstrate ATLAS aided target acquisition capabilities from a ground vehicle while on-the-move in complex scenarios. Mature aided target acquisition algorithms and threat training data sets to improve target detection and recognition performance against real targets. Embed real-time algorithms into integrated, ruggedized processing approaches optimized for			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX8 / *Adv Leth and Accuracy Sys for Med Caliber (ALAS-MC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
next generation digital sensors and integration on to ground combat platforms. Finalize interface control documentation updates for the sensor and aided targeting algorithm modules. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Effort ends in FY 2023.			
Title: SBIR & STTR Adjustment ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.854	-
Accomplishments/Planned Programs Subtotals	23.799	23.407	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR & STTR Adjustment	TBD	Various : Various	-	-		0.854		-		-		-	0.000	0.854	-
		Subtotal	-	-		0.854		-		-		-	0.000	0.854	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATLAS: Artificial Intelligence/Machine Learning Development	TBD	CERDEC : Fort Belvoir, VA	6.191	23.799		-		-		-		-	0.000	29.990	-
ATLAS: Vehicle Integration and Test	TBD	C5ISR Ft. Belvoir : TBD	2.933	-		1.305		-		-		-	0.000	4.238	-
ATLAS: System Design	TBD	C5ISR Ft. Belvoir VA : TBD	-	-		5.635		-		-		-	0.000	5.635	-
ATLAS: Artificial Intelligence/Machine Learning Development	TBD	C5ISR Ft. Belvoir VA : TBD	4.400	-		7.187		-		-		-	0.000	11.587	-
ATLAS: Data Collection and Labeling	TBD	C5ISR Ft. Belvoir VA : TBD	1.100	-		2.364		-		-		-	0.000	3.464	-
ATLAS: Synthetic Imagery Development and Perception Studies	TBD	C5ISR Ft. Belvoir VA : TBD	0.600	-		1.411		-		-		-	0.000	2.011	-
ATLAS: Processor Integration and Test	TBD	C5ISR Ft. Belvoir VA : TBD	1.900	-		4.651		-		-		-	0.000	6.551	-
		Subtotal	17.124	23.799		22.553		-		-		-	0.000	63.476	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.124	23.799		23.407		-		-		-	0.000	64.330	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*

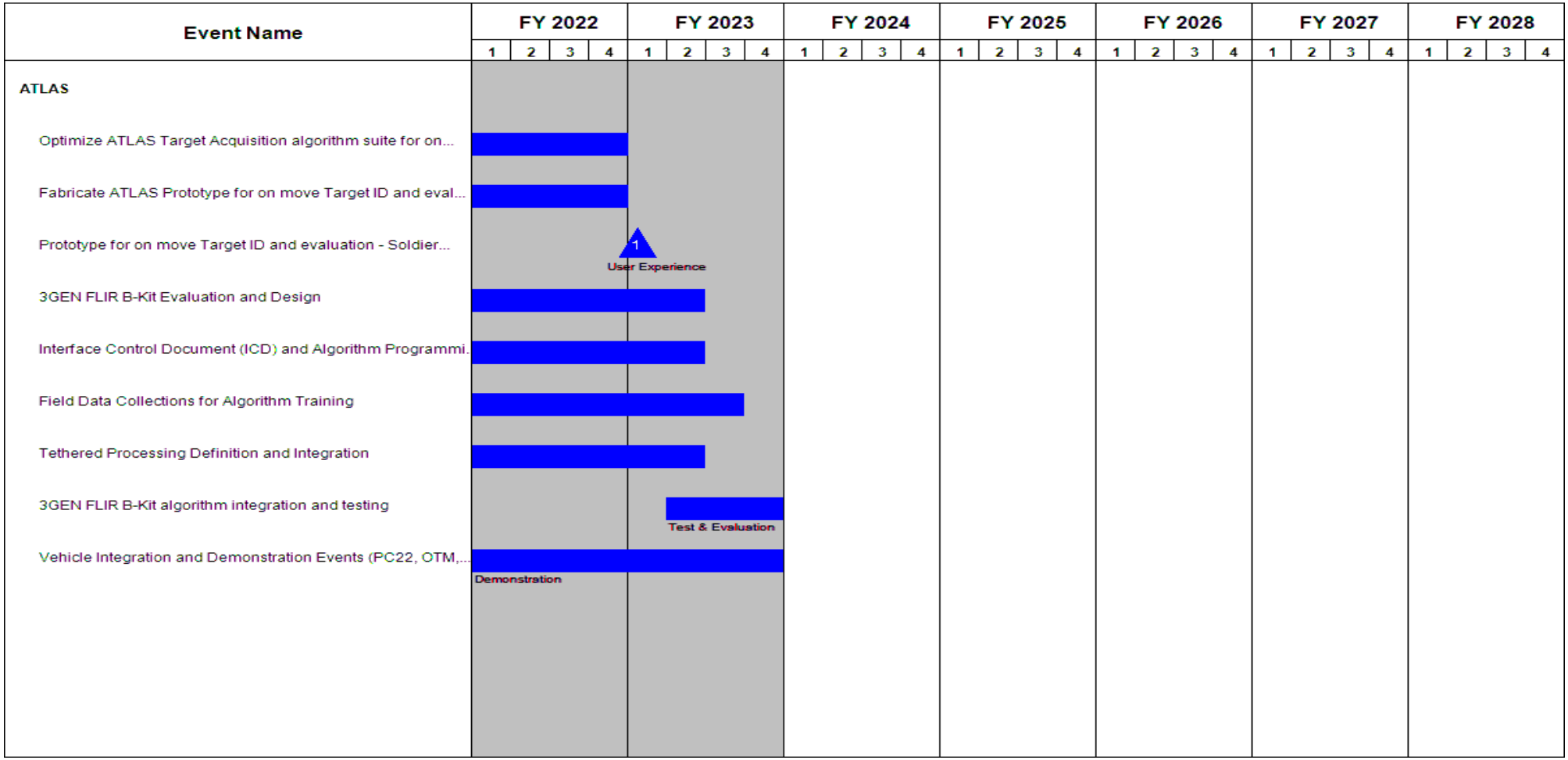


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX8 / *Adv Leth and Accuracy Sys for Med Calber (ALAS-MC)*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AX9 / *Adv Mobility Experimental Prototype Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
AX9: *Adv Mobility Experimental Prototype Adv Tech*	-	12.044	15.234	-	-	-	-	-	-	-	0.000	27.278
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 2022	FY 2023	FY 2024
Title: Advanced Mobility Experimental Prototype	12.044	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.			
FY 2023 Plans: Develop, mature and integrate control systems, air induction and filtration, exhaust system, cooling, final drives, and controls into the AMEP experimental prototype. Integrate higher-capacity Advanced Combat Engine and Advanced Combat Transmission into a medium weight-class combat vehicle for performance demonstration. Integrate breech automation, autoloader magazine, and			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
transfer mechanism with fire control. Mature and optimize both hardware and software. Integrate and demonstrate advances in ammunition handling systems and armament automation to evaluate system performance for transition of materiel solutions to Abrams upgrade, next generation main battle tank, and robotic combat vehicle programs of record. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Effort ends in FY 2023.			
Title: SBIR & STTR Adjustment ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.556	-
Accomplishments/Planned Programs Subtotals	12.044	15.234	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR & STTR Adjustment	TBD	Various : Various	-	-		0.556		-		-		-	0.000	0.556	-
		Subtotal	-	-		0.556		-		-		-	0.000	0.556	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design and Integration of Components	C/Various	GVSC : Warren, MI	7.009	4.818		-		-		-		-	5.000	16.827	-
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	12.798	12.044		14.678		-		-		-	10.000	49.520	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.798	12.044		15.234		-		-		-	10.000	50.076	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

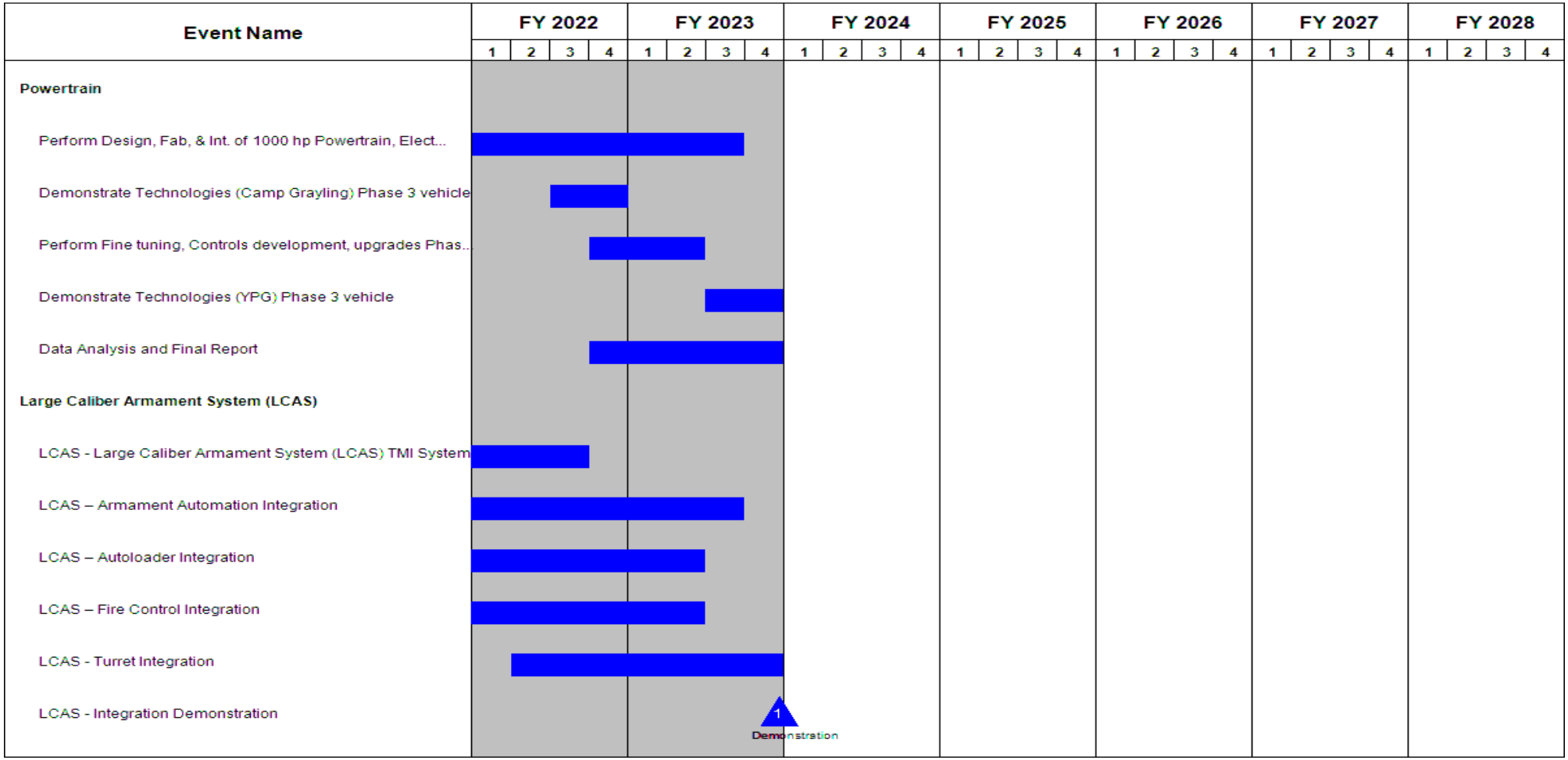


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AX9 / *Adv Mobility Experimental Prototype Adv Tech*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) AY2 / *Army Operational Fires*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
AY2: *Army Operational Fires*	-	36.451	11.051	-	-	-	-	-	-	-	0.000	47.502
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 2022	FY 2023	FY 2024
Title: Army Operational Fires	36.451	10.648	-
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. ***FY 2023 Plans:*** Complete and transition ruggedized All Up Round (AUR) Electronic Ground Support Equipment (EGSE). Implement updates and demonstrate Command and Control (C2) algorithms for the Rapid Trajectory Generation (RTG). Transition and field improved capability concurrent with the fielding of LRHW in FY23. Demonstrate Performance Improvements through Modeling and Simulation. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease reflects the completion of the Army Operational Fires Technology Maturation Initiative projects in FY23.			
Title: SBIR & STTR Adjustment	-	0.403	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638			
Accomplishments/Planned Programs Subtotals	36.451	11.051	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR & STTR Adjustment	TBD	Various : Various	-	-		0.403		-		-		-	0.000	0.403	-
		Subtotal	-	-		0.403		-		-		-	0.000	0.403	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Army Operational Fires	C/CPIF	Lockheed-Martin - Denver : Denver	35.458	36.451		10.648		-		-		-	52.700	135.257	-
		Subtotal	35.458	36.451		10.648		-		-		-	52.700	135.257	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	35.458	36.451		11.051		-		-		-	52.700	135.660	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

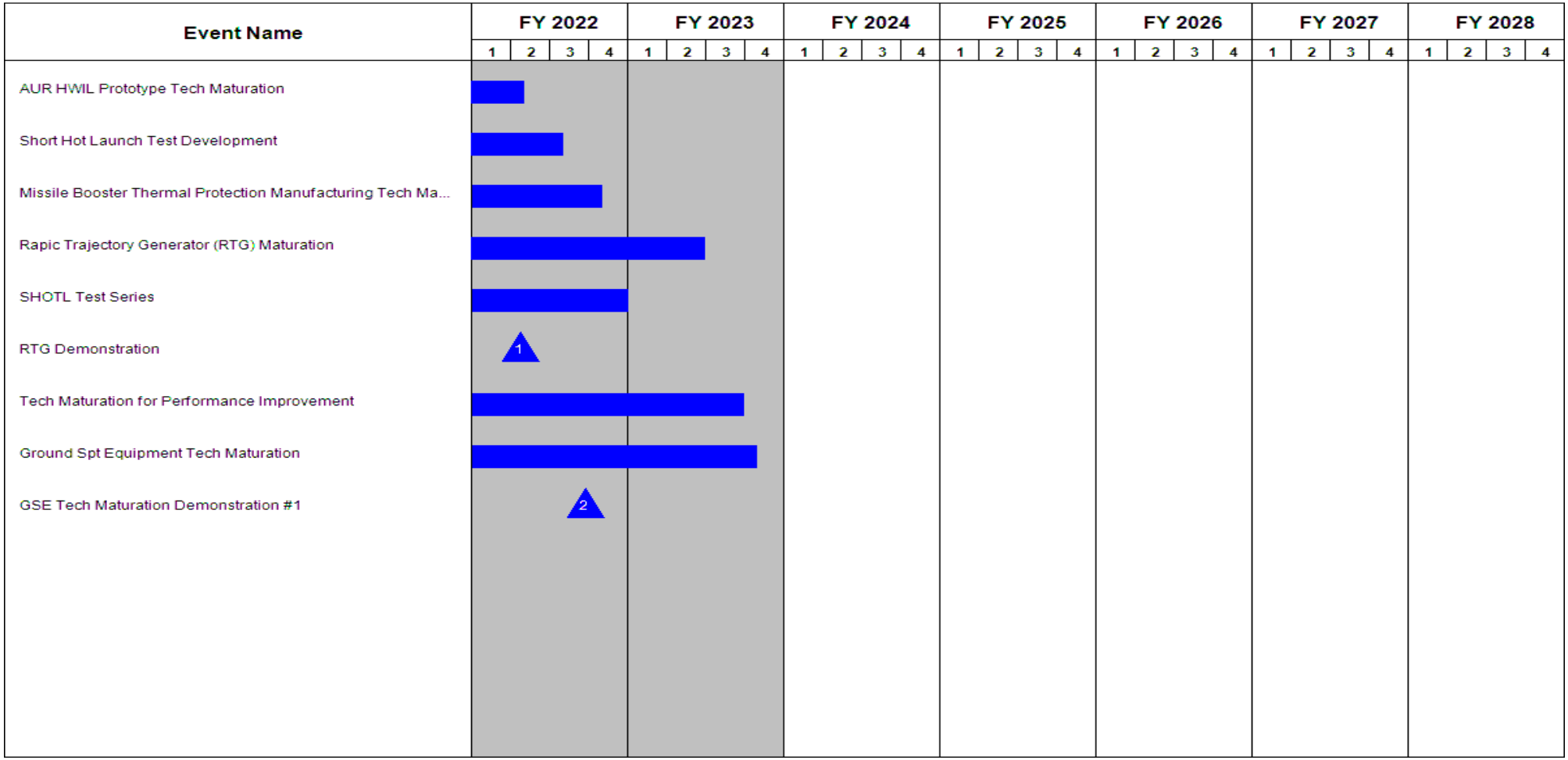


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** AY2 / *Army Operational Fires*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) CE4 / *Emerging Technology Initiatives Development*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CE4: *Emerging Technology Initiatives Development*	-	7.226	-	-	-	-	-	-	-	-	0.000	7.226
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Emerging Technology Initiative Development projects address out-of-cycle advanced technologies that have emerged from DoD labs and centers, industry partners, Program Executive Offices, and non-traditional vendors that potentially address existing Programs of Record requirements and require funding to expedite their transition for operational use. Funding will rapidly and efficiently prototype and demonstrate emerging technologies such as machine learning, human machine teaming, directed energy, hypersonics, advanced weapon systems, detection systems, and energy generation and storage.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Rapid Capabilities and Critical Technology Office (RCCTO) Innovation Funding	7.226	-	-
Description: Projects approved by the Army Rapid Capabilities and Critical Technology Office (RCCTO) Army Senior Leadership Board of Directors that address Army needs by integrating nontraditional innovators with the Army's research and development ecosystem and accelerating transition to rapid fielding of their technology. Innovative Funding will fund technical scouting, concept incubation, staged pilot evaluations, and prototype development in Army-wide disciplines through rigorous technical assessment, Soldier feedback, and mentorship. Technology focus areas include machine learning, artificial intelligence, human-machine teaming, directed energy, hypersonics, advanced weapon systems, detection systems, weapon systems cyber resiliency, advanced offensive and defensive cyber, multi-domain command and control, edge processing technologies, electronic warfare, sensor to shooter capabilities, autonomy & robotics, unmanned aerial and terrestrial sensors, resilient and open standard communications, advanced network operation tools, counter unmanned aerial systems, quantum computing, quantum sensing, advanced manned/unmanned aerial systems, and energy generation and storage. These efforts will provide strategic effects that address near-term and mid-term threats.			
Accomplishments/Planned Programs Subtotals	7.226	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Based on projects selected and approved, efforts leverage a variety of contract vehicles, including Other Transaction Authority Agreements to complete the projects.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *Technology Maturation Initiatives*	Project (Number/Name) CE4 / *Emerging Technology Initiatives Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RCCTO Innovation Funding	TBD	Various Activities : Various Locations	-	7.226		-		-		-		-	0.000	7.226	-
		Subtotal	-	7.226		-		-		-		-	0.000	7.226	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.226		-		-		-		-	0.000	7.226	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** CE4 / *Emerging Technology Initiatives Development*

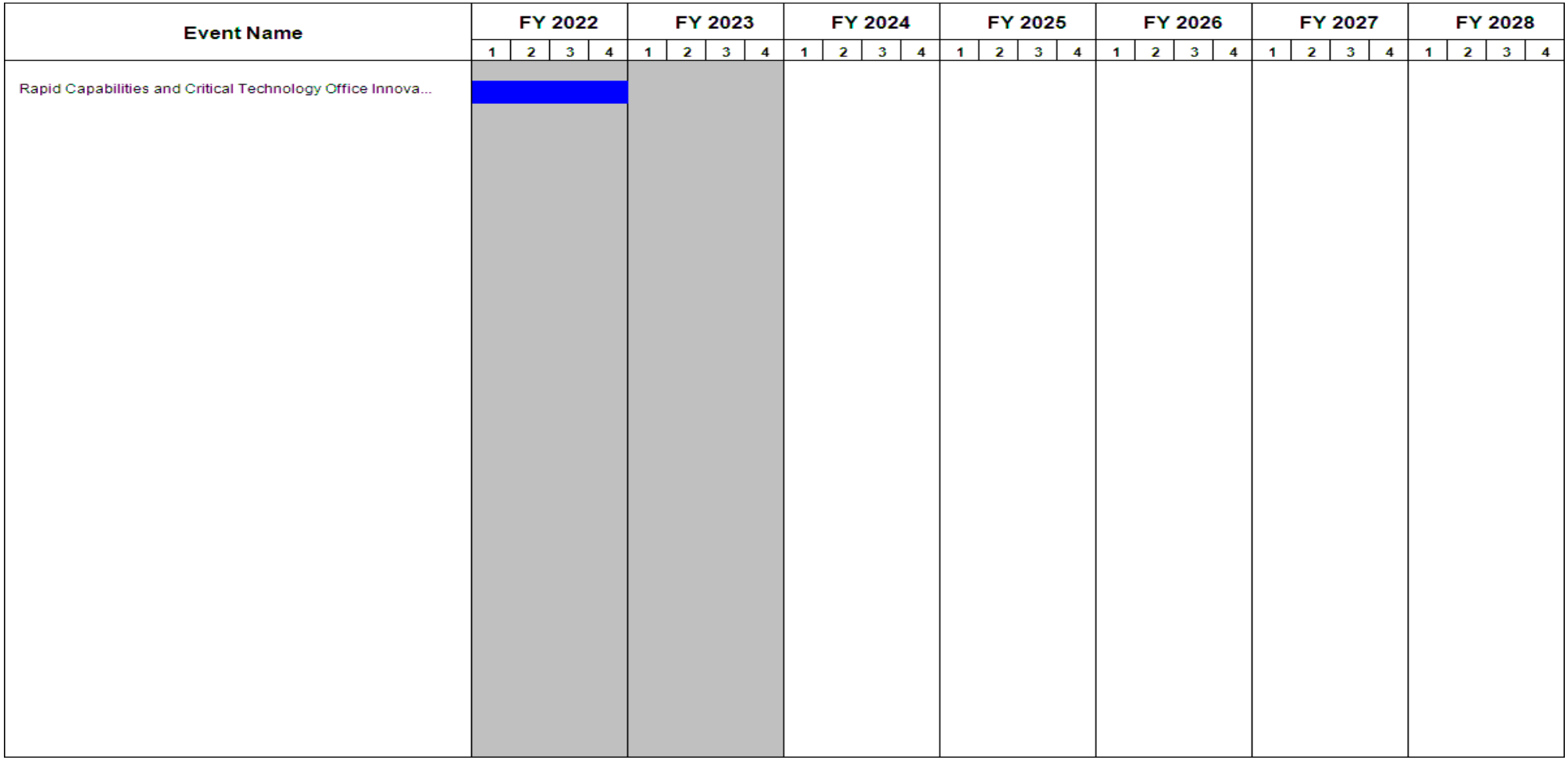


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *Technology Maturation Initiatives*	**Project (Number/Name)** CE4 / *Emerging Technology Initiatives Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Rapid Capabilities and Critical Technology Office Innovation Funding	1	2022	4	2022

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604117A *I Maneuver - Short Range Air Defense (M-SHORAD)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	37.939	274.838	281.239	-	281.239	331.362	324.855	422.392	455.779	Continuing	Continuing
CR9: *Directed Energy M-SHORAD / M-SHORAD Inc 2*	-	-	197.279	110.625	-	110.625	125.703	157.015	221.637	252.084	Continuing	Continuing
CS1: *M-SHORAD Inc 3*	-	-	67.196	160.426	-	160.426	195.469	152.605	190.546	193.372	Continuing	Continuing
FI4: *Maneuver - Short Range Air Defense (M-SHORAD)*	-	37.939	10.363	10.188	-	10.188	10.190	15.235	10.209	10.323	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.

(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 require the Inc. 1 air defense identification and defeat capabilities to counter FW, RW, and UAS threats.

(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. Provide a 20-kilowatt (kW) class laser capability integrated onto an Infantry Squad Vehicle to defeat Group 1 and 2 Unmanned Aerial Systems (UAS).

(CS1) Inc. 3 will provide a Next Generation Short Range Interceptor 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 Inc. 3 interceptor 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604117A *I Maneuver - Short Range Air Defense (M-SHORAD)*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	39.376	225.147	461.536	-	461.536
Current President's Budget	37.939	274.838	281.239	-	281.239
Total Adjustments	-1.437	49.691	-180.297	-	-180.297
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-70.309			
• Congressional Rescissions	-	-			
• Congressional Adds	-	120.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.437	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-180.297	-	-180.297

Change Summary Explanation

FY 2024 decrease of $180.297 million due to the reallocation of funds across the Air and Missile Defense portfolio.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR9: *Directed Energy M-SHORAD / M-SHORAD Inc 2*	-	-	197.279	110.625	-	110.625	125.703	157.015	221.637	252.084	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.

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. Developing the prototype system known as DE M-SHORAD which will transition to M-SHORAD Product Office in FY 2025 and become M-SHORAD Inc. 2.

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: DE M-SHORAD RCCTO Prototype Efforts	-	123.447	106.891
FY 2023 Plans: FY 2023 funds ($126.970 million) will continue building and integrating prototype vehicles for deliveries through FY 2024 and continue Contractor Logistic Support (CLS) for a prototype platoon.			
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 2023 to FY 2024 Increase/Decrease Statement: The decrease of funding represents progression from hardware purchase and integration to delivery of prototypes in FY 2024.			
Title: Army Multi-Purpose High Energy Laser (AMP-HEL)	-	58.513	-
FY 2023 Plans: The RCCTO will use the FY 2023 funds ($60.000 million) to build and integrate four (4) AMP-HEL prototypes with deliveries through FY 2024.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Decrease in funding from $60.000 million in FY 2023 to $0.000 million in FY 2024 is attributed to completion of prototype fabrication.			
Title: M-SHORAD Inc. 2 PEO MS Transition Efforts ***FY 2023 Plans:*** The M-SHORAD Product Office will use the FY 2023 funds ($10.309 million) to conduct a user assessment with the prototype platoon delivered in FY 2023 and to support transition team initiation of acquisition activities and contract documents to support a competitive production decision. ***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 2023 to FY 2024 Increase/Decrease Statement:*** The decrease in funding from $10.309 million in FY 2023 to $3.734 million in FY 2024 is due to the completion of User Assessment in FY 2023 to inform requirements development in FY 2024.	-	10.309	3.734
Title: DE MSHORAD SBIR/STTR ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	3.523	-
Title: AMP-HEL SBIR/STTR ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	1.487	-
Accomplishments/Planned Programs Subtotals	-	197.279	110.625

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

The Army Rapid Capabilities and Critical Technologies Office (RCCTO) is developing the prototype system known as DE M-SHORAD which will transition to the Program Executive Office Missiles and Space (PEO M&S) M-SHORAD Product Office in FY 2025 and become M-SHORAD Inc. 2. The RCCTO will utilize an Other Transaction Authority (OTA) contract to develop additional vehicle prototypes; the M-SHORAD Product Office will continue system development capitalizing on the RCCTO efforts and initiate future acquisition and contract documents.

Sensor/Weapon Component Effort: The M-SHORAD Inc 2 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Management	Various	Various : Huntsville, AL	-	-		10.509	Dec 2022	11.014	Dec 2023	-		11.014	Continuing	Continuing	-
SBIR/STTR	TBD	TBD : TBD	-	-		3.523		-		-		-	0.000	3.523	-
AMP-HEL Product Management	Various	Various : Various	-	-		1.570	Jun 2023	-		-		-	0.000	1.570	-
AMP-HEL SBIR/STTR Transfer	TBD	TBD : TBD	-	-		1.487		-		-		-	0.000	1.487	-
		Subtotal	-	-		17.089		11.014		-		11.014	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DE M-SHORAD Systems Development, Prototypes and Integration Inc. 2	C/CPFF	RCCTO OTA : TBD	-	-		91.073	Apr 2023	55.434	Dec 2023	-		55.434	Continuing	Continuing	-
DE M-SHORAD Software Support	MIPR	various : various	-	-		1.400	Oct 2022	-		-		-	0.000	1.400	-
DE M-SHORAD GFE	MIPR	PM Stryker : Warren, MI	-	-		10.922	Apr 2023	-		-		-	0.000	10.922	-
AMP-HEL Development Contract	C/CPFF	RCCTO OTA : TBD	-	-		55.114	Mar 2023	-		-		-	0.000	55.114	-
PEO CS&CSS to procure (4) Govt ISVs	MIPR	PEO CS&CSS : Warren, MI	-	-		1.000	May 2023	-		-		-	0.000	1.000	-
		Subtotal	-	-		159.509		55.434		-		55.434	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Logistics Support (CLS)	C/CPFF	RCCTO OTA : TBD	-	-		-		23.079	Nov 2023	-		23.079	Continuing	Continuing	-
Support Costs	MIPR	OGA : Multiple	-	-		-		6.608	Oct 2023	-		6.608	Continuing	Continuing	-
		Subtotal	-	-		-		29.687		-		29.687	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DE M-SHORAD Developmental Test / Demonstration and Evaluation	MIPR	support demonstrations and experimentation : Various	-	-		-		14.490	Jan 2024	-		14.490	Continuing	Continuing	-
PEO Developmental Testing/User Assessment	MIPR	PEO M&S : Huntsville, AL	-	-		16.931	Feb 2023	-		-		-	0.000	16.931	-
DE M-SHORAD NEF Test Support	MIPR	Various : Various	-	-		1.750	May 2023	-		-		-	0.000	1.750	-
AMP-HEL Testing	MIPR	Various : Various	-	-		2.000	Jun 2023	-		-		-	0.000	2.000	-
		Subtotal	-	-		20.681		14.490		-		14.490	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		197.279		110.625		-		110.625	Continuing	Continuing	N/A

Remarks

FY 2022 cost data for CR9 Directed Energy M-SHORAD / M-SHORAD Inc 2 is shown in the R-3 Exhibit for FI4 (M-SHORAD Inc.1).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

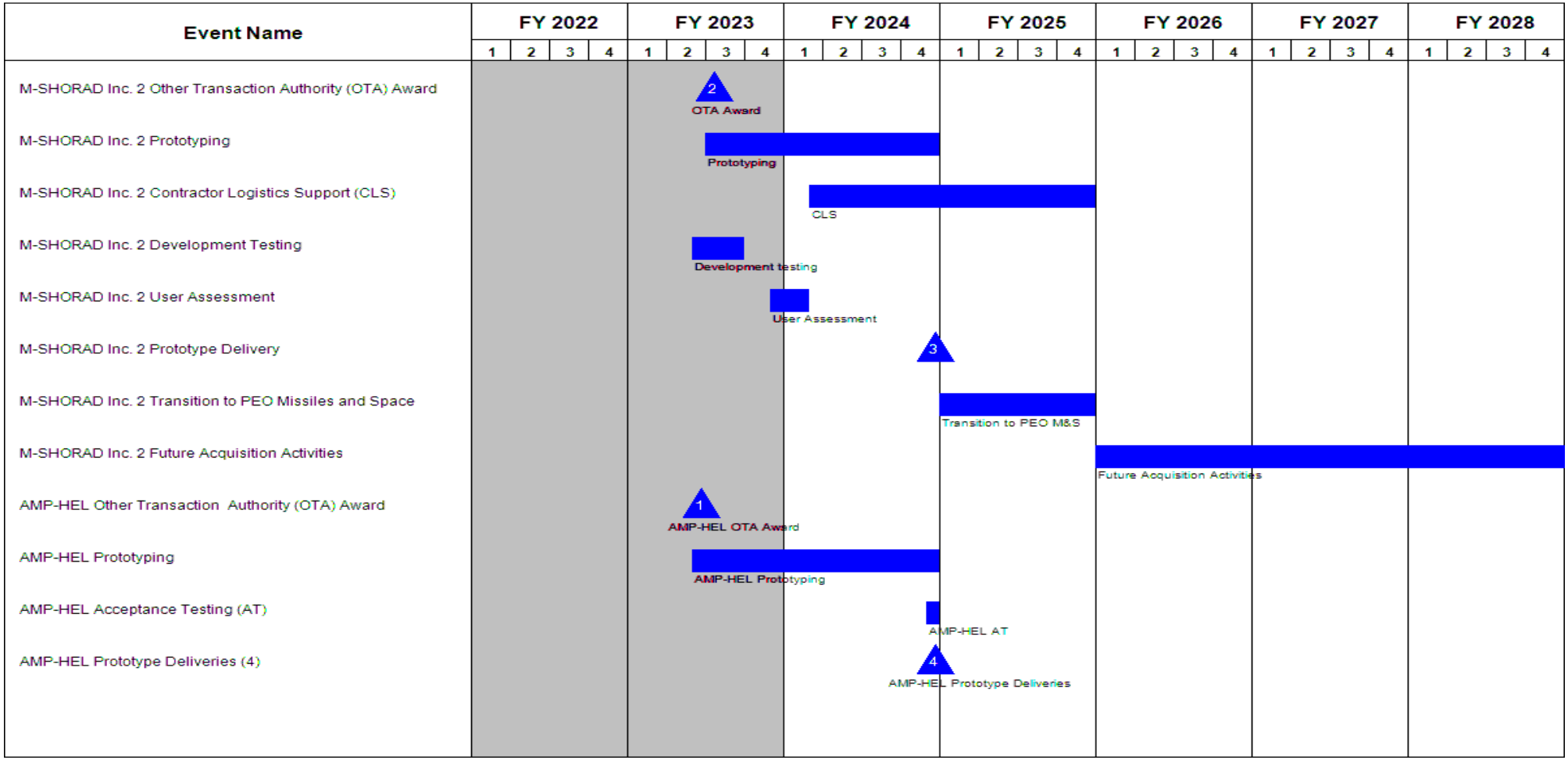


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	**Project (Number/Name)** CR9 / *Directed Energy M-SHORAD / M-SHORAD Inc 2*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
M-SHORAD Inc. 2 Other Transaction Authority (OTA) Award	3	2023	3	2023
M-SHORAD Inc. 2 Prototyping	3	2023	4	2024
M-SHORAD Inc. 2 Contractor Logistics Support (CLS)	1	2024	4	2025
M-SHORAD Inc. 2 Development Testing	2	2023	3	2023
M-SHORAD Inc. 2 User Assessment	4	2023	1	2024
M-SHORAD Inc. 2 Prototype Delivery	4	2024	4	2024
M-SHORAD Inc. 2 Transition to PEO Missiles and Space	1	2025	4	2025
M-SHORAD Inc. 2 Future Acquisition Activities	1	2026	4	2030
AMP-HEL Other Transaction Authority (OTA) Award	2	2023	2	2023
AMP-HEL Prototyping	2	2023	4	2024
AMP-HEL Acceptance Testing (AT)	4	2024	4	2024
AMP-HEL Prototype Deliveries (4)	4	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CS1: *M-SHORAD Inc 3*	-	-	67.196	160.426	-	160.426	195.469	152.605	190.546	193.372	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This project is a continuation of work previously justified in PE0604117A/Project F14.

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 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, Inc. 3 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.

FY 2024 funding (CS1) in the amount of $160.426 million supports Inc. 3 prototype and development effort and Technology Demonstration of critical technologies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: M-SHORAD Inc. 3 Materiel Development/Integration	-	66.933	160.426
FY 2023 Plans: Conduct program initiation activities to include technical evaluations, development of appropriate milestone documentation, and initiation of contract award activities for planned Inc. 3 prototyping and development contract award scheduled for FY 2023.			
FY 2024 Plans: Continue product development and conduct early technology demonstrations of critical technologies with multiple vendors. Perform Design Reviews.			
FY 2023 to FY 2024 Increase/Decrease Statement: The increase from FY 2023 to FY 2024 is to accelerate technology maturation by continuing product development with multiple vendors. Vendors will demonstrate technologies at the FY 2024 Technology Demonstration.			
Title: SBIR/STTR	-	0.263	-
FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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 2022	FY 2023	FY 2024
Funding transferred in accordance with Title 15 USC §638.			
Accomplishments/Planned Programs Subtotals	-	67.196	160.426

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Inc. 3 Next Generation Short Range Interceptor (NGSRI) will replace the current Stinger capability 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 Consortium Cost Plus Fixed Fee (CPFF) Other Transaction Authority (OTA) awarded to up to three suppliers. The program will transition to Major Capabilities Acquisition following the Operational Assessment and final down-select to one vendor prior to Milestone C production decision. Two integration efforts will begin during the OTA; integration of the new 30mm Multi-Mode Proximity Airburst (MMPA) ammunition (hardware and software) onto the platform, and software integration efforts for the NGSRI to effectively operate with the existing launcher platforms' fire control computers. The Program Office will minimize integration costs by conducting both integration efforts at the same time.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Management Inc. 3	C/LH	Trident, Intuitive Research and others : Huntsville, AL	-	-		2.707	Oct 2022	2.888	Oct 2023	-		2.888	Continuing	Continuing	-
FY 2023 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.263		-		-		-	0.000	0.263	-
		Subtotal	-	-		2.970		2.888		-		2.888	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Technical Support	MIPR	Combat Capabilities Development Command : Redstone Arsenal, AL	-	-		2.598	Oct 2022	2.657	Oct 2023	-		2.657	Continuing	Continuing	-
Systems Development and Integration	C/CPFF	Contractors : TBD	-	-		52.568	Jul 2023	152.556	Dec 2023	-		152.556	Continuing	Continuing	-
		Subtotal	-	-		55.166		155.213		-		155.213	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Demonstration	MIPR	Army Test and Evaluation Center : Redstone Arsenal, Alabama	-	-		-		0.750	Oct 2023	-		0.750	Continuing	Continuing	-
Test Support	MIPR	Combat Capabilities Development Command :	-	-		-		1.325	Oct 2023	-		1.325	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Redstone Arsenal, Alabama													
Modeling and Simulation Development	MIPR	Combat Capabilities Development Command : Redstone Arsenal, AL	-	-		9.060	Oct 2022	0.250	Oct 2023	-		0.250	Continuing	Continuing	-
		Subtotal	-	-		9.060		2.325		-		2.325	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		67.196		160.426		-		160.426	Continuing	Continuing	N/A

Remarks

FY 2022 CS1 cost data for M-SHORAD Inc. 3 is shown in the R-3 Exhibit for FI4 (M-SHORAD Inc.1).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

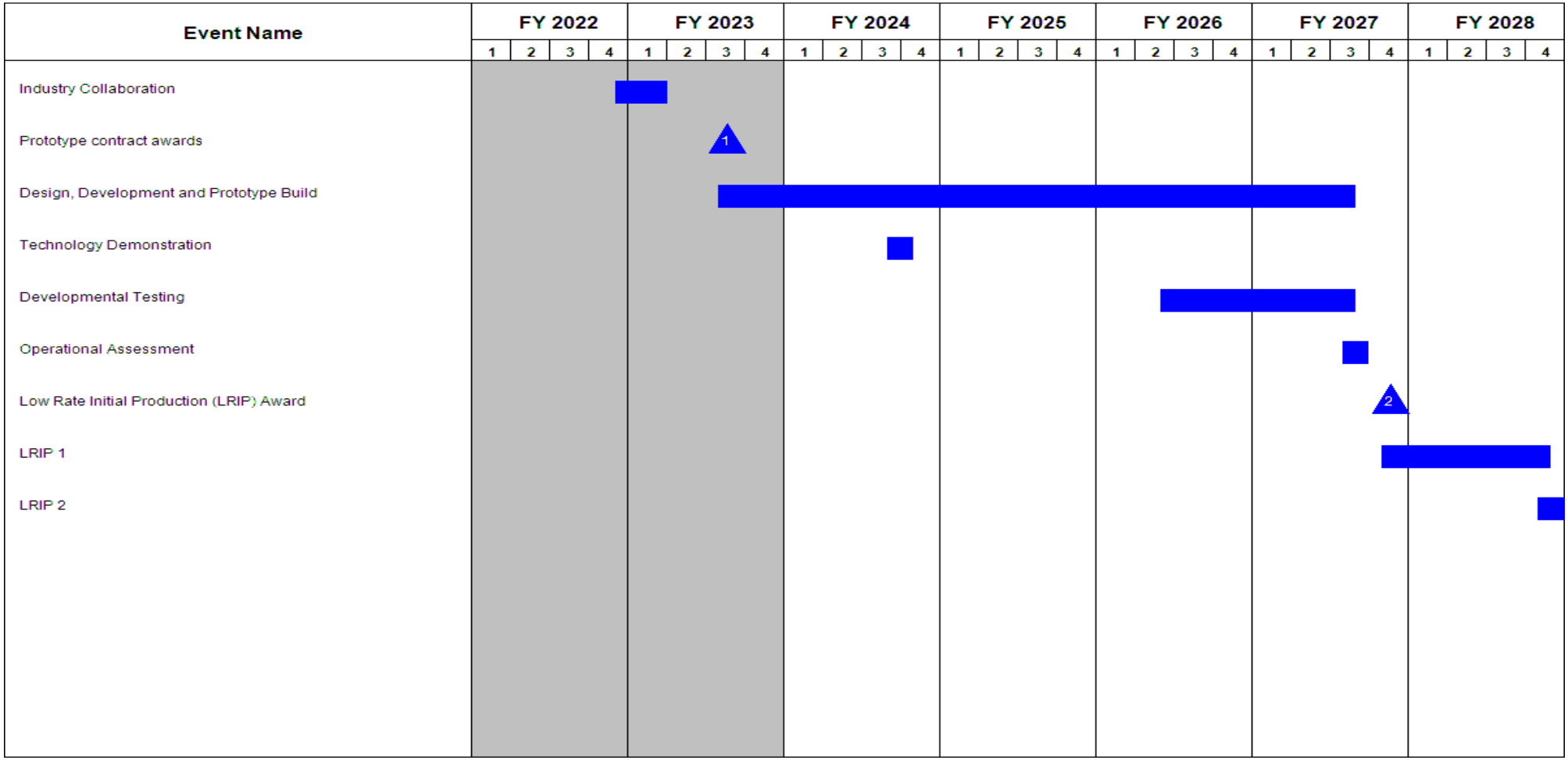


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	**Project (Number/Name)** CS1 / *M-SHORAD Inc 3*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Industry Collaboration	4	2022	1	2023
Prototype contract awards	3	2023	3	2023
Design, Development and Prototype Build	3	2023	3	2027
Technology Demonstration	3	2024	4	2024
Developmental Testing	2	2026	3	2027
Operational Assessment	3	2027	3	2027
Low Rate Initial Production (LRIP) Award	4	2027	4	2027
LRIP 1	4	2027	4	2028
LRIP 2	4	2028	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	Project (Number/Name) FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
FI4: *Maneuver - Short Range Air Defense (M-SHORAD)*	-	37.939	10.363	10.188	-	10.188	10.190	15.235	10.209	10.323	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 2024 funding (FI4) in the amount of $10.188 million supports 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 2022	FY 2023	FY 2024
Title: Initial M-SHORAD Materiel Development/Integration	37.939	9.985	10.188
Description: Funding is in support of development, integration, and testing of the M-SHORAD Inc 1. capability.			
FY 2023 Plans: Continue Engineering & Technical Support to ensure support of future planning for M-SHORAD 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. The M-SHORAD PO also plans to conduct an Operational Utility Assessment (OUA), as well as Dual Stinger Vehicle Universal Launcher (SVUL) Validation/ Verification testing to assess constraints/limitations of the M-SHORAD Inc. 1 system. Data from this event will support follow-on Program of Record Requirements.			
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 2023 to FY 2024 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	**Project (Number/Name)** FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Increase funding represent slight cost increase for development, integration, and testing of the M-SHORAD Inc 1. capability.			
Title: FY 2023 SBIR/STTR Transfer Inc 1	-	0.378	-
FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638.			
Accomplishments/Planned Programs Subtotals	37.939	10.363	10.188

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• C14301: *Maneuver - Short Range Air Defense (M-SHORAD)*	332.984	135.747	400.697	-	400.697	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

M-SHORAD Increment 1 is a Rapid Acquisition Program responding to a Directed Requirement signed by the Vice Chief of Staff of the Army (VCSA) on 21 February 2018 to provide a short-term solution to address the lack of air defense capability in current maneuver formations. Prototyping and integration activities were conducted with three vendors utilizing three separate Other Transaction Authority (OTA) contracts. The M-SHORAD PO awarded a production IDIQ Undefinitized Contract Action (UCA) on September 30, 2020, to field four M-SHORAD Battalions. The production contract was definitized on 4 February 2022.

Recurring RDT&E in FY 2023 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 Increment 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	**Project (Number/Name)** FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Management Inc. 1	Various	Trident, Intuitive Research and others : Huntsville, Alabama	7.290	-		0.350	Oct 2022	0.342	Oct 2023	-		0.342	Continuing	Continuing	-
Product Management Inc. 2	TBD	Trident, Intuitive Research and others : Huntsville, Alabama	-	2.300	Oct 2021	-		-		-		-	0.000	2.300	-
FY 2023 SBIR/STTR Transfer Inc. 1	TBD	Various : Various	-	-		0.378	Feb 2023	-		-		-	0.000	0.378	-
		Subtotal	7.290	2.300		0.728		0.342		-		0.342	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Development, Prototypes and Integration Inc. 1	C/CPIF	Defense Ordnance Technology Consortium (DOTC) : Various	137.387	-		-		-		-		-	0.000	137.387	-
Government Furnished Equipment (GFE) Inc. 1	MIPR	Program Executive Officer Missiles and Space : Various	8.079	-		-		-		-		-	0.000	8.079	-
Product Improvements - Inc. 1	SS/CPFF	GDLS : Huntsville, AL	-	3.479	Oct 2021	4.883	Oct 2022	5.150	Oct 2023	-		5.150	Continuing	Continuing	-
Next Gen M-SHORAD Interceptor Inc. 3	C/CPFF	TBD : Huntsville, AL	-	1.186	Oct 2021	-		-		-		-	0.000	1.186	-
Engineering Changes from M-SHORAD (Inc. 1) Fielding	C/CPAF	GDLS : Huntsville, AL	1.000	8.674	Feb 2022	-		-		-		-	0.000	9.674	-
System Development, Prototypes and Integration Inc. 2	Various	Defense Ordnance Technology	-	22.300	Jan 2022	-		-		-		-	0.000	22.300	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	Project (Number/Name) FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Consortium (DOTC) : Various													
		Subtotal	146.466	35.639		4.883		5.150		-		5.150	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Costs Inc. 1	MIPR	Aviation and Missiles Command (AMCOM) : Redstone Arsenal, AL	6.570	-		-		-		-		-	0.000	6.570	-
		Subtotal	6.570	-		-		-		-		-	0.000	6.570	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Testing Inc. 1	MIPR	Redstone Test Center (RTC) and White Sands Missile Range (WSMR) : Redstone, AL and WSMR, NM	12.573	-		1.420	Oct 2022	1.390	Oct 2023	-		1.390	0.000	15.383	-
Test Support Inc. 1	MIPR	RTC, WSMR, Target Management Office and others : Redstone, AL and WSMR, NM	16.331	-		1.420	Oct 2022	1.390	Oct 2023	-		1.390	0.000	19.141	-
Engineering & Technical Support Inc. 1	MIPR	Combat Capabilites Development Command :	3.148	-		1.912	Oct 2022	1.916	Oct 2023	-		1.916	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	Project (Number/Name) FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Redstone Arsenal, AL													
		Subtotal	32.052	-		4.752		4.696		-		4.696	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	192.378	37.939		10.363		10.188		-		10.188	Continuing	Continuing	N/A

Remarks

To provide more detail, funding for Inc. 2 and Inc. 3 were broken out (CR9 and CS1) in FY 2023. Prior Year cost data for CR9 Directed Energy M-SHORAD / M-SHORAD Inc. 2 and CS1 M-SHORAD Inc. 3 is shown in the R-3 Exhibit for FI4 (M-SHORAD Inc.1).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	**Project (Number/Name)** FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*

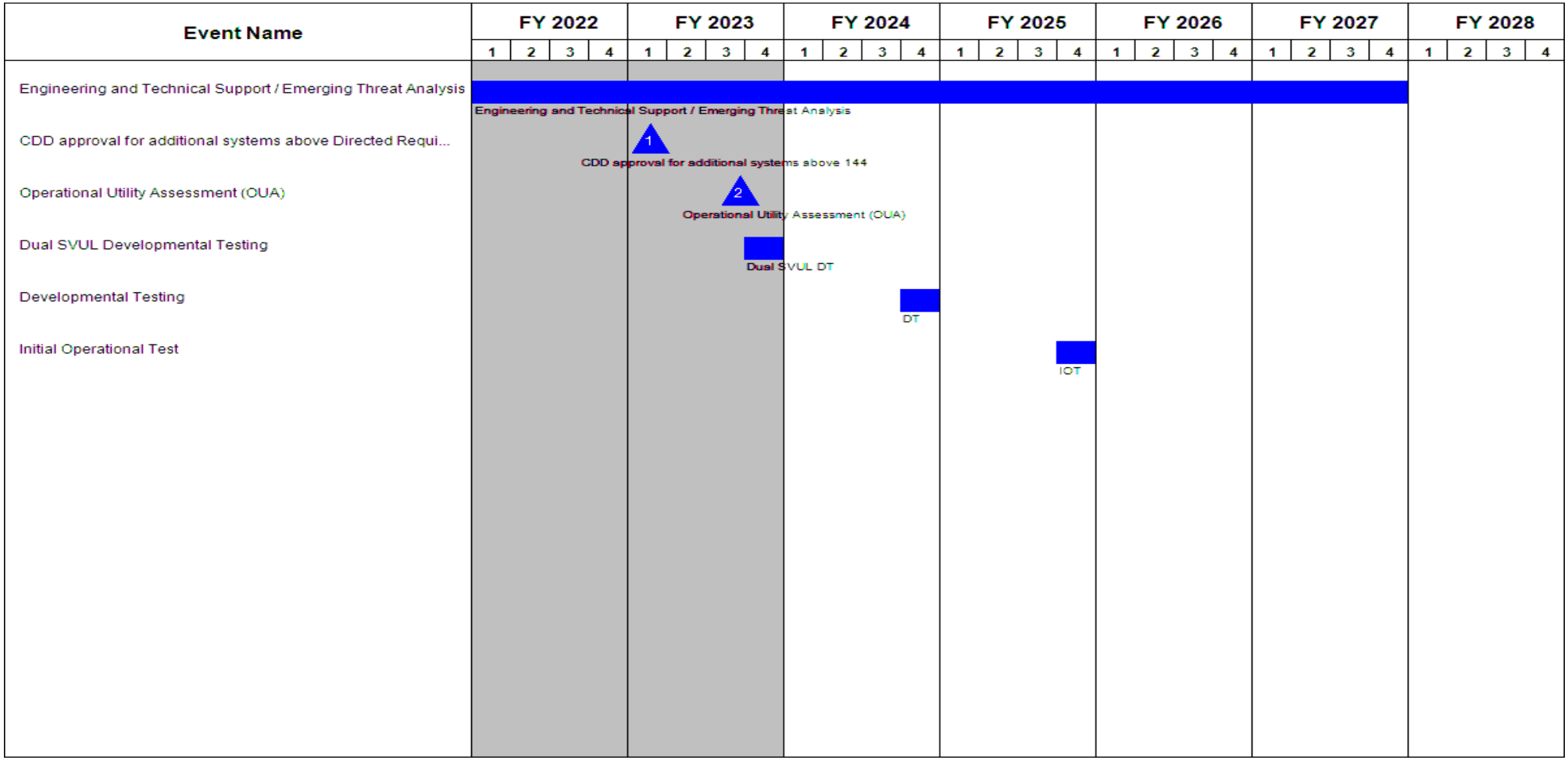


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604117A / *Maneuver - Short Range Air Defense (M-SHORAD)*	**Project (Number/Name)** FI4 / *Maneuver - Short Range Air Defense (M-SHORAD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Engineering and Technical Support / Emerging Threat Analysis	1	2022	4	2027
CDD approval for additional systems above Directed Requirement	1	2023	1	2023
Operational Utility Assessment (OUA)	3	2023	3	2023
Dual SVUL Developmental Testing	4	2023	4	2023
Developmental Testing	4	2024	4	2024
Initial Operational Test	4	2025	4	2025

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604119A *I Army Advanced Component Development & Prototyping*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	179.483	198.111	204.914	-	204.914	211.637	148.884	102.867	104.702	0.000	1,150.598
BR2: *Advanced Component Development & Prototyping*	-	179.483	198.111	204.914	-	204.914	211.637	148.884	102.867	104.702	0.000	1,150.598

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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	189.483	198.111	160.412	-	160.412
Current President's Budget	179.483	198.111	204.914	-	204.914
Total Adjustments	-10.000	0.000	44.502	-	44.502
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-10.000	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	44.502	-	44.502

Change Summary Explanation

Funding increased to support high priority Army prototyping efforts.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604120A *I Assured Positioning, Navigation and Timing (PNT)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	80.858	57.620	40.930	-	40.930	48.356	31.249	15.817	18.177	Continuing	Continuing
BV4: *Area Protection and Alt Nav Technology Development*	-	15.799	31.553	13.183	-	13.183	11.565	10.266	-	-	0.000	82.366
ED5: *Assured Positioning, Navigation and Timing (PNT)*	-	19.856	-	3.013	-	3.013	4.022	5.033	5.037	4.033	0.000	40.994
EH8: *DISMOUNTED*	-	11.805	10.418	10.896	-	10.896	10.279	8.378	3.931	7.219	Continuing	Continuing
EJ2: *MOUNTED*	-	33.398	15.649	13.838	-	13.838	22.490	7.572	6.849	6.925	Continuing	Continuing

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).

The APNT Program in FY 2024 consists of four Projects; (BV4) Area Protection and Alternative Navigation (ALTNAV) Technology Development, (ED5) Assured Positioning Navigation Timing, (EH8) Dismounted APNT System (DAPS), and (EJ2) Mounted APNT System (MAPS).

Approved Requirements: The Army Requirements Oversight Council (AROC) approved the Alternative Navigation (ALTNAV) 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, ALTNAV Directed Requirements were approved, respectively. Joint

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604120A *I Assured Positioning, Navigation and Timing (PNT)*

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.

(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) - 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 modernization activities that will enable the transition of incremental and disruptive technologies to fieldable PNT solutions to pace or overmatch current and evolving threats and in accordance with 2020 NDAA: Section 840 - Implementation guidance for use of a modular open system approach.

(EH8) - The 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. 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 MAPS meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable M-Code GPS capable MGUE receivers. 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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	83.952	43.797	25.256	-	25.256
Current President's Budget	80.858	57.620	40.930	-	40.930
Total Adjustments	-3.094	13.823	15.674	-	15.674
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	14.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-3.094	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	15.674	-	15.674
• FFRDC Transfer	-	-0.177	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604120A *I Assured Positioning, Navigation and Timing (PNT)*

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

	FY 2022	FY 2023
Project: BV4: *Area Protection and Alt Nav Technology Development*		
Congressional Add: *Alt Nav*	-	14.000
Congressional Add Subtotals for Project: BV4	-	14.000
Congressional Add Totals for all Projects	-	14.000

Change Summary Explanation

Fiscal Year (FY) 2023 $14.000 Million Congressional add is to continue the development and testing of the Alternative Navigation (ALTNAV) Enterprise global navigation capability (project 0604120A BV4) in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611).

FY 2024 budget increased for the Assured Positioning, and Navigation and Timing to continue ALTNAV development efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BV4: *Area Protection and Alt Nav Technology Development*	-	15.799	31.553	13.183	-	13.183	11.565	10.266	-	-	0.000	82.366
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY22 and FY23, Program Element (PE) 0604120A project BV4 funds multiple efforts. These include: Alternative Navigation (ALTNAV), Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) and government-owned PNT software architecture.

In FY24, Program Element (PE) 0604120A project BV4 funds only ALTNAV Enterprise. All other efforts listed above transition to PE 0604120A Assured Positioning, Navigation and Timing project ED5.

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.

Fiscal Year (FY) 2024 Base funds in the amount of $13.183 Million supports ALTNAV Enterprise and Performance Verification Testing.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Area Protection & Alt Nav Technology Development	15.799	16.912	13.183
Description: FY22 and FY23 funding 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. FY24 funds only ALTNAV. ***FY 2023 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Fiscal Year (FY) 2023 Base funds in the amount of $16.912 million supports Alternative Navigation (ALTNAV) Enterprise Ground Control Segment Development and Testing; Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) PNT card prototyping, and development, engineering demonstrations and testing. ***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 2023 to FY 2024 Increase/Decrease Statement:*** Funding decreased due to the transition of the Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) to PE 0604120A project ED5.			
Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***Description:*** Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638.	-	0.641	-
Accomplishments/Planned Programs Subtotals	15.799	17.553	13.183

	FY 2022	FY 2023
Congressional Add: Alt Nav ***FY 2023 Plans:*** 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.	-	14.000
Congressional Adds Subtotals	-	14.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• K49020: *Dismounted Hub*	30.143	26.769	41.533	-	41.533	64.632	61.097	69.163	65.945	Continuing	Continuing
• K49030: *Mounted Hub A-PNT*	80.658	138.005	153.517	-	153.517	126.081	130.333	130.377	130.489	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• K49041: *ALTERNATE NAVIGATION (ALT NAV)*	-	-	4.962	-	4.962	24.152	26.193	5.042	-	0.000	60.349
• OMA - 432126000: *DCS Long Haul Communications*	12.962	12.000	2.872	-	2.872	2.955	3.173	3.236	3.301	0.000	40.499

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	Various : Various	0.835	0.787	Nov 2021	1.247	Dec 2022	0.659	Dec 2023	-		0.659	0.000	3.528	Continuing
FY 2023 SBIR / STTR Transfer	TBD	Various : Various	-	-		0.641	Mar 2023	-		-		-	0.000	0.641	-
		Subtotal	0.835	0.787		1.888		0.659		-		0.659	0.000	4.169	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ALTNAV Enterprise Ground Control Segment Development	Various	Various : Various	1.291	2.216	Dec 2021	15.969	Oct 2023	6.022	Nov 2023	-		6.022	0.000	25.498	Continuing
Modular Open System Approach (pntOS & CMOSS)	Various	Various : Various	9.309	9.307	Nov 2021	7.183	Nov 2022	-		-		-	0.000	25.799	-
		Subtotal	10.600	11.523		23.152		6.022		-		6.022	0.000	51.297	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Services - Government	IA	C5ISR : Various	0.238	0.294	Nov 2021	0.307	Nov 2022	0.322	Nov 2023	-		0.322	0.000	1.161	Continuing
Engineering and Technical Services - Contractor	Various	DCS Corporation / MITRE / QED Corporation : APG, MD	4.844	1.429	Nov 2021	2.351	Feb 2023	2.398	Dec 2023	-		2.398	0.000	11.022	Continuing
		Subtotal	5.082	1.723		2.658		2.720		-		2.720	0.000	12.183	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation support	IA	Various : Various	1.635	1.766	Dec 2021	3.855	Nov 2022	0.543	Nov 2023	-		0.543	0.000	7.799	Continuing
ALTNAV Performance Verification Testing	Various	Various : Various	-	-		-		2.590	Feb 2024	-		2.590	0.000	2.590	-
ALTNAV Cyber Vulnerability	Various	Various : Various	-	-		-		0.649	Dec 2023	-		0.649	0.000	0.649	-
		Subtotal	1.635	1.766		3.855		3.782		-		3.782	0.000	11.038	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.152	15.799		31.553		13.183		-		13.183	0.000	78.687	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

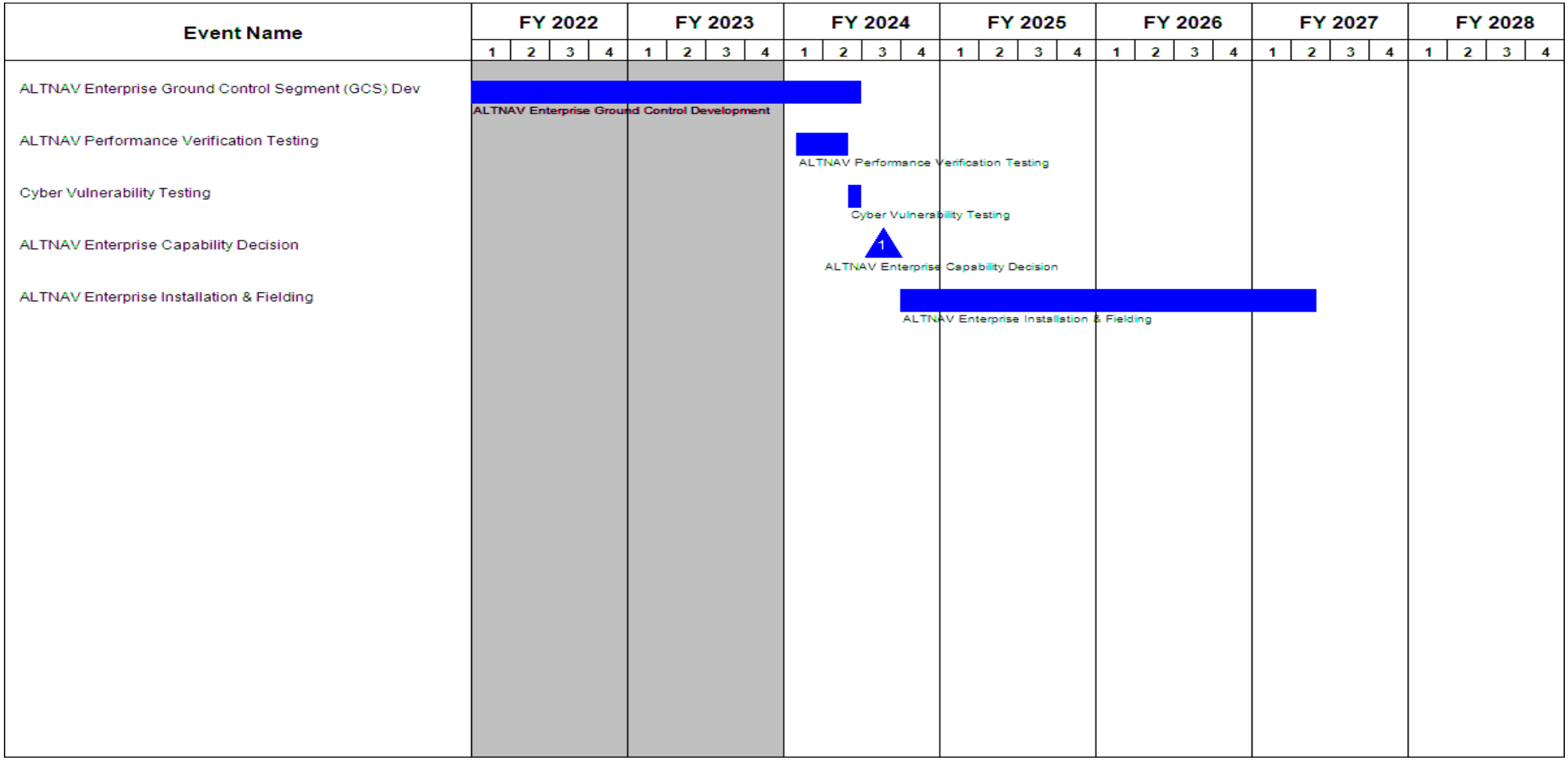


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** BV4 / *Area Protection and Alt Nav Technology Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ALTNAV Enterprise Ground Control Segment (GCS) Dev	2	2019	2	2024
ALTNAV Performance Verification Testing	1	2024	2	2024
Cyber Vulnerability Testing	2	2024	2	2024
ALTNAV Enterprise Capability Decision	3	2024	3	2024
ALTNAV Enterprise Installation & Fielding	4	2024	2	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
ED5: *Assured Positioning, Navigation and Timing (PNT)*	-	19.856	-	3.013	-	3.013	4.022	5.033	5.037	4.033	0.000	40.994
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 development of hardware and software modernization technologies. This will enable 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 provided limited PNT in satellite denied or degraded environments ensuring mission accomplishments. The CMFF PNT card provides trusted PNT by utilizing multiple PNT sources and leveraging multiple open architectures. These technologies comply with the PNT Reference Architecture and Modular Open System Approach (MOSA) compliant hardware; CMOSS and software frameworks (PNT Operating System (pntOS)), to ensure a plug and play capability. The CMOSS APNT Card prototyping and software development will be conducted in accordance with modular open systems approach (Reference House Report 116-442, 2020). Hardware and software technologies will transition to Mounted Assured PNT System (MAPS) and Dismounted Assured PNT System (DAPS) programs of record.

Fiscal Year (FY) 2024 Base funds in the amount of $3.013 million funds CMOSS PNT Modular Card Development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Resiliency and Software Assurance Measures (RSAM) ***Description:*** Funding supports Resiliency and Software Assurance Measures (RSAM) software upgrades to legacy military GPS receivers	13.335	-	-
Title: Assured PNT Enablers ***Description:*** Development of Assured PNT enablers, network integration and certification of ALTNAV ground infrastructure.	6.521	-	-
Title: CMOSS - PNT Modular Card ***Description:*** PNT Modular card based solutions prototyping ***FY 2024 Plans:***	-	-	3.013

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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 2022	FY 2023	FY 2024
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 2023 to FY 2024 Increase/Decrease Statement:*** Funding increased from $0.000 million in FY 2023 to $3.013 million in FY 2024. This increase is due to transition of CMOSS PNT Modular Card Development from PE 0604120A project BV4.			
Accomplishments/Planned Programs Subtotals	19.856	-	3.013

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• AW6: *Modular GPS Independent Sensors Advanced Tech*	6.542	10.131	12.343	-	12.343	14.732	6.459	12.491	4.784	0.000	67.482
• AV8: *Navigation Warfare (NAVWAR) Advanced Technology*	1.856	1.949	6.029	-	6.029	3.980	6.024	-	3.465	0.000	23.303
• K49020: *Dismounted Hub*	30.143	26.769	41.533	-	41.533	64.632	61.097	69.163	65.945	Continuing	Continuing
• K49030: *Mounted Hub A-PNT*	80.658	138.005	153.517	-	153.517	126.081	130.333	130.377	130.489	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.

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

PNT Modular Card will build, integrate and test PNT Cards by utilizing 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 for stand alone applications.

Requirement documents include:

- DAPS Capabilities Development Document (CDD), Joint Requirements Oversight Council (JROC) Approved, 28 January 2022.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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)*

- Abbreviated Capabilities Development Document (A-CDD) for the Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) Mounted Form Factor, Army Requirements Oversight Council (AROC) approved on 4 January 2021.
- MAPS Capabilities Development Document (CDD), Army Requirements Oversight Council (AROC) approved on 12 September 2020.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	Various : Various	3.614	2.229	Nov 2021	-		0.331	Nov 2023	-		0.331	0.000	6.174	Continuing
		Subtotal	3.614	2.229		-		0.331		-		0.331	0.000	6.174	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RSAM - DAGR Software Development	SS/CPFF	Rockwell Collins : Cedar Rapids, IA	6.918	2.655	Oct 2021	-		-		-		-	0.000	9.573	-
RSAM - GB-GRAM Software Development	SS/CPFF	Rockwell Collins : Cedar Rapids, IA	7.638	4.644	Nov 2021	-		-		-		-	0.000	12.282	-
Assured PNT Enablers	Various	Various : Various	15.430	7.221	Nov 2021	-		-		-		-	0.000	22.651	-
CMOSS - PNT Modular Card	Various	Various : Various	-	-		-		1.821	Nov 2023	-		1.821	0.000	1.821	Continuing
		Subtotal	29.986	14.520		-		1.821		-		1.821	0.000	46.327	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Government Services	MIPR	Various : Various	4.190	0.998	Nov 2021	-		-		-		-	0.000	5.188	Continuing
Engineering and Technical Contracting Services	C/FFP	DCS Corp : APG, MD	11.003	0.921	Oct 2021	-		0.861	Nov 2023	-		0.861	0.000	12.785	Continuing
		Subtotal	15.193	1.919		-		0.861		-		0.861	0.000	17.973	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RSAM - Government Engineering Support	MIPR	Various : Various	4.203	0.138	Nov 2021	-		-		-		-	0.000	4.341	-
RSAM - Contractor Engineering Support	Various	Various : APG, MD	2.666	0.779	Nov 2021	-		-		-		-	0.000	3.445	-
RSAM Test Equipment	Various	Various : Various	0.734	0.271	Mar 2022	-		-		-		-	0.000	1.005	-
		Subtotal	7.603	1.188		-		-		-		-	0.000	8.791	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.396	19.856		-		3.013		-		3.013	0.000	79.265	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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)*

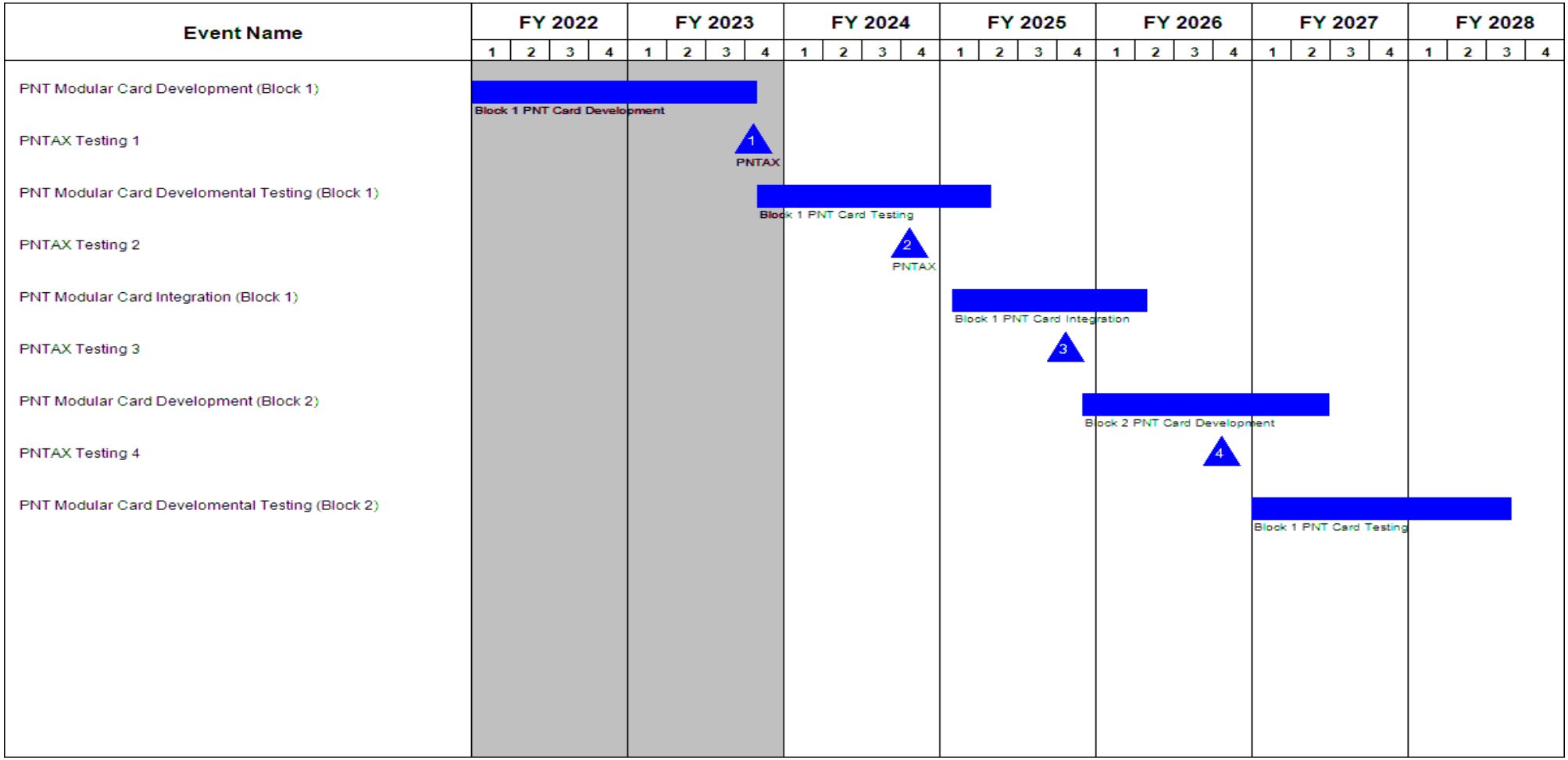


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** ED5 / *Assured Positioning, Navigation and Timing (PNT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PNT Modular Card Development (Block 1)	1	2022	4	2023
PNTAX Testing 1	4	2023	4	2023
PNT Modular Card Develomental Testing (Block 1)	4	2023	2	2025
PNTAX Testing 2	4	2024	4	2024
PNT Modular Card Integration (Block 1)	1	2025	2	2026
PNTAX Testing 3	4	2025	4	2025
PNT Modular Card Development (Block 2)	4	2025	2	2027
PNTAX Testing 4	4	2026	4	2026
PNT Modular Card Develomental Testing (Block 2)	1	2027	3	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) EH8 / *DISMOUNTED*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EH8: *DISMOUNTED*	-	11.805	10.418	10.896	-	10.896	10.279	8.378	3.931	7.219	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 (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 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 4QFY24

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).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Dismounted APNT System (DAPS)	11.805	10.038	10.896
Description: This effort supports the DAPS hardware and software development, system engineering and client integration, development and operational testing, and program management efforts.			
FY 2023 Plans: Fiscal Year (FY) 2023 Base funds in the amount of $10.038 million supports the completion of engineering development, production and manufacturing readiness for DAPS GEN II Program of Record. The Production Qualification Testing (PQT) and Initial Operational Test and Evaluation (IOT&E) will begin in preparation for Full Rate Production Decision 2Q FY2024. Also initiates development of an Anti-Jam (AJ) Antenna capability.			
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 2023 to FY 2024 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EH8 / *DISMOUNTED*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding change reflects planned lifecycle of the effort.			
Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)	-	0.380	-
Description: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638			
Accomplishments/Planned Programs Subtotals	11.805	10.418	10.896

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• K49020: *Dismounted Hub*	30.143	26.769	41.533	-	41.533	64.632	61.097	69.163	65.945	Continuing	Continuing
• ED5: *Assured Positioning, Navigation and Timing (PNT)*	19.856	-	3.013	-	3.013	4.022	5.033	5.037	4.033	0.000	40.994

Remarks

K49020 / Dismounted Hub 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 DAPS.

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 will inform a major capabilities acquisition program Milestone C decision in 2Q FY 2023. Following a successful Milestone C decision, a sole source, hybrid indefinite Delivery/Indefinite Quantity (ID/IQ) SBIR Phase III production contract will be awarded in April FY 2023. The DAPS program will conduct production qualification testing and an Initial Operational Test and Evaluation (IOT&E) in 1Q FY 2024 to support a Full Rate Production Decision in 2Q FY 2024.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EH8 / *DISMOUNTED*

Much like its predecessor the Defense Advanced Global Positioning System Receiver (DAGR), 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).

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) EH8 / *DISMOUNTED*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	Various	Various : Various	0.279	0.300	Dec 2021	0.195	Dec 2022	0.272	Dec 2023	-		0.272	Continuing	Continuing	Continuing
FY 2023 SBIR / STTR Transfer	TBD	Various : Various	-	-		0.380	Mar 2023	-		-		-	0.000	0.380	-
		Subtotal	0.279	0.300		0.575		0.272		-		0.272	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAPS Prototyping & Engineering Development, Production & Manufacturing Readiness	MIPR	Various : Various	9.469	5.486	Nov 2021	1.405	Dec 2022	3.548	Dec 2023	-		3.548	Continuing	Continuing	Continuing
Engineering and Technical Product Development	MIPR	C5ISR : APG, MD	1.315	0.568	Dec 2021	1.333	Dec 2022	0.768	Dec 2023	-		0.768	Continuing	Continuing	Continuing
		Subtotal	10.784	6.054		2.738		4.316		-		4.316	Continuing	Continuing	N/A

Remarks

FY 2024 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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Services - Government	Various	C5ISR : Various	0.280	0.250	Nov 2021	0.857	Nov 2022	0.893	Nov 2023	-		0.893	Continuing	Continuing	Continuing
Engineering and Technical Services - Contractor	C/CPFF	Various : Various	0.232	0.354	Dec 2021	0.760	Dec 2022	0.699	Dec 2023	-		0.699	Continuing	Continuing	Continuing
		Subtotal	0.512	0.604		1.617		1.592		-		1.592	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) EH8 / *DISMOUNTED*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluations	MIPR	Various : Various	3.738	4.847	Dec 2021	5.488	Mar 2023	4.716	Nov 2023	-		4.716	Continuing	Continuing	Continuing
		Subtotal	3.738	4.847		5.488		4.716		-		4.716	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.313	11.805		10.418		10.896		-		10.896	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EH8 / *DISMOUNTED*

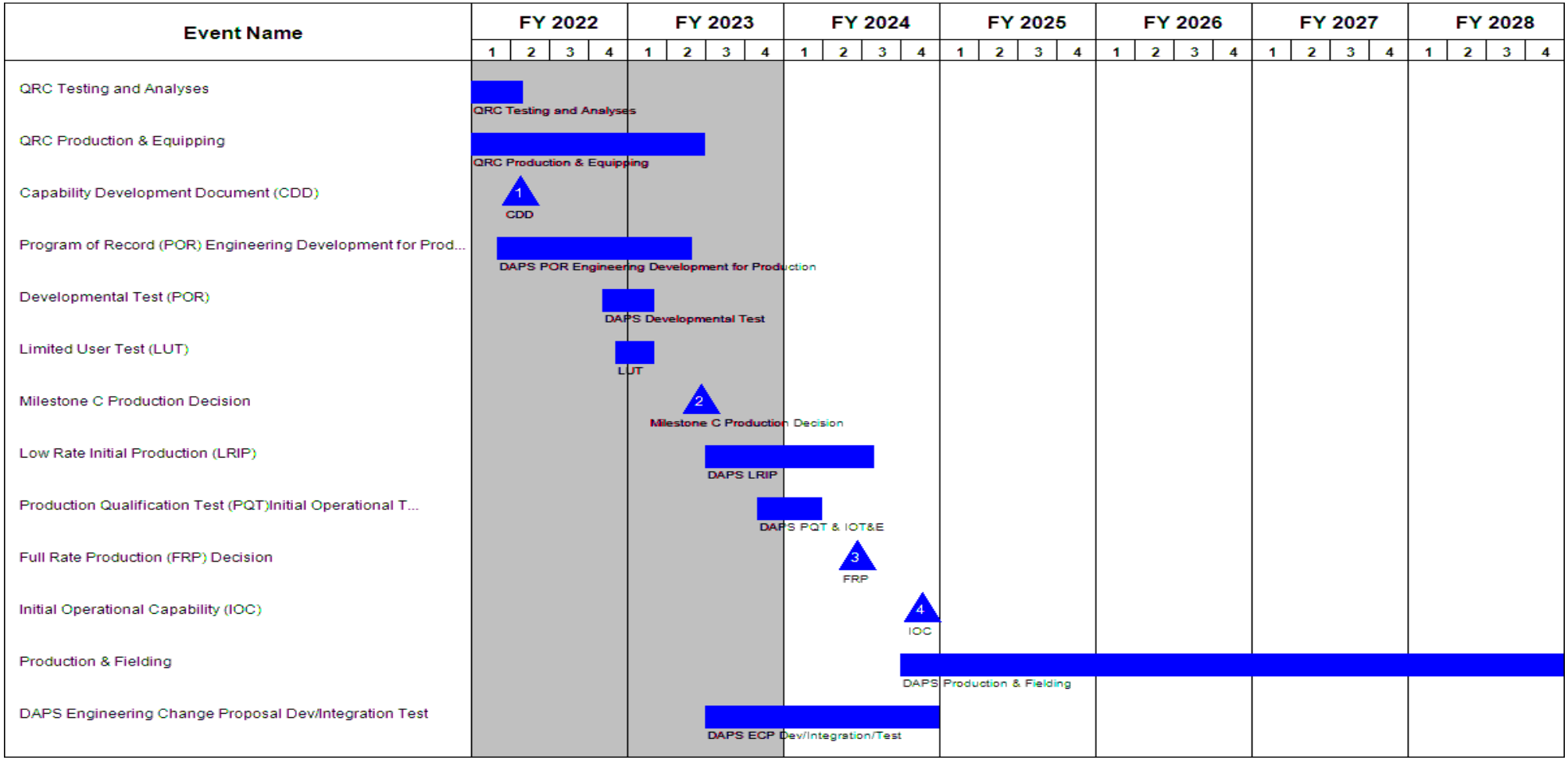


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EH8 / *DISMOUNTED*

Schedule Details

	Start		End	
Events	**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)	3	2023	3	2024
Production Qualification Test (PQT)Initial Operational Test & Evaluation (IOT&E)	4	2023	1	2024
Full Rate Production (FRP) Decision	2	2024	2	2024
Initial Operational Capability (IOC)	4	2024	4	2024
Production & Fielding	4	2024	4	2028
DAPS Engineering Change Proposal Dev/Integration Test	3	2023	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) EJ2 / *MOUNTED*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
EJ2: *MOUNTED*	-	33.398	15.649	13.838	-	13.838	22.490	7.572	6.849	6.925	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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. 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 1Q FY 2025.

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 hardware and software elements of the modular open systems approach (MOSA) form factor that will inform future generations of MAPS systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Mounted APNT System (MAPS)	33.398	15.078	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 2023 Plans:*** Fiscal Year (FY) 2023 Base dollars in the amount of $15.078 million support MAPS system engineering, management support, and Operational Assessment/Initial Operational Test and Evaluation. Completes final RDT&E integration 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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EJ2 / *MOUNTED*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
hardware and software elements of the modular open systems approach (MOSA) form factor that will inform future generations of MAPS systems. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decreased from $15.078 million in FY 2023 to $13.838 million in FY 2024. This decrease is due to completion of RDTE funded platform integration.			
Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) ***Description:*** Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC 638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638.	-	0.571	-
Accomplishments/Planned Programs Subtotals	33.398	15.649	13.838

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• K49030: *Mounted Hub A-PNT*	80.658	138.005	153.517	-	153.517	126.081	130.333	130.377	130.489	Continuing	Continuing
• ED5: *Assured Positioning, Navigation and Timing (PNT)*	19.856	-	3.013	-	3.013	4.022	5.033	5.037	4.033	0.000	40.994

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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EJ2 / *MOUNTED*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	Project (Number/Name) EJ2 / *MOUNTED*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	C/CPFF	Various : Various	1.812	1.455	Nov 2021	0.629	Jan 2023	0.805	Jan 2024	-		0.805	Continuing	Continuing	Continuing
FY 2023 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.571	Mar 2023	-		-		-	0.000	0.571	-
		Subtotal	1.812	1.455		1.200		0.805		-		0.805	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Manufacturing Readiness (Product Maturation) Contract	C/FFP	Collins Aerospace : APG, MD	21.195	1.164	Nov 2021	-		-		-		-	0.000	22.359	-
Mounted PNT Integration - Combat Platforms	C/CPFF	Various : Various	19.544	17.506	May 2022	2.616	Dec 2022	-		-		-	0.000	39.666	-
Mounted PNT Integration - Combat Support Platforms	C/CPFF	Various : Various	0.407	-		-		-		-		-	0.000	0.407	-
Mounted PNT Integration - Combat Services Support Platforms	Various	Various : Various	-	3.914	Mar 2022	0.705	Feb 2023	-		-		-	0.000	4.619	-
Client Software Integration (Various)	MIPR	AvMC / S3I : Huntsville, AL	0.805	0.400	Apr 2022	0.566	Mar 2023	-		-		-	0.000	1.771	-
MAPS MOSA component Hardware and Software development	Various	Various : Various	-	-		-		5.630	Jan 2024	-		5.630	0.000	5.630	-
		Subtotal	41.951	22.984		3.887		5.630		-		5.630	0.000	74.452	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EJ2 / *MOUNTED*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Services - Government	Various	C5ISR : Various	0.979	1.871	Jan 2022	1.775	Oct 2022	0.779	Nov 2023	-		0.779	0.000	5.404	-
Engineering and Technical Services - Contractor	C/CPFF	Various : Various	4.913	5.392	Jan 2022	3.207	Dec 2022	0.933	Jan 2024	-		0.933	0.000	14.445	-
		Subtotal	5.892	7.263		4.982		1.712		-		1.712	0.000	19.849	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Field Testing / Development Test	MIPR	Various : TBD	7.109	1.696	Jan 2022	-		-		-		-	0.000	8.805	-
Initial Operational Test & Evaluation (IOT&E)	TBD	Various : TBD	-	-		5.580	Jan 2023	5.691	Nov 2023	-		5.691	0.000	11.271	-
		Subtotal	7.109	1.696		5.580		5.691		-		5.691	0.000	20.076	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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.764	33.398		15.649		13.838		-		13.838	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EJ2 / *MOUNTED*

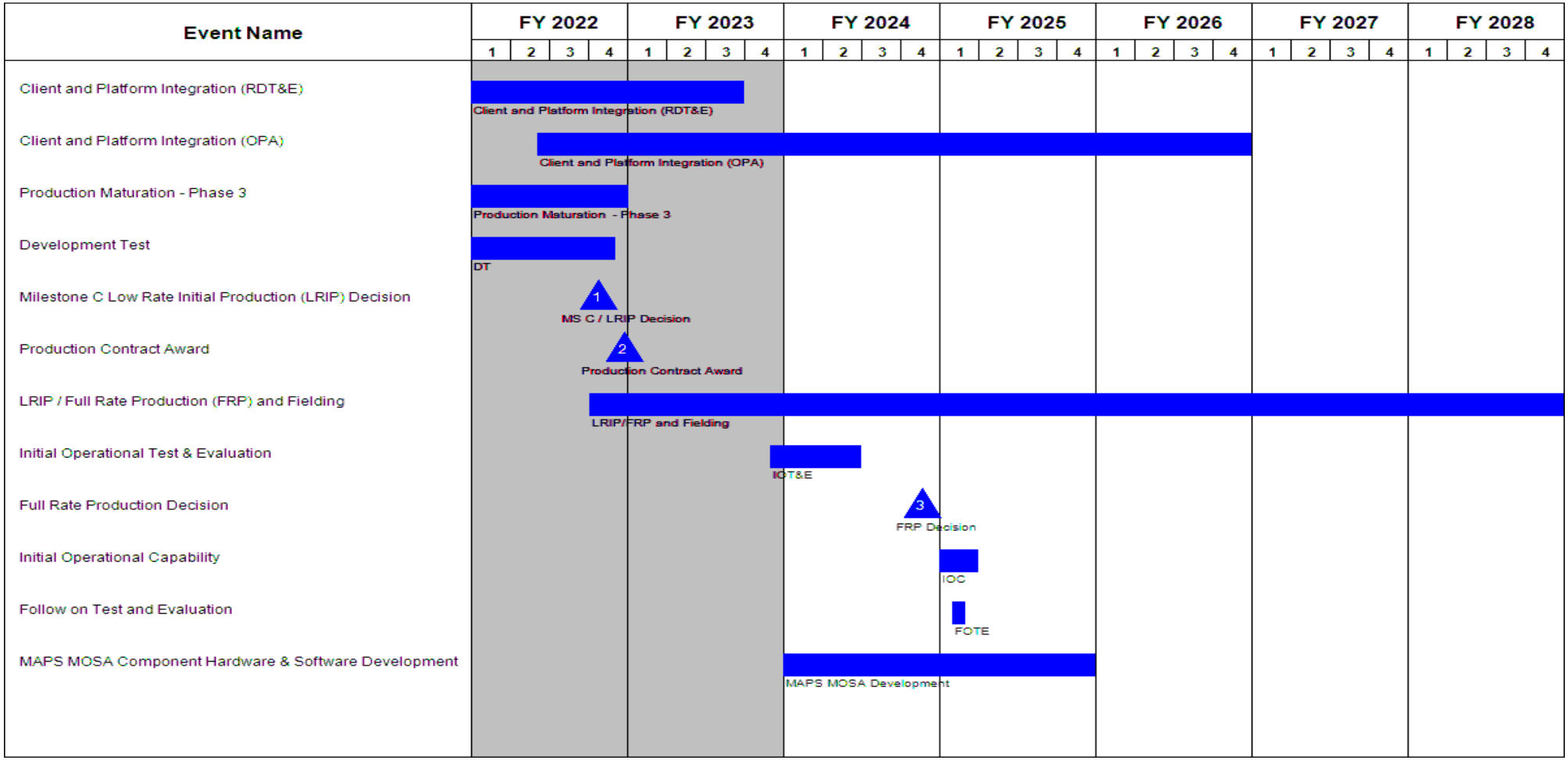


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604120A / *Assured Positioning, Navigation and Timing (PNT)*	**Project (Number/Name)** EJ2 / *MOUNTED*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Client and Platform Integration (RDT&E)	3	2019	3	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
Production Contract Award	4	2022	4	2022
LRIP / Full Rate Production (FRP) and Fielding	4	2022	4	2028
Initial Operational Test & Evaluation	4	2023	2	2024
Full Rate Production Decision	4	2024	4	2024
Initial Operational Capability	1	2025	1	2025
Follow on Test and Evaluation	1	2025	1	2025
MAPS MOSA Component Hardware & Software Development	1	2024	4	2025

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army												Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604121A *I Synthetic Training Environment Refinement & Prototyping*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	198.815	242.468	109.714	-	109.714	87.684	55.685	121.774	123.273	0.000	939.413
CR2: *STE Information Systems (TSS, TMT)*	-	98.182	111.271	49.616	-	49.616	35.491	35.132	34.477	34.861	0.000	399.030
CR3: *STE Live*	-	29.270	67.396	23.839	-	23.839	33.419	14.341	80.909	81.812	0.000	330.986
CR4: *STE One World Terrain (OWT)*	-	31.374	1.387	13.192	-	13.192	6.027	6.212	6.388	6.600	0.000	71.180
CR5: *STE Reconfigurable Virtual Trainer (RVCT)*	-	24.296	20.726	15.282	-	15.282	-	-	-	-	0.000	60.304
CR6: *STE Squad Immersive Virtual Trainer (SiVT)*	-	4.817	36.130	-	-	-	-	-	-	-	0.000	40.947
CR7: *STE Soldier Virtual Trainer (SVT)*	-	10.876	5.558	7.785	-	7.785	12.747	-	-	-	0.000	36.966

Note

In FY 2022, all requirements from Project FD6 - Synthetic Training Environment Refine & Prototype were realigned to Projects CR2 (STE Information Systems [TSS, TMT]), CR3 (STE Live), CR4 (STE One World Terrain [OWT]), CR5 (STE Reconfigurable Virtual Trainer [RVCT]), and CR7 (STE Soldier Virtual Trainer [SVT]).

In FY 2022, all requirements from Project SV1 - Soldier/Squad Virtual Trainer were realigned to Projects CR4 (STE One World Terrain [OWT]) and CR6 (STE Squad Immersive Virtual Trainer [SiVT]).

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).

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604121A *I Synthetic Training Environment Refinement & Prototyping*

The STE is comprised of five main signature efforts: 1) STE-Information System (STE-IS); 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-IS 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 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-IS platform.

FY2024 Projects CR2 through CR7 Base RDTE dollars in the amount of $109.232 million funds significant development efforts in the STE-Information System (STE-IS), 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 $136 million RDT&E from FY2021 to FY2024.

The total cost of the RVCT (CR5) MTA effort is $67 million RDT&E from FY2022 to FY2024.

The total cost of the SVT (CR7) MTA effort is $103 million RDT&E from FY2022 to FY2026.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	206.335	166.452	101.495	-	101.495
Current President's Budget	198.815	242.468	109.714	-	109.714
Total Adjustments	-7.520	76.016	8.219	-	8.219
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	76.130			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-7.520	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	8.219	-	8.219
• FFRDC Transfer	-	-0.114	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604121A *I Synthetic Training Environment Refinement & Prototyping*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: CR3: *STE Live*		
Congressional Add: *Congressional Add: Next generation MILES*	10.000	-
Congressional Add: *Congressional Add: STE Live electronic bullet*	-	20.000
Congressional Add: *Congressional Add: STE Live OTA acceleration*	-	20.000
Congressional Add Subtotals for Project: CR3	10.000	40.000
Project: CR4: *STE One World Terrain (OWT)*		
Congressional Add: *Congressional Add: Muti-Sensor Terrain Capture & Processing*	4.600	-
Congressional Add Subtotals for Project: CR4	4.600	-
Project: CR6: *STE Squad Immersive Virtual Trainer (SiVT)*		
Congressional Add: *Congressional Add: Engineering, Support, Test & Evaluation for SiVT*	-	36.130
Congressional Add Subtotals for Project: CR6	-	36.130
Congressional Add Totals for all Projects	14.600	76.130

Change Summary Explanation

FY2024 funding increase supports Project CR4 (One World Terrain) to continue developmental efforts to automate processes for producing 3D terrain data that replicates the physical Earth and its complexities for use within the Synthetic Training Environment (STE).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR2 / *STE Information Systems (TSS, TMT)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR2: *STE Information Systems (TSS, TMT)*	-	98.182	111.271	49.616	-	49.616	35.491	35.132	34.477	34.861	0.000	399.030
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Training Simulation Software/Training Management Tools (TSS/TMT) will provide 2 of the 3 core functions for the Synthetic Training Environment - Information Systems (STE-IS). 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 environments 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 STE-IS 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 event 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 of the Software Acquisition Pathway. TSS/TMT facilitates rapid and iterative delivery of its capabilities through a Development, Security, and Operations (DevSecOps) to support Squad (Sq) to Brigade (Bde) level training through 4QFY2024.

FY 2024 Base RDTE dollars in the amount of $49.616 million for TSS/TMT will continue with the DevSecOps approach to achieve Brigade level training capability. Funding will initiate development of the Intel, Sustainment, Cyber, and Protection Warfighting Functions. Base funding will also continue the implementation of DevSecOps process and software production pipeline to support STE-IS 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 2022	FY 2023	FY 2024
Title: Engineering, Support, Test & Evaluation for STE-IS	98.182	107.210	49.616
FY 2023 Plans: Funding supports the STE-IS TSS/TMT completing development efforts to achieve to Company level training capability. Funding initiates development, testing and capability releases to achieve Battalion to Brigade training capability. Development and testing will focus in the following areas:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR2 / *STE Information Systems (TSS, TMT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
-- 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 (i.e. - One World Terrain, RVCT-Air, RVCT-Ground, RVCT-Soldier, SVT and Live). -- 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. -- TSS: continue with the development of the STE core simulation/game engine to provide a synthetic environment which enable collective training from Company through Brigade across warfighting functions. -- 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. -- Test/Evaluation: Conduct evaluation of TSS/TMT through technical assessments, Soldier Touch Points, test planning events, and Operational Assessments/Demonstrations. -- Continue implementation of the DevSecOps software production pipeline to support STE-IS capability releases by echelons. -- Continue the development and integration of AvSE with TSS/TMT software baseline to ensure that the RVCT-Air capability is concurrent with Aviation platform systems. -- Continue the development and integration of Common Software Library (CSL) with 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, Early User Test and Operational Assessments/Demonstrations.			
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: -- 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. -- 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR2 / *STE Information Systems (TSS, TMT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
-- 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. Initiate integration of LTS and SVT core services into the STE-IS core. -- Test/Evaluation: Conduct evaluation of the TSS/TMT 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY2023 to FY2024 is due to completion of the development efforts supporting Company level training capability			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	4.061	-
Accomplishments/Planned Programs Subtotals	98.182	111.271	49.616

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• NA2016: *STE INFO SYSTEMS (TSS/TMT)*	-	9.722	9.648	-	9.648	9.850	10.085	10.091	10.101	0.000	59.497

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR2 / *STE Information Systems (TSS, TMT)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

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) will use the Software Acquisition Pathway. To ensure speed and agility to deliver and modernize STE, a modular open systems architecture (MOSA) will also be 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 STE-IS 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.

Lesson 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 Releases (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.

Following the success of the initial prototype, a follow-on OTA is planned for award in 4QFY2023. This Follow-on OTA will procure STE-IS System and software license to support fielding of the STE-IS Capability. Additionally, this OTA will initiate development of the Intel, Sustainment, Cyber and Protection Warfighting Functions.

STE Increment 1 IOC implements TSS and TMT, two of the three foundational capabilities of the STE-IS, which is planned for 4QFY2024, and is defined as the first fielding and acceptance of the STE-IS capability at installations identified in accordance with the distribution plan. Increment 1 fielded STE systems will deliver STE-IS 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). STE-IS TSS/TMT will continue to implement capability enhancement via follow-on STE Increments.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR2 / *STE Information Systems (TSS, TMT)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	N/A : N/A	-	-		4.061		-		-		-	0.000	4.061	-
		Subtotal	-	-		4.061		-		-		-	0.000	4.061	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS/TMT Prototype Development	Option/ FFP	Cole Engineering Services : Orlando, FL	-	89.272	Oct 2021	96.635	Oct 2022	6.210	Oct 2023	-		6.210	0.000	192.117	Continuing
AvSE Development/ Integration	Various	CCDC AvMC/ PEO Aviation : Redstone Arsenal, AL	-	7.310	Jan 2022	6.596	Jan 2023	-		-		-	0.000	13.906	Continuing
TSS/TMT Development (Follow-on OTA)	Option/ TBD	TBD : TBD	-	-		-		41.348	Oct 2023	-		41.348	Continuing	Continuing	Continuing
		Subtotal	-	96.582		103.231		47.558		-		47.558	Continuing	Continuing	N/A

Remarks

TSS/TMT Prototype Development - FY2024 BASE RDTE will exercise option on current prototype OTA to support developmental testing and software improvement of Squad to Brigade Capability.

TSS/TMT Development - FY2024 BASE RDTE will support development effort on follow-on OTA initiate development of the Intel, Sustainment and Protection Warfighting Functions, and Cyber domain.

Decrease in AvSE Development/Integration from FY2023 to FY2024 is due to finalizing developmental effort to ensure that the RVCT-Air capability is concurrent with Aviation platform systems.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MVCR Update	Various	Multiple : Orlando, FL	-	1.163	Feb 2022	2.479	Jan 2023	1.226	Jan 2024	-		1.226	Continuing	Continuing	Continuing
TSS/TMT Test Support	Various	ATEC : Orlando, FL	-	0.437	Mar 2022	1.500	Feb 2023	0.832	Nov 2023	-		0.832	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR2 / *STE Information Systems (TSS, TMT)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	1.600		3.979		2.058		-		2.058	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	98.182		111.271		49.616		-		49.616	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR2 / *STE Information Systems (TSS, TMT)*

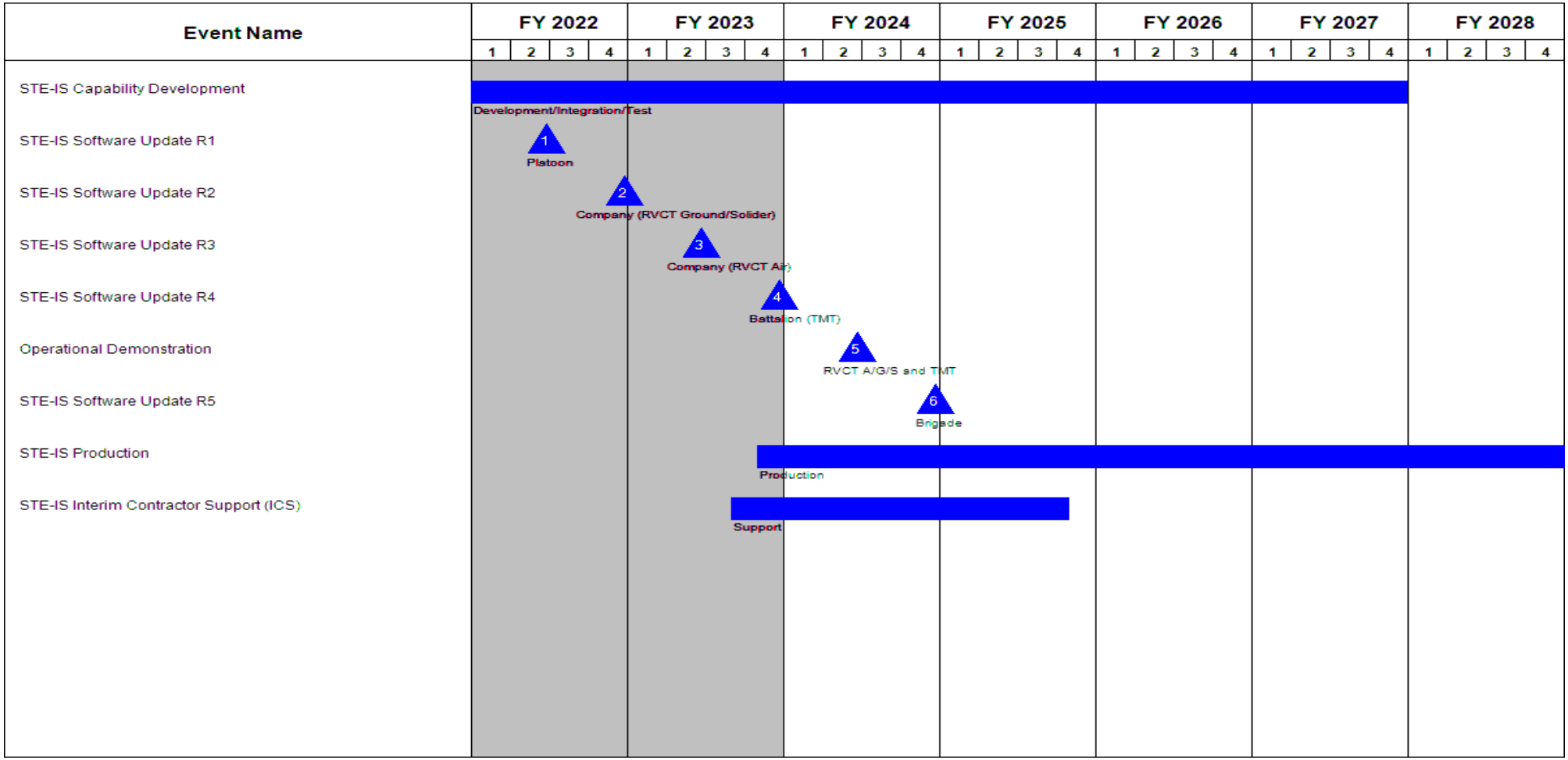


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR2 / *STE Information Systems (TSS, TMT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
STE-IS Revised A-CDD (19 Jun 20)	3	2020	3	2020
STE-IS Capability Development	3	2019	4	2027
STE-IS MVCR	4	2021	4	2021
STE-IS Software Update R1	2	2022	2	2022
STE-IS Software Update R2	4	2022	4	2022
STE-IS Software Update R3	2	2023	2	2023
STE-IS Software Update R4	4	2023	4	2023
Operational Demonstration	2	2024	2	2024
STE-IS Software Update R5	4	2024	4	2024
STE-IS Production	4	2023	4	2032
STE-IS Interim Contractor Support (ICS)	3	2023	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR3 / *STE Live*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR3: *STE Live*	-	29.270	67.396	23.839	-	23.839	33.419	14.341	80.909	81.812	0.000	330.986
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Element was previously funded from PE 0604121A Synthetic Training Environment Refinement & Prototyping, Project FD6.

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 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 2024 Base RDTE dollars in the amount of $23.839 million furthers development of STE Live prototype(s) to replicate the Tactical Engagement Simulation Systems (TESS) for multiple engagement scenarios (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 2024 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 $136 million RDT&E from FY2021 to FY2024.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Engineering, Support, Test & Evaluation for STE Live	19.270	26.396	23.839
Description: Direct engineering development, support and test of the STE Live program through awarded OTA vehicles.			
FY 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR3 / *STE Live*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2023 Base RDTE dollars in the amount of $26.396 million furthers development of STE Live prototype(s) to replicate the TESS for multiple engagement scenarios (direct, indirect, counter-defilade, dropped, information warfare, CBRNE Plumes). These systems will eventually replace up to six systems reaching End of Useful life and enhance Soldier capability and training value. FY 2023 funds will continue to revolutionize TESS and the 5 instrumentation enablers (Calculations, Networks, Sensors, Terrains, and Transmitters). ***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 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 2023 to FY 2024 Increase/Decrease Statement:*** The decrease of $2.557M from FY 2023 to FY 2024 aligns with Direct Fire (DF) Small Arms and Counter-Defilade engagement prototyping maturity.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	1.000	-
Accomplishments/Planned Programs Subtotals	19.270	27.396	23.839

	FY 2022	FY 2023
Congressional Add: Congressional Add: Next generation MILES	10.000	-
FY 2022 Accomplishments: FY 2022 Congressional Add RDTE dollars in the amount of $10.000 million furthers development of STE Live prototype(s) into simulation training systems to replicate the training aid weapon systems for multiple engagement scenarios (direct, indirect, & counter-defilade). These systems will replace up to six systems reaching End of Useful life and enhance Soldier capability and training value. FY 2022 funds will continue to revolutionize Soldier Simulation and Training systems to include a Synthetic Training Environment for 12 engagement types are Direct Fire, Counter-Defilade Fire, Indirect Fire, Dropped Objects, Placed Objects, Thrown Objects, Guided Weapons, Autonomous Weapons, Cyber, Directed Energy,		

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR3 / *STE Live*

	FY 2022	FY 2023
Radiant Energy, and Plume. The 5 instrumentation enablers are Calculations, Networks, Sensors, Terrains, and Transmitters.		
Congressional Add: Congressional Add: STE Live electronic bullet ***FY 2023 Plans:*** FY 2023 Congressional Add RDTE dollars in the amount of $20.000 million furthers development of STE Live. $20.000 million provides for the development of the STE Live electronic bullet.	-	20.000
Congressional Add: Congressional Add: STE Live OTA acceleration ***FY 2023 Plans:*** FY 2023 Congressional Add RDTE dollars in the amount of $20.000 million furthers development of STE Live. $20.000 million provides funding to accelerate development being completed under the STE Live Other Transaction Agreements (OTAs).	-	20.000
Congressional Adds Subtotals	10.000	40.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 OTA is pursuing IOC in FY 2026 and production of FOC quantities in FY 2030.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR3 / *STE Live*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		1.000	Jun 2023	-		-		-	0.000	1.000	-
		Subtotal	-	-		1.000		-		-		-	0.000	1.000	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STE Live	C/Various	Various : Various	-	25.726	Mar 2022	-		-		-		-	Continuing	Continuing	Continuing
STE Live Prototype Development	C/TBD	TBD : Orlando, FL	-	-		26.396	Apr 2023	23.839	Feb 2024	-		23.839	0.000	50.235	-
STE Live Electronic Bullet	TBD	C/TBD : Various/ Various	-	-		20.000	Jul 2023	-		-		-	0.000	20.000	-
STE Live OTA Acceleration	TBD	C/TBD : Various/ Various	-	-		20.000	Jul 2023	-		-		-	0.000	20.000	-
		Subtotal	-	25.726		66.396		23.839		-		23.839	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support/Travel	TBD	Various : Various	-	3.544		-		-		-		-	0.000	3.544	-
		Subtotal	-	3.544		-		-		-		-	0.000	3.544	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	29.270		67.396		23.839		-		23.839	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR3 / *STE Live*

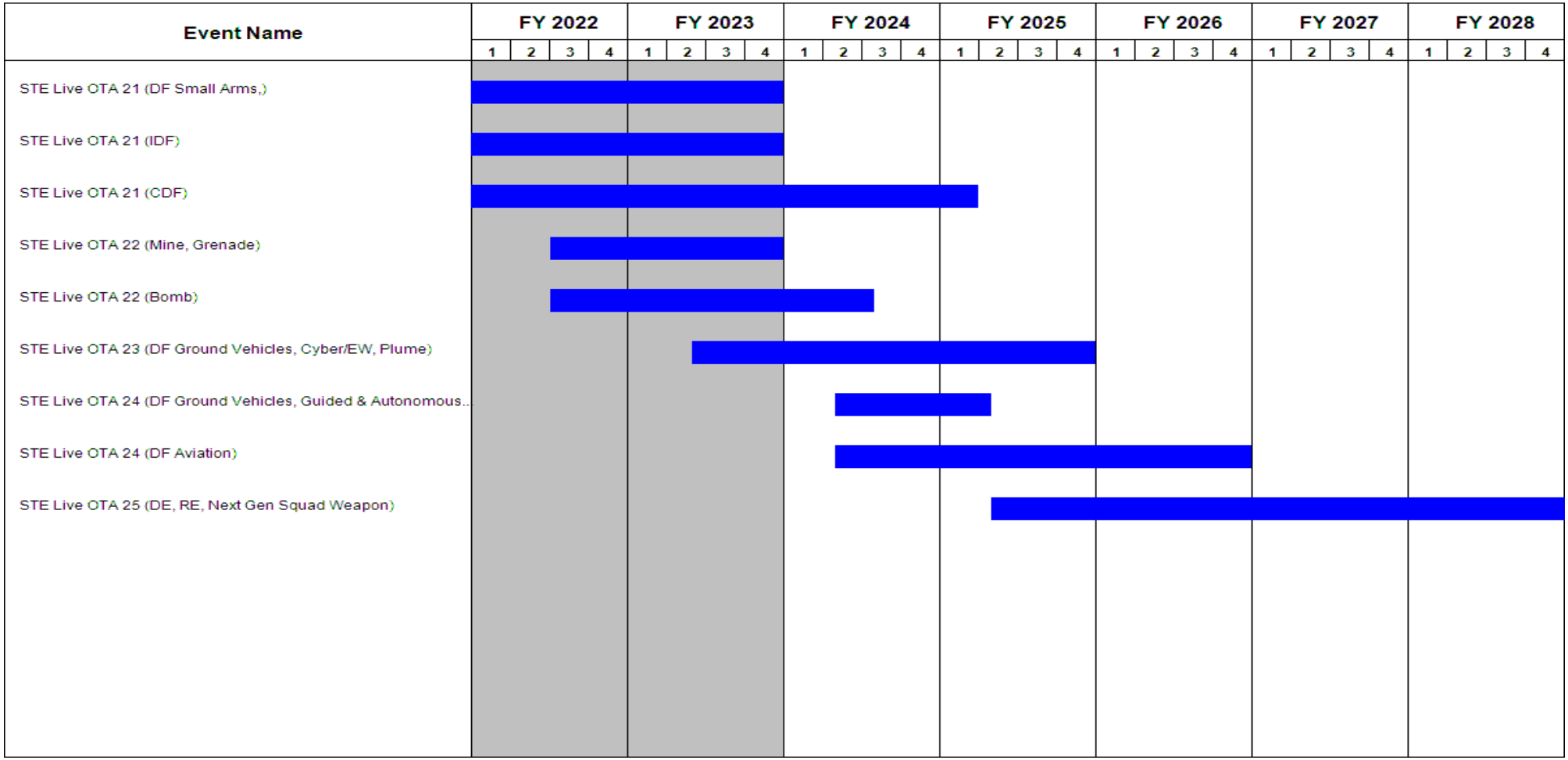


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR3 / *STE Live*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
STE Live OTA 21 (DF Small Arms,)	4	2021	4	2023
STE Live OTA 21 (IDF)	4	2021	4	2023
STE Live OTA 21 (CDF)	4	2021	1	2025
STE Live OTA 22 (Mine, Grenade)	3	2022	4	2023
STE Live OTA 22 (Bomb)	3	2022	3	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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR4: *STE One World Terrain (OWT)*	-	31.374	1.387	13.192	-	13.192	6.027	6.212	6.388	6.600	0.000	71.180
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-Information Systems (STE-IS). OWT provides a 3D global terrain and associated information services that support virtual replication of the physical Earth to reflect the complexities of the operational environment in support 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 terrain 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.

OWT facilitated rapid and iterative delivery of its capabilities to the STE-IS for the Reconfigurable Virtual Collective Trainer (RVCT) as part of the family of STE programs.

FY 2024 Base RDTE dollars in the amount of $13.192 million for OWT will continue development of automated processes to produce 3D terrain data that replicates the physical Earth and its complexities for use in the STE family of programs.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Engineering, Support, Test & Evaluation for OWT	26.774	1.336	13.192
FY 2023 Plans: Funding supports continuation of prototype development and integration with STE-IS, and cybersecurity compliance testing.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 is to automate the production of 3D terrain data, replicate characteristics and features of complex environments and continue support to STE.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.051	-
Accomplishments/Planned Programs Subtotals	26.774	1.387	13.192

	FY 2022	FY 2023
Congressional Add: Congressional Add: Muti-Sensor Terrain Capture & Processing ***FY 2022 Accomplishments:*** Funding supports development, integration, and test of capability to ingest data collected at the Squad level by a Terrain Capture Kit.	4.600	-
Congressional Adds Subtotals	4.600	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• NA2015: *STE ONE WORLD TERRAIN*	20.000	-	0.000	-	0.000	-	-	-	-	0.000	20.000

Remarks

Base Procurement dollars for One World Terrain (OWT) will procure commercial terrain data (approx. 2 million square kilometers) required to increase the global 3D terrain coverage.

D. Acquisition Strategy

The OWT requirements are codified in the STE-IS 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-IS (Training Simulation Software(TSS)/

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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)*

Training Management Tool (TMT), 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 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-IS Family of Programs.

OWT continues to develop the prototype using the OTA awarded in FY2019 and conducts 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 to serve as the core information system for STE Family of Programs such as the Reconfigurable Virtual Collective Trainer RVCT (Air/Ground).

OWT terrain data is delivered as part of the integrated STE-IS capability in accordance with the distribution plan and will meet Information Assurance and Risk Management Framework requirements. OWT will continue to develop new capabilities, conduct minor updates, and refresh terrain data as needed via the OTA until the STE Enterprise Contract is awarded o/a FY 2026.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Tax	TBD	N/A : N/A	-	-		0.051		-		-		-	0.000	0.051	-
		Subtotal	-	-		0.051		-		-		-	0.000	0.051	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OWT Capability Development	Option/ FFP	Maxar Technologies (formerly VRICON) : Westminster, CO	-	25.870	Dec 2021	1.336	Feb 2022	12.738	Dec 2023	-		12.738	Continuing	Continuing	Continuing
Congressional Add: Muti-Sensor Terrain Capture & Processing	SS/TBD	ESRI : Redlands, CA	-	4.600	Sep 2022	-		-		-		-	0.000	4.600	-
		Subtotal	-	30.470		1.336		12.738		-		12.738	Continuing	Continuing	N/A

Remarks

OWT Capability Development: OWT awarded its prototype OTA on June 2019. FY 2023 Base RDTE funding will support the continuation of prototyping activities for the OWT OTA. The OWT will extend the current OTA to continue development activities in FY2024.

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

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OWT Assessment	Various	Various : Orlando, FL	-	0.904	Jun 2022	-		0.454	Mar 2024	-		0.454	Continuing	Continuing	Continuing
		Subtotal	-	0.904		-		0.454		-		0.454	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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	31.374		1.387		13.192		-		13.192	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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)*

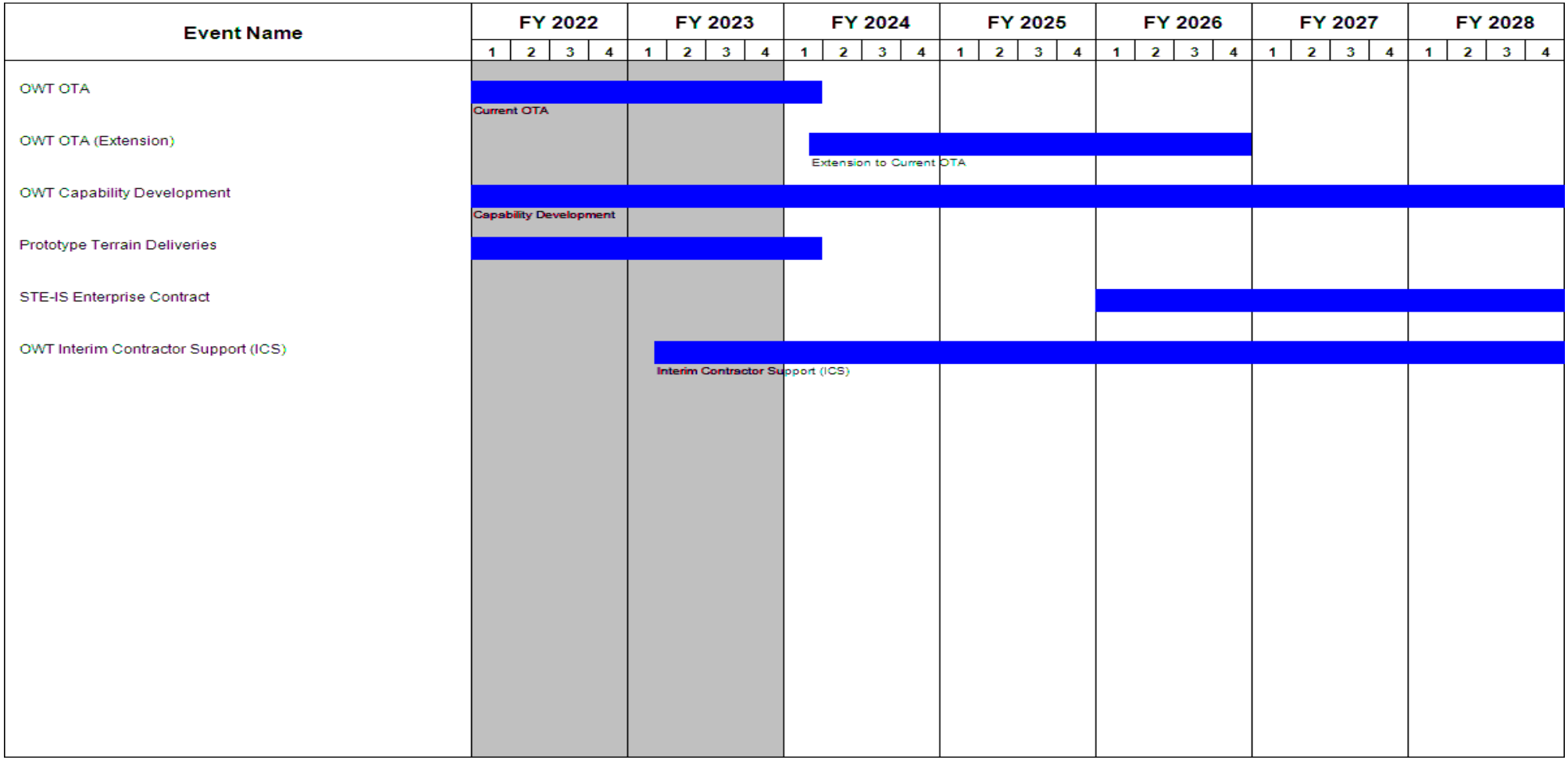


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR4 / *STE One World Terrain (OWT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
OWT OTA	3	2019	1	2024
OWT OTA (Extension)	1	2024	4	2026
OWT Capability Development	3	2019	1	2029
Prototype Terrain Deliveries	2	2020	1	2024
STE-IS Enterprise Contract	1	2026	1	2031
OWT Interim Contractor Support (ICS)	1	2023	1	2031

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR5 / *STE Reconfigurable Virtual Trainer (RVCT)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR5: *STE Reconfigurable Virtual Trainer (RVCT)*	-	24.296	20.726	15.282	-	15.282	-	-	-	-	0.000	60.304
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The STE-IS and 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 Synthetic Training Environment-Information Systems (STE-IS) software, which provides a fully interactive, real time simulated battlefield.

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 assets, and develop future configuration kits based on Soldier feedback emerging from FY 2023 Soldier Touch Points (STPs) and an Operational Demonstration (OD) at Fort Hood, Texas.

The total cost of the RVCT (CR5) MTA effort is $67 million RDT&E from FY2022 to FY2024.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Engineering, Support, Test & Evaluation for RVCT	24.296	19.969	15.282
Description: Direct engineering development, support and test of the Reconfigurable Virtual Collective Trainer (RVCT) program through awarded OTA vehicles.			
FY 2023 Plans: FY 2023 Base RDTE dollars in the amount of $19.969M for RVCT is to complete integration lab assets and design enhancements that will reduce complexity of production activities.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR5 / *STE Reconfigurable Virtual Trainer (RVCT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease of $4.687 million from FY 2023 to FY2024 Base RDTE dollars is due to the decreased scope in development for the RVCT Program.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.757	-
Accomplishments/Planned Programs Subtotals	24.296	20.726	15.282

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 targets a Rapid Fielding (RF) decision for RVCT NLT 2QFY2023; followed by a 2QFY2023 MTA-RF production decision and First Unit Issue (FUI) in 4QFY2023. The 2QFY2023 MTA- RF decision date is 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.

RVCT is executing an 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 will be PEO STRI.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR5 / *STE Reconfigurable Virtual Trainer (RVCT)*

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-Information System (STE-IS) 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.

The RVCT Phase 2 produced prototype GEN2 RVCT A/G systems for use at Ft. Hood, Texas to support the OA in FY 2022, continued development of the STE-IS, and follow on STPs and the OD in FY2023.

The OA of the RVCT GEN2 prototypes were conducted 4QFY2022 at Ft. Hood, Texas, and another assessment will be conducted in 2QFY2023. The OA will determine whether the RVCT systems are operationally effective, suitable, survivable, and safe for intended use to support a 2QFY2023 RVCT entry into MTA-RF. The RVCT OA will be conducted on production representative RVCT hardware running the STE-IS Minimum Viable Capability Release (MVCR) Company level software capability.

The Phase 2 RVCT prototyping phase will complete the iterative discovery and development process that entails close collaboration between Soldier stakeholders, customers, industry, and the development engineering community. The follow-on production effort will include a 2QFY2023 production decision to establish the initial RVCT production base. A combined STE-IS & RVCT Operational Demonstration will be conducted 2QFY2024.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR5 / *STE Reconfigurable Virtual Trainer (RVCT)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.757	Jun 2023	-		-		-	0.000	0.757	-
		Subtotal	-	-		0.757		-		-		-	0.000	0.757	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Reconfigurable Virtual Collective Trainers	C/FP	Cole Engineering Services, Inc : Orlando, FL	-	24.296	Dec 2021	5.341	Oct 2022	-		-		-	Continuing	Continuing	Continuing
Reconfigurable Virtual Collective Trainers	C/FP	TBD : TBD	-	-		14.228	Apr 2023	15.282	Apr 2024	-		15.282	0.000	29.510	-
		Subtotal	-	24.296		19.569		15.282		-		15.282	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Environmental Testing	MIPR	Aberdeen Test Center : Aberdeen MD	-	-		0.400	Mar 2023	-		-		-	0.000	0.400	-
		Subtotal	-	-		0.400		-		-		-	0.000	0.400	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	24.296		20.726		15.282		-		15.282	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR5 / *STE Reconfigurable Virtual Trainer (RVCT)*

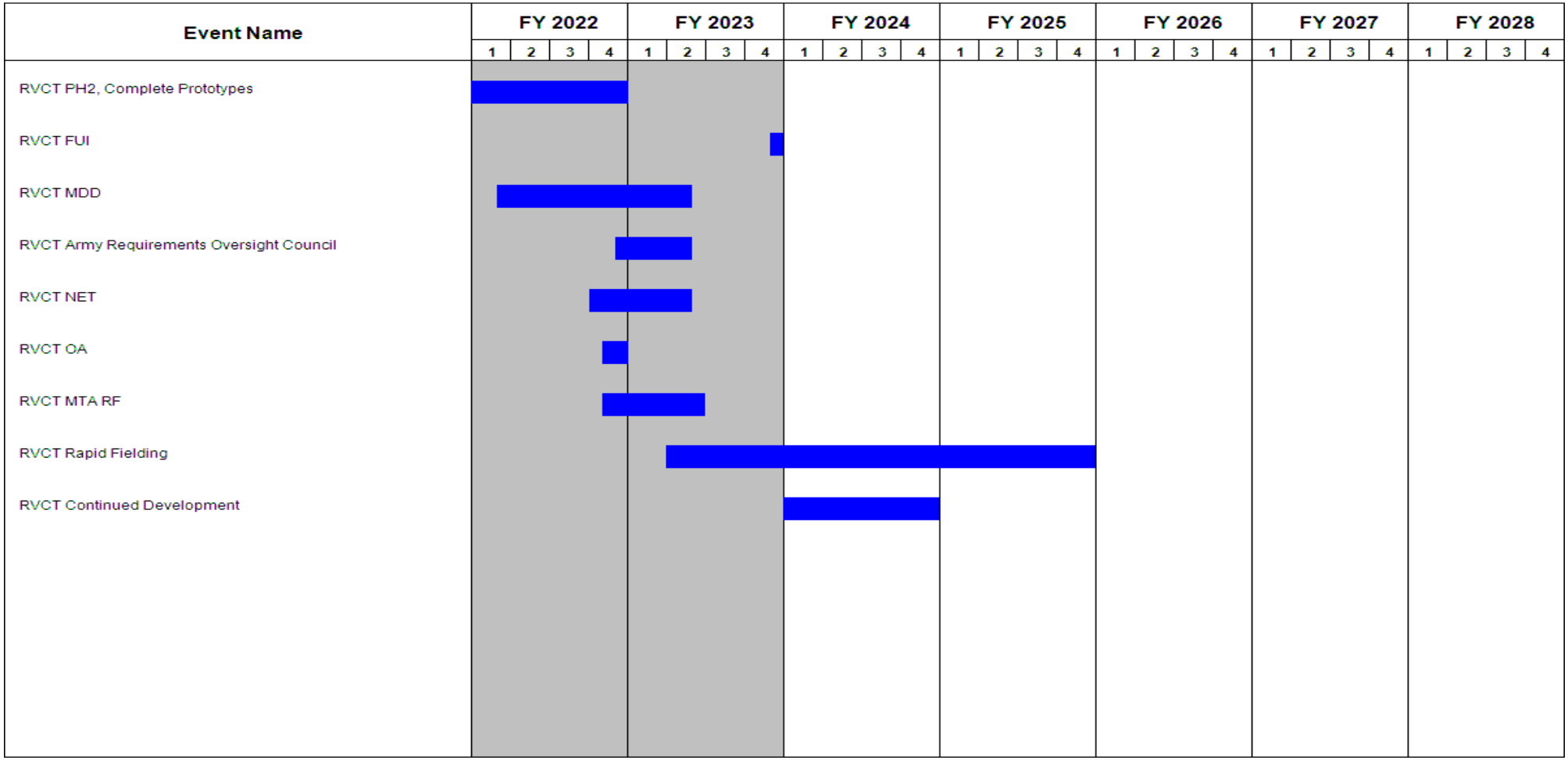


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR5 / *STE Reconfigurable Virtual Trainer (RVCT)*

Schedule Details

	Start		End	
Events	**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	2025
RVCT Continued Development	1	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR6: *STE Squad Immersive Virtual Trainer (SiVT)*	-	4.817	36.130	-	-	-	-	-	-	-	0.000	40.947
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

The SiVT program will not be requesting BASE RDTE funding in FY 2024.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Engineering, Support, Test & Evaluation for SiVT	4.817	-	-
Accomplishments/Planned Programs Subtotals	4.817	-	-

	FY 2022	FY 2023
Congressional Add: Congressional Add: Engineering, Support, Test & Evaluation for SiVT	-	36.130
FY 2023 Plans: 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)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• NA2211: *STE SIVT (IVAS TRAINER)*	69.266	-	0.000	-	0.000	-	-	-	-	0.000	69.266

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

Base Procurement dollars for Squad immersive Virtual Trainer (SiVT) will procure of hardware associated with the SiVT Kits, and Software based Technology Insertions for Outdoor Capability. Additionally, funds will provide New Equipment Training and associated fielding support.

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 will be a five-year effort fielding to all active and reserve components close combat units. 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).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SiVT Development	Option/ FP	Microsoft Corporation : Redmond, WA	-	4.620	Feb 2022	-		-		-		-	0.000	4.620	-
SiVT Weapon Drop-in Kits	C/FP	Cole Engineering Services : Orlando, FL	-	0.197	Sep 2022	-		-		-		-	0.000	0.197	-
Congressional Add: SiVT Development	Option/ FP	Microsoft Corporation : Redmond, WA	-	-		36.130	Aug 2023	-		-		-	0.000	36.130	-
		Subtotal	-	4.817		36.130		-		-		-	0.000	40.947	N/A

Remarks

SiVT Development - SiVT awarded Phase 1 technology insertion efforts as part of the production OTA with Microsoft on Dec 2022. FY23 Base RDTE efforts will continue technology insertion efforts to achieve outdoor capability.

SiVT Weapons Drop-in Kit - This study, awarded in Sep 2022, performed initial assessment of a round-less blank replacement kits

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.817		36.130		-		-		-	0.000	40.947	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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)*

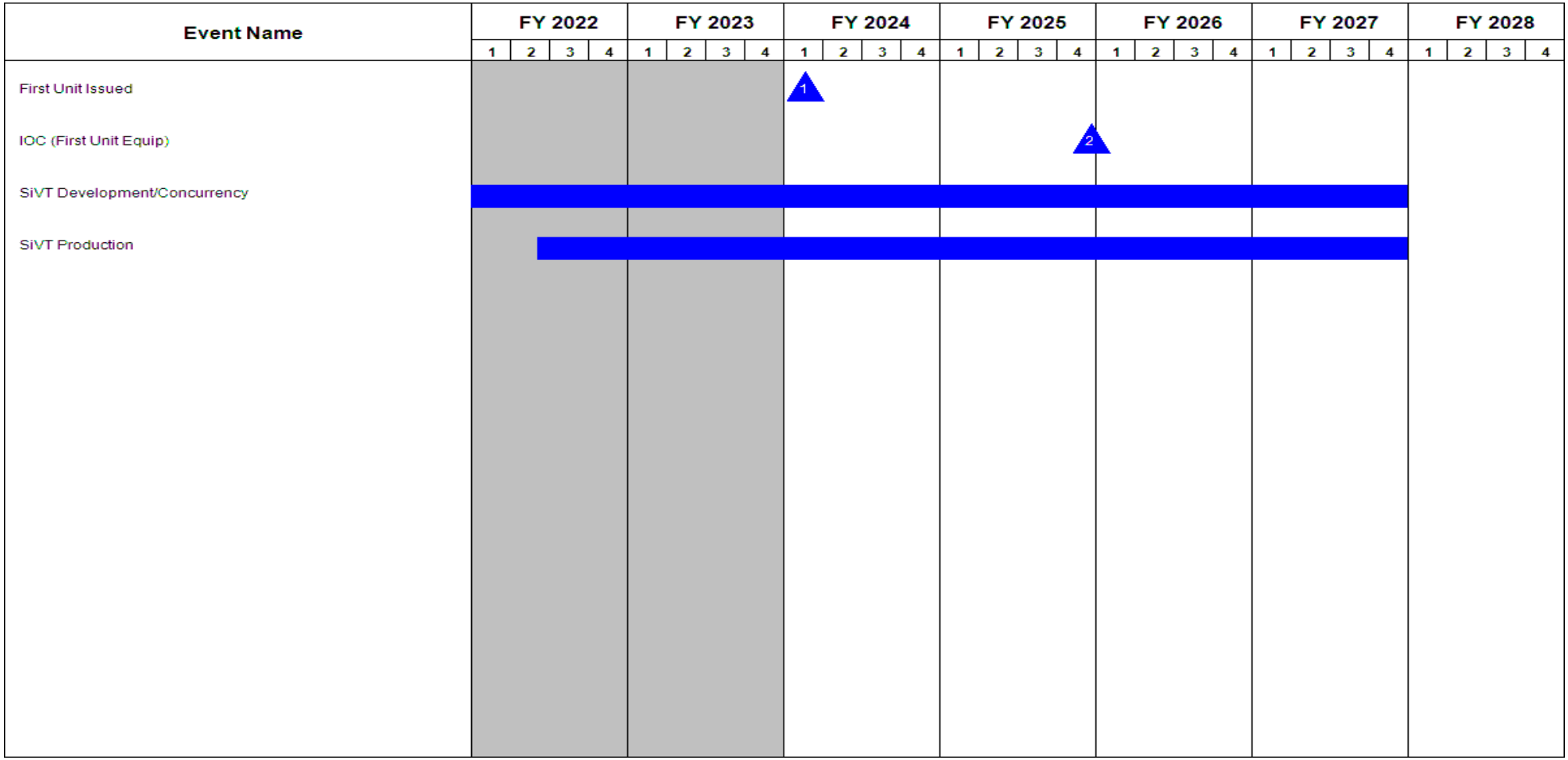


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR6 / *STE Squad Immersive Virtual Trainer (SiVT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SiVT Proptotype Development	1	2019	4	2021
First Unit Issued	1	2024	1	2024
IOC (First Unit Equip)	4	2025	4	2025
SiVT Development/Concurrency	4	2021	4	2027
SiVT Production	2	2022	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR7 / *STE Soldier Virtual Trainer (SVT)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CR7: *STE Soldier Virtual Trainer (SVT)*	-	10.876	5.558	7.785	-	7.785	12.747	-	-	-	0.000	36.966
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, UoF, and JFT 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 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.

The total cost of the SVT (CR7) MTA effort is $103 million RDT&E from FY2022 to FY2026.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Engineering, Support, Test & Evaluation for SVT	10.876	5.355	7.785
Description: Direct engineering development, support and test of the Soldier Virtual Trainer (SVT) program through awarded OTA vehicles.			
FY 2023 Plans: FY 2023 Base RDTE dollars in the amount of $5.355 million will be used for the continued technical development prototype design for the SVT core and Weapons Skills Development (WSD) capability. The prototype solution will assess industry and academia's technical readiness.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR7 / *STE Soldier Virtual Trainer (SVT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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 2023 to FY 2024 Increase/Decrease Statement:*** The increase of $2.430 million in Base RDTE dollars for SVT enables the continued development of the prototype designs for SVT Core Integration, WSD-Increment 2, JFT, and UoF capabilities.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.203	-
Accomplishments/Planned Programs Subtotals	10.876	5.558	7.785

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 of Acquisition Rapid Prototyping Pathway in 3QFY2022 and awarded two vendor OTAs in support of the development prototype design for the SVT Core and WSD capability, Increment 1. Multiple Subject Matter Expert (SME) Reviews, Soldier Touch points (STPs), and an Operational Assessment will be conducted during the development phase to ensure Warfighter feedback is incorporated and facilitate acceptance in support of FY 2024 IOC at Ft. Benning, Georgia. SVT will take a phased acquisition approach in developing the three capabilities beginning with WSD, UoF, and JFT respectively. SVT OTA Option award(s) for continued SVT Core Integration with STE-IS, WSD Increment 2, UoF, and JFT are projected for 1QFY2024.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR7 / *STE Soldier Virtual Trainer (SVT)*

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 all stakeholders (Internal and external) in the SVT Hardware prototype development and the STE-IS 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-IS. 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	Project (Number/Name) CR7 / *STE Soldier Virtual Trainer (SVT)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.203		-		-		-	Continuing	Continuing	Continuing
		Subtotal	-	-		0.203		-		-		-	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Soldier Virtual Trainer (SVT) Development	C/FFP	TBD : Orlando, FL	-	10.876	Jun 2022	5.355	Jun 2023	7.785	Mar 2024	-		7.785	Continuing	Continuing	Continuing
		Subtotal	-	10.876		5.355		7.785		-		7.785	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	10.876		5.558		7.785		-		7.785	Continuing	Continuing	N/A

Remarks

A down-select from the current OTA vendors to a single vendor is planned to support SVT Core and WSD, Increment 1 efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR7 / *STE Soldier Virtual Trainer (SVT)*

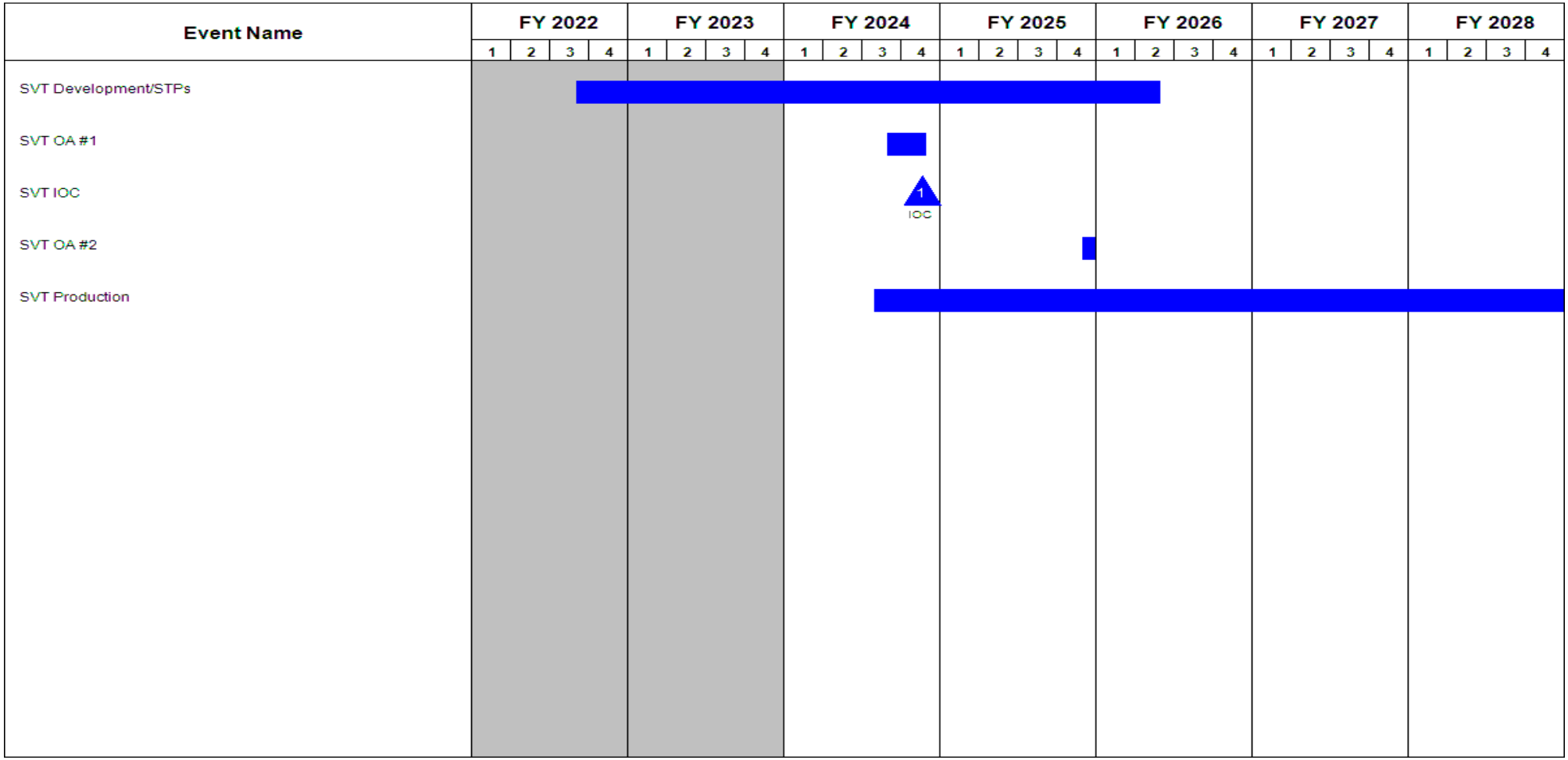


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604121A / *Synthetic Training Environment Refinement & Prototyping*	**Project (Number/Name)** CR7 / *STE Soldier Virtual Trainer (SVT)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SVT Development/STPs	3	2022	2	2026
SVT OA #1	3	2024	4	2024
SVT IOC	4	2024	4	2024
SVT OA #2	4	2025	4	2025
SVT Production	3	2024	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604134A / *Counter Improvised-Threat Demonstration, Prototype Development, and Testing*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	12.891	14.840	16.426	-	16.426	17.306	17.326	17.510	17.705	0.000	114.004
CD4: *Counter Improvised-Threat Demonstration*	-	12.891	14.840	16.426	-	16.426	17.306	17.326	17.510	17.705	0.000	114.004

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 PE was previously conducted under PE 0604134BR, Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	13.379	15.840	16.773	-	16.773
Current President's Budget	12.891	14.840	16.426	-	16.426
Total Adjustments	-0.488	-1.000	-0.347	-	-0.347
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.488	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.347	-	-0.347

Change Summary Explanation

Decreased funding to support higher Army priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CD4: *Counter Improvised-Threat Demonstration*	-	12.891	14.840	16.426	-	16.426	17.306	17.326	17.510	17.705	0.000	114.004
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 2022	FY 2023	FY 2024
Title: Radio Controlled IED Detection Technology Demonstration	1.883	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. ***FY 2023 Plans:*** Will demonstrate advanced network techniques to identify Radio Controlled IEDs at standoff distances. Will demonstrate flexible modular open systems to mitigate IED's without impacting other electro-magnetic systems on the platform. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This Phase 2 Radio Controlled IED Demonstration completes in FY23.			
Title: Anti-Armor IED Detection Technology Demonstration	1.739	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 2023 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Will conduct an integrated demonstration of a multi-sensor system including advanced electro-optical, infrared, lidar, and radio-frequency sensor processing techniques to detect and geo-locate anti-armor IEDs at a standoff distance. Will perform test and evaluation of the integrated multi-sensor system. ***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 2023 to FY 2024 Increase/Decrease Statement:*** IED Detection effort increases because of prototype hardware development and testing in FY24.			
Title: Booby Trap Structure IEDs Detection Technology Demonstration ***Description:*** This effort demonstrates detection techniques developed by DTRA in FY 2020 using small unmanned aerial systems (UAS) with compact sensor technologies including light detection and ranging (LIDAR) to develop high resolution imagery of structures with the ability to inspect multi-level structures for the presence of IEDs. This effort demonstrates the ability to develop high fidelity mapping of multi-level structures to identify potential locations of IEDs.	1.210	-	-
Title: Personnel Borne IED Detection Technology Demonstration ***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 PBIEDs attached to personnel through thin walls. This effort demonstrates the ability to aggregate sensor data to identify PBIEDs with minimal false alarms. ***FY 2023 Plans:*** Will demonstrate multi-mode sensor technologies integrated to increase the probability of detecting concealed Personnel Borne IEDs in various environments. Will perform test and evaluation of the prototype sensor technologies and document for urgent material release purposes. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The first effort completes with prototype of integrated infrared and radar hardware for entry control points in FY23.	2.641	3.812	-
Title: Off-Route IED Detection Technology Demonstration	3.173	2.593	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 Plans:*** Will conduct multi-mode sensor unmanned air and ground systems off-route detection proof of concept demonstration. Will optimize sensor technologies to increase rate of advance and standoff detection range. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Initial off-route IED detection concept completes with demonstration of capability from unmanned systems in FY23.			
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. ***FY 2023 Plans:*** Will continue to mature sensor technologies and autonomous behaviors for a platform capable of operating ahead of formations in both troop landings and water gap crossings. Will continue to develop plans for an FY 2024 demonstration to detect IED threats in both a coastal and water crossing scenario. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This effort completes demonstration of water-borne IED detection in FY23 with prototype hardware transitioning to a U.S. Marine Corps program.	2.245	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 heterogenous platforms to reduce false alarms for IED detection. ***FY 2023 Plans:*** Will mature unmanned system behaviors to optimize IED detection using multiple systems for detection, including including orthogonal detections for confirmation. Will mature sensor processing techniques to integrate information from multiple sensor	-	1.536	3.356

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
systems to reduce the likelihood of false alarms. Will develop scenario plans to demonstrate value of multi-sensor detection schemes to be conduced in FY 2025. ***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 2023 to FY 2024 Increase/Decrease Statement:*** This effort continues with initial testing being conducted with unmanned system payloads being developed in PE 0603134A.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638	-	0.542	-
Title: IED Detection Evaluation in Varied Environments ***Description:*** This effort conducts characterization of mature IED detection system in in varying environments to ensure performance is known in high humidity environments. Will conduct a series of annual assessments in varying environments, including hot, wet, and artic to ensure necessary performance. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This is a new effort in FY24 to evaluate IED detection performance in varying environments.	-	-	2.118
Title: Radio Controlled IED Interoperability Evaluation ***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.	-	-	1.520

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This is a new effort beginning in FY24 to ensure performance of RCIED systems.			
Title: Enhanced Personnel Borne IED Detection Prototyping ***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 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. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** This is a new effort to address the need for deployed forces to identify IED threats in a crowded area.	-	-	2.756
Title: Maneuver IED Detection and Mitigation Technology Demonstration ***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. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:***	-	-	3.826

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
This is a new effort in FY24 to integrate IED detection and neutralization technologies developed in PE 0603134A and other sources.			
Accomplishments/Planned Programs Subtotals	12.891	14.840	16.426

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	C/TBD	TBD : TBD	-	-		0.542		-		-		-	0.000	0.542	-
		Subtotal	-	-		0.542		-		-		-	0.000	0.542	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remote Controlled IED Detection Technology Demonstration	C/CPFF	PEO IEW&S : Aberdeen, MD	2.500	1.883	Mar 2022	1.823	Jan 2023	-		-		-	0.000	6.206	-
Anti-Armor IED Detection Technology Demonstration	C/Various	DEVCOM C5ISR : Ft. Belvoir, VA	2.489	1.739	Mar 2022	1.539	Feb 2023	2.850	Feb 2024	-		2.850	0.000	8.617	-
Booby Trap Structure IEDs Detection Technology Demonstration	C/Various	DEVCOM ARL : Adelphi, MD	2.444	1.210	Mar 2022	-		-		-		-	0.000	3.654	-
Personnel Borne IED Detection Technology Demonstration	C/Various	DEVCOM CBC : Aberdeen, MD	2.168	2.641	Mar 2022	3.812	Dec 2022	-		-		-	0.000	8.621	-
Off-Route IED Detection Technology Demonstrator	C/Various	DEVCOM GVSC : Warren, MI	-	3.173	Mar 2022	2.593	Dec 2022	-		-		-	0.000	5.766	-
Water-Borne IED Detection Technology Demonstration	MIPR	Office of Naval Research (ONR) : Arlington, VA	-	2.245	Mar 2022	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	-		3.356	0.000	4.892	-
IED Detection Evaluation in Varied Environments	C/Various	ARL : Adelphi, MD	-	-		-		2.118	Jan 2024	-		2.118	0.000	2.118	-
Radio Controlled IED Interoperability Evaluation	C/TBD	PEO IEW&S : Aberdeen, MD	-	-		-		1.520	Dec 2023	-		1.520	0.000	1.520	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Enhanced Personnel Borne IED Detection Prototyping	C/TBD	DEVCOM CBC : Edgewood, MD	-	-		-		2.756	Jan 2024	-		2.756	0.000	2.756	-
Maneuver IED Detection and Mitigation Technology Demonstration	C/TBD	TBD : TBD	-	-		-		3.826	Feb 2024	-		3.826	0.000	3.826	-
		Subtotal	9.601	12.891		14.298		16.426		-		16.426	0.000	53.216	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.601	12.891		14.840		16.426		-		16.426	0.000	53.758	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

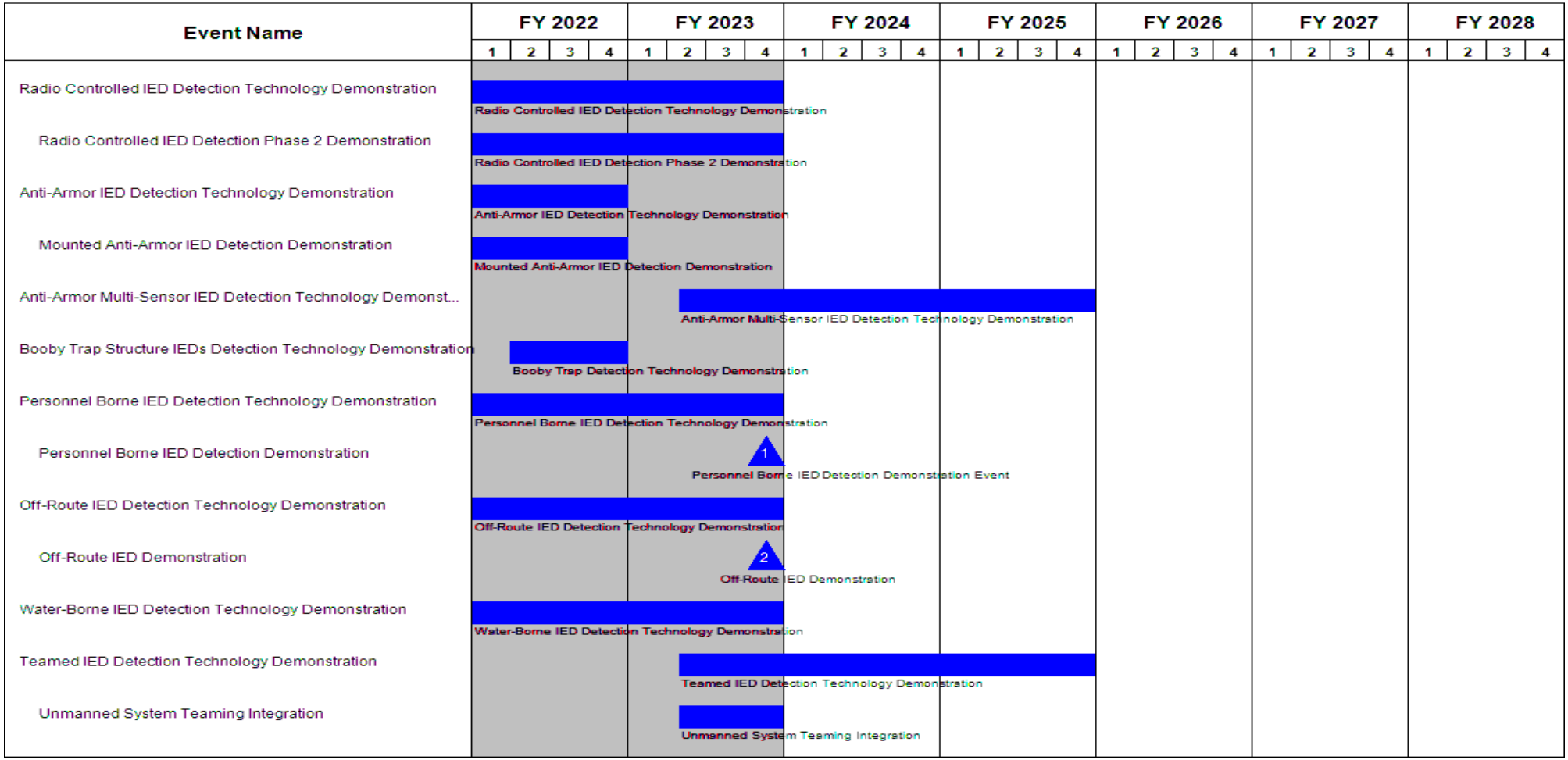


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604134A / *Counter Improvised-Threat Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** CD4 / *Counter Improvised-Threat Demonstration*

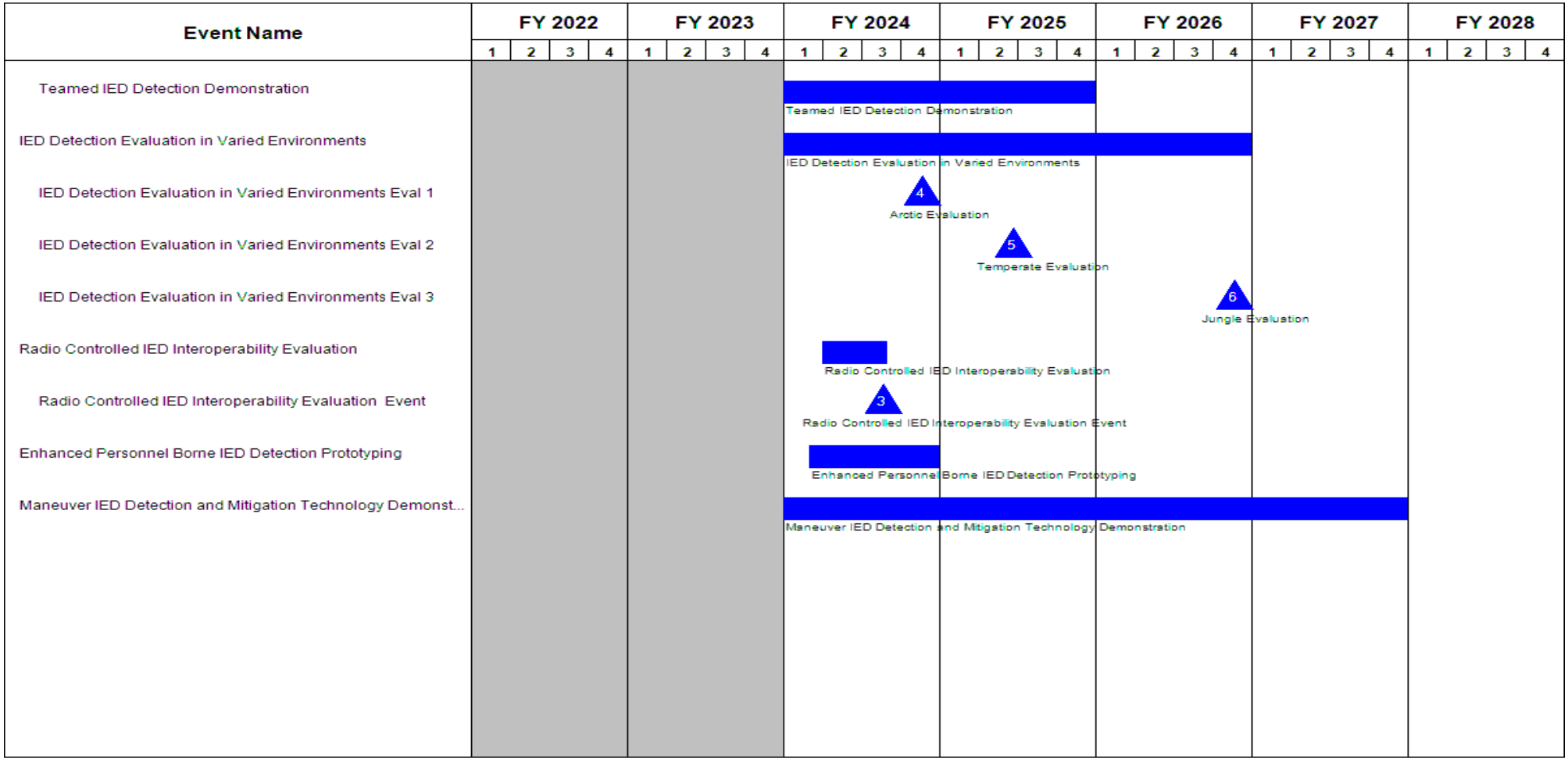


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604134A / *Counter Improvised-Threat Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** CD4 / *Counter Improvised-Threat Demonstration*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Vehicle Borne IED Detection Technology Demonstration	1	2021	4	2021
VBIED Detection Integration	1	2021	3	2021
VBIED Detection Demonstration	4	2021	4	2021
Vehicle Borne IED Warnings and Indicators Technology Demonstration	1	2021	4	2021
Radio Controlled IED Detection Technology Demonstration	1	2021	4	2023
Radio Controlled IED Detection Technique Maturation	1	2021	4	2021
Radio Controlled IED Detection Demonstration	4	2021	4	2021
Radio Controlled IED Detection Phase 2 Demonstration	1	2022	4	2023
Anti-Armor IED Detection Technology Demonstration	1	2021	4	2022
Anti-Armor IED Detection Technique Maturation	1	2021	3	2021
Anti-Armor IED Detection Demonstration	3	2021	4	2021
Mounted Anti-Armor IED Detection Demonstration	1	2022	4	2022
Anti-Armor Multi-Sensor IED Detection Technology Demonstration	2	2023	4	2025
Mitigation of Anti-Armor IED Technology Demonstration	2	2021	3	2021
Booby Trap Structure IEDs Detection Technology Demonstration	1	2021	4	2022
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

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
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*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
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

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	404.291	31.559	0.000	31.559	0.000	0.000	0.000	0.000	0.000	435.850
MR2: *Mid-Range Capability Ground Support Equipment*	-	-	159.698	22.091	-	22.091	-	-	-	-	0.000	181.789
MR3: *Mid-Range Capability (MRC) Missiles*	-	-	148.116	-	-	-	-	-	-	-	0.000	148.116
MR4: *Mid-Range Cap Launcher Payload Deployment System*	-	-	96.477	9.468	-	9.468	-	-	-	-	0.000	105.945

Note

Program Element (PE) 0604135A in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A and PE 0204229A.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604135A *I Strategic Mid-Range Fires*

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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	404.291	32.226	-	32.226
Current President's Budget	0.000	404.291	31.559	-	31.559
Total Adjustments	0.000	0.000	-0.667	-	-0.667
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.667	-	-0.667

Change Summary Explanation
Decreased funding to support higher Army priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604135A / *Strategic Mid-Range Fires*	Project (Number/Name) MR2 / *Mid-Range Capability Ground Support Equipment*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MR2: *Mid-Range Capability Ground Support Equipment*	-	-	159.698	22.091	-	22.091	-	-	-	-	0.000	181.789
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element (PE) 0604135A in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A and PE 0204229A.

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 2022	FY 2023	FY 2024
Title: MR2 - Mid-Range Capability Ground Support Equipment	-	153.869	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 2023 Plans:*** The FY 2023 Base funding in the amount of $159.698 million was moved from PE 0604644A and funds the fabrication, integration of design requirements, and test and evaluation for the MRC Ground Support Equipment (GSE) and MRC BOC to enable completion and fielding of the prototype battery. Base funding allows for integration of design requirements and evaluation of MRC GSE and BOC required characteristics to ensure safe and effective operational fielding of the prototype battery. This funds the Original Equipment Manufacturer's (OEM) effort to purchase hardware and materials and receive Government Furnished			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR2 / *Mid-Range Capability Ground Support Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Equipment (GFE) to fabricate the MRC GSE and BOC and to support component-level and system-level qualification for MRC GSE and BOC. Base funding also allows for the System Engineering and Program Management of integration across military branches to include the OEM contractor and Other Government Agencies (OGA) in order to ensure a common MRC GSE. Funding provides for the Government and Contractor coordination required to perform systems engineering for system integration and check out, verify cybersecurity requirements, manage software development, verify transportation requirements, and plan and execute test and evaluation events to support initial fielding. Additional integration efforts include wireless communication, improved mobility, weight reduction, and M-Code implementation. This effort completes the design and fabrication of the initial MRC prototype battery, and continues the fabrication and integration of subsequent prototype battery GSE and BOC in supporting transition to PEO MS. PE 0604644A funding of $5.016 million was moved to PEO MS PE 0605235A Mid-Range Capability in support of the transition. ***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 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funding was decreased to only include logistics support for one year after First Unit Issued Declaration.			
Title: FY 2023 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638	-	5.829	-
Accomplishments/Planned Programs Subtotals	-	159.698	22.091

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR2 / *Mid-Range Capability Ground Support Equipment*

C. Other Program Funding Summary ($ in Millions)

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR2 / *Mid-Range Capability Ground Support Equipment*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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		-		1.973	0.000	11.880	-
FY 2023 SBIR/STTR Transfer	TBD	Funding transferred in accordance with Title 15 USC 638 : Funding transferred in accordance with Title 15 US	-	-		5.829		-		-		-	0.000	5.829	-
		Subtotal	-	-		15.736		1.973		-		1.973	0.000	17.709	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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	-		19.265	0.000	106.193	-
Government Furnished Equipment (GFE)	Various	Various : Various	-	-		23.972	Jan 2023	-		-		-	0.000	23.972	-
Other Government Agencies (OGA)	TBD	various : various	-	-		4.036	Jan 2023	0.853	Jan 2024	-		0.853	0.000	4.889	-
		Subtotal	-	-		114.936		20.118		-		20.118	0.000	135.054	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604135A / *Strategic Mid-Range Fires*	Project (Number/Name) MR2 / *Mid-Range Capability Ground Support Equipment*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		159.698		22.091		-		22.091	0.000	181.789	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR2 / *Mid-Range Capability Ground Support Equipment*

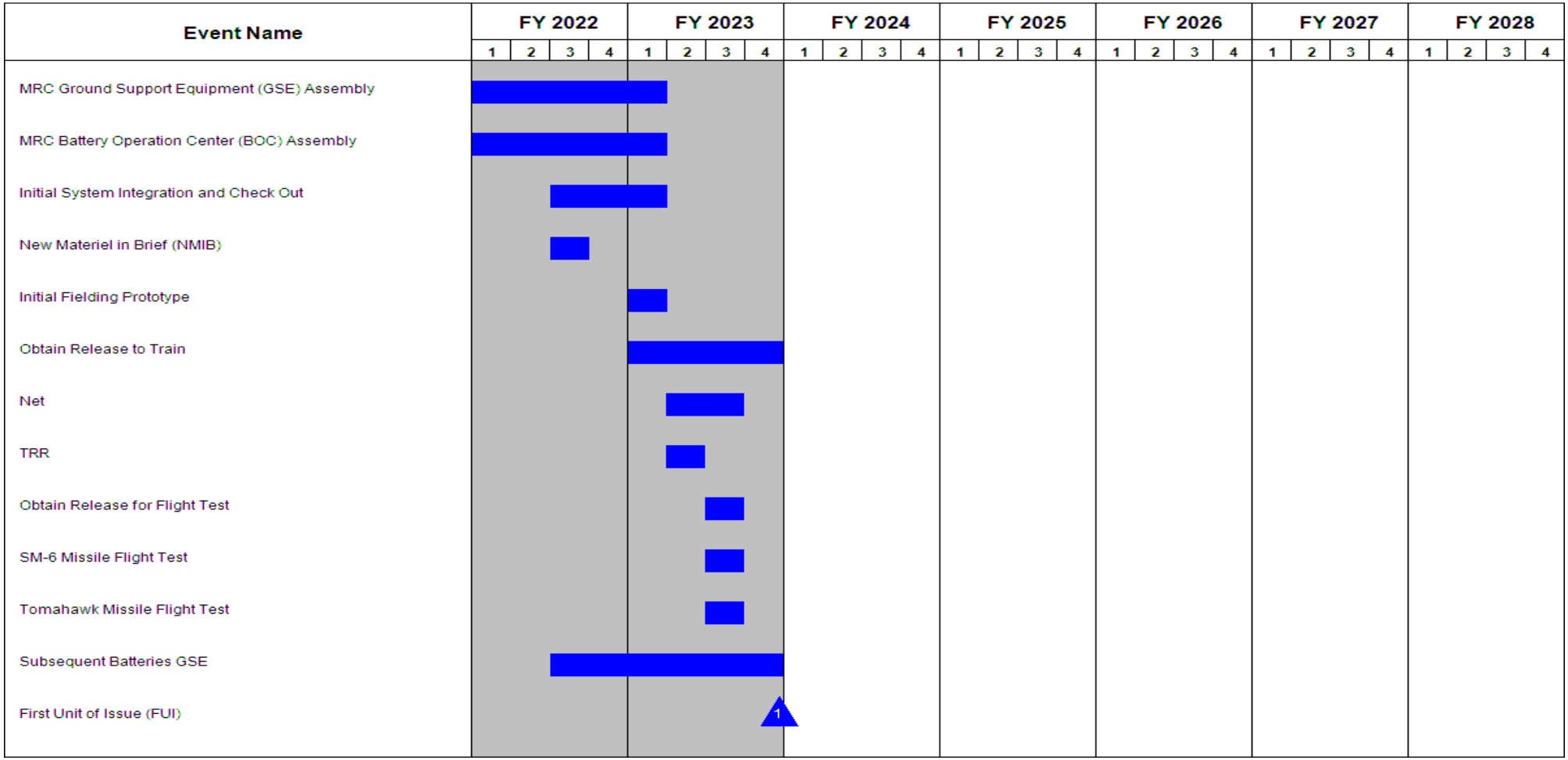
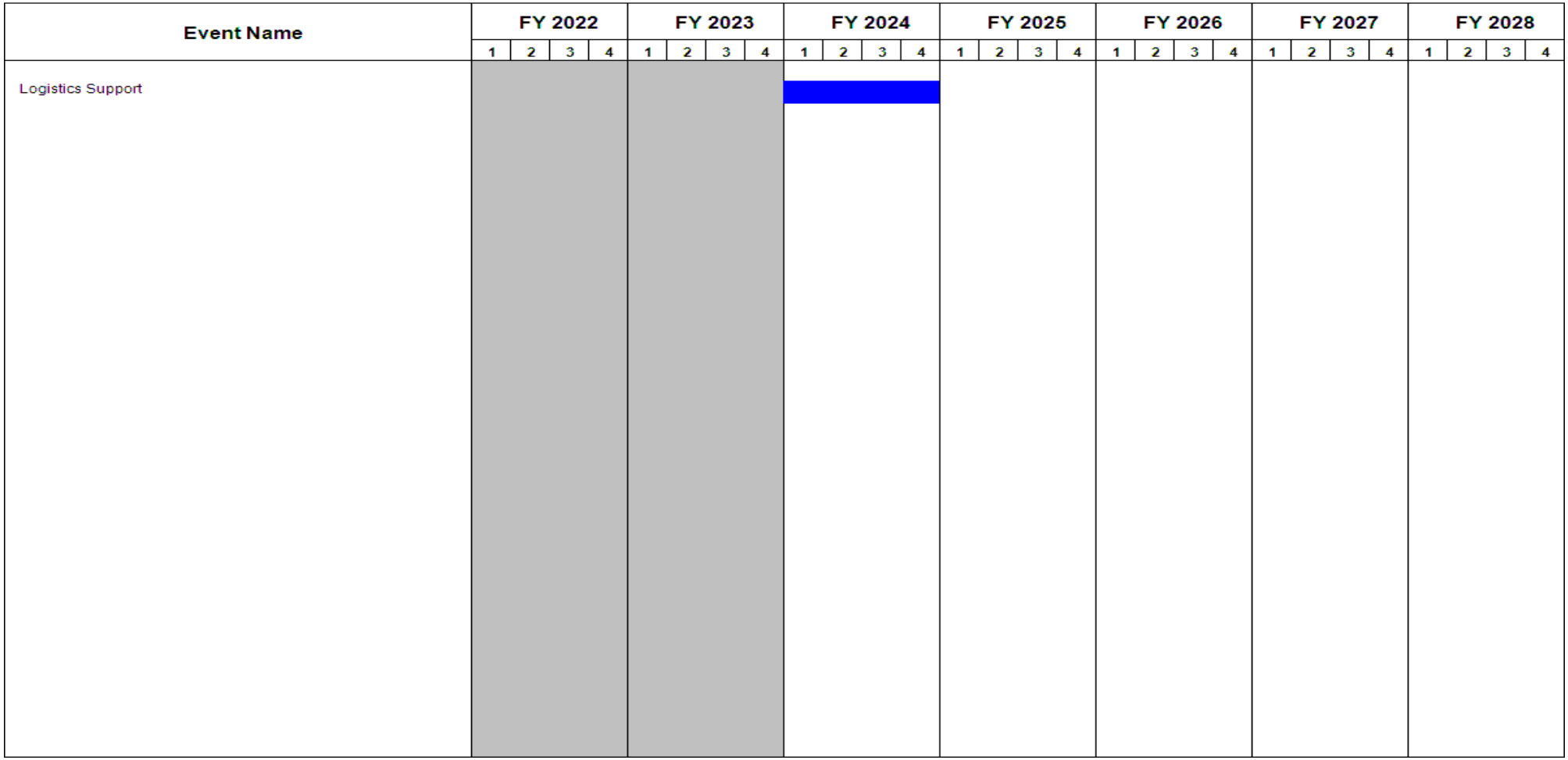


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR2 / *Mid-Range Capability Ground Support Equipment*



Note

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

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR2 / *Mid-Range Capability Ground Support Equipment*

Schedule Details

	Start		End	
Events	**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).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604135A / *Strategic Mid-Range Fires*	Project (Number/Name) MR3 / *Mid-Range Capability (MRC) Missiles*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MR3: *Mid-Range Capability (MRC) Missiles*	-	-	148.116	-	-	-	-	-	-	-	0.000	148.116
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element (PE) 0604135A in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A and PE 0204229A.

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 2022	FY 2023	FY 2024
Title: MR3 - Mid-Range Capability (MRC) Missile	-	142.710	-
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. ***FY 2023 Plans:*** The FY 2023 Base funding in the amount of $148.116 million was moved from PE 0604644A to PE 0604135A and continues buying missiles and associated missile support equipment in FY 2023. Details at a higher classification. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 decreased due to not buying missiles from this PE. MR3 / Mid-Range Capability Missiles Program Element (PE) 0604135A / Strategic Mid-Range Fires (RCCTO) completes the transition to PEO MS Strategic Mid-Range Capability PE 0204229A for FY 2024 Tomahawk missile procurement.			
Title: FY 2023 SBIR/STTR Transfer	-	5.406	-
Description: Funding transferred in accordance with Title 15 USC 638 ***FY 2023 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR3 / *Mid-Range Capability (MRC) Missiles*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding transferred in accordance with Title 15 USC 638 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC 638			
Accomplishments/Planned Programs Subtotals	-	148.116	-

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604135A / *Strategic Mid-Range Fires*	Project (Number/Name) MR3 / *Mid-Range Capability (MRC) Missiles*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering and Program Management	Various	TBD : Huntsville, AL; National Capitol Region	-	-		0.441	Nov 2022	-		-		-	0.000	0.441	-
FY 2023 SBIR/STTR Transfer	TBD	Funding transferred in accordance with Title 15 USC 638 : Funding transferred in accordance with Title 15 US	-	-		5.406		-		-		-	0.000	5.406	-
		Subtotal	-	-		5.847		-		-		-	0.000	5.847	N/A

Product Development ($ in Millions)

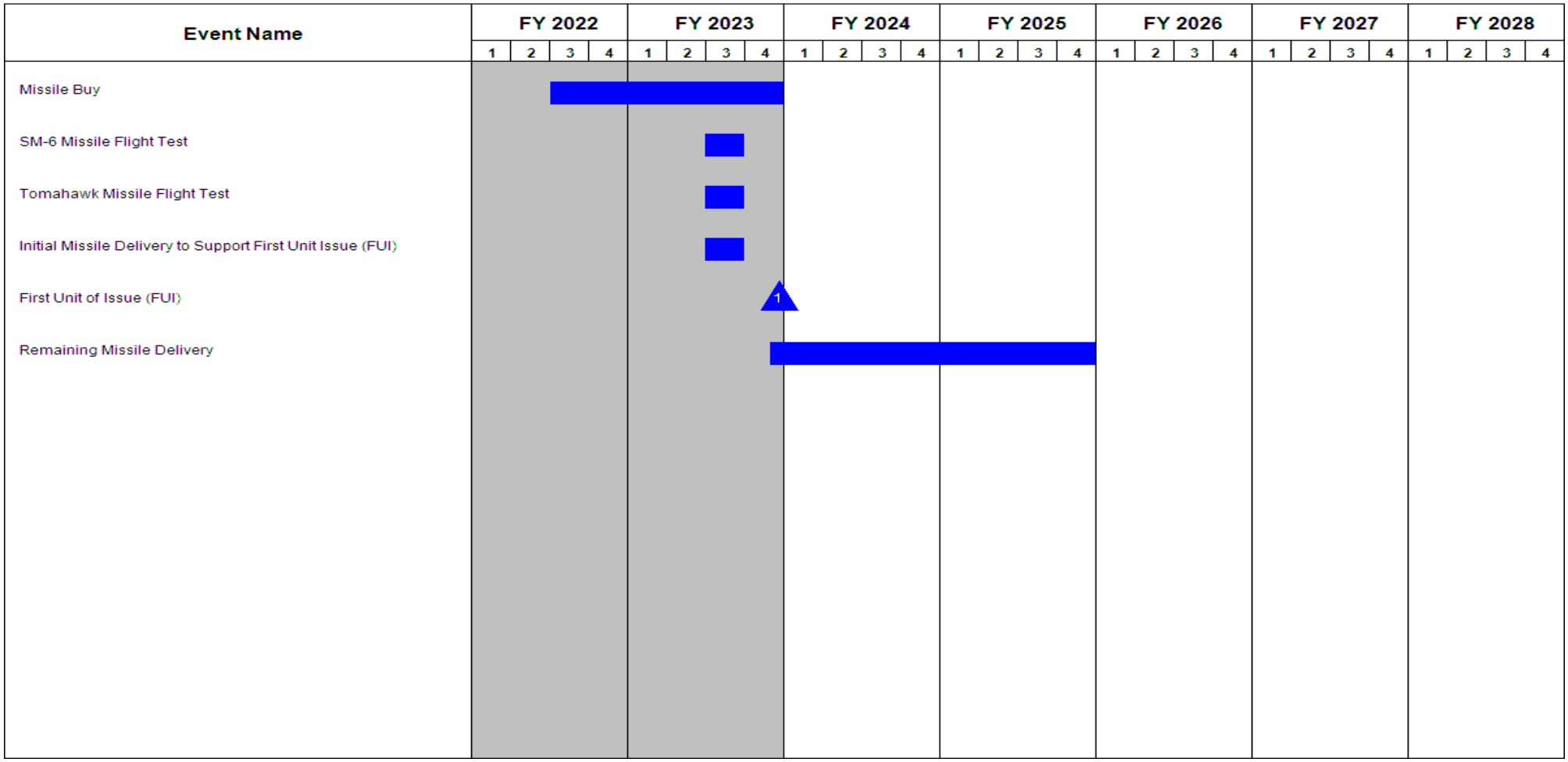
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missiles	Various	TBD : Huntsville, AL; National Capitol Region	-	-		142.269	Dec 2022	-		-		-	0.000	142.269	-
		Subtotal	-	-		142.269		-		-		-	0.000	142.269	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		148.116		-		-		-	0.000	148.116	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).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR3 / *Mid-Range Capability (MRC) Missiles*



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).

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR3 / *Mid-Range Capability (MRC) Missiles*

Schedule Details

	Start		End	
Events	**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).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604135A / *Strategic Mid-Range Fires*	Project (Number/Name) MR4 / *Mid-Range Cap Launcher Payload Deployment System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MR4: *Mid-Range Cap Launcher Payload Deployment System*	-	-	96.477	9.468	-	9.468	-	-	-	-	0.000	105.945
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element (PE) 0604135A in FY 2024 funds logistics support for First Unit Issue (FUI) and supports the transition from PE 0604135A to PE 0605235A and PE 0204229A.

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 2022	FY 2023	FY 2024
Title: MR4 - Mid-Range Capability Launcher Payload Deployment System (PDS)	-	92.956	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 2023 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR4 / *Mid-Range Cap Launcher Payload Deployment System*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
The FY 2023 Base funding in the amount of $96.477 million was moved from PE 0604644A to PE 0604135A and funds the OEMs effort to obtain materials and sub-assemblies and to fabricate the MRC Launcher. Provides for the continued integration of design requirements and test and evaluation for the four prototype MRC Launcher PDS. This funding supports the additional design, development, and integration of required characteristics to ensure safe and effective operational fielding of the MRC Launcher PDS solution through Technology Insertion Points. Launcher integration ensures that the system is stable during launch and meets transportation requirements. Provides for the Government and Contractor coordination required to plan and execute Test and Evaluation events. Additional integration efforts include improved communications, rapid reloading, improved mobility, weight reduction, and M-Code implementation. Provides Systems Engineering and Government Program Management for the MRC Launcher PDS project. Provides for cyber security, software development, and transportation required to deliver the prototype battery to a combat unit. 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 FY 2023. Four MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed by RCCTO, and the three 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 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 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funding was decreased to only include logistics support for one year after First Unit Issued Declaration. MR4 / Mid-Range Capability Launcher Payload Deployment System completes transition to PEO MS Strategic Mid-Range Capability PE 0605235A in FY24.			
Title: FY 2023 SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC 638 ***FY 2023 to FY 2024 Increase/Decrease Statement:***	-	3.521	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR4 / *Mid-Range Cap Launcher Payload Deployment System*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Funding transferred in accordance with Title 15 USC 638			
Accomplishments/Planned Programs Subtotals	-	96.477	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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604135A / *Strategic Mid-Range Fires*	Project (Number/Name) MR4 / *Mid-Range Cap Launcher Payload Deployment System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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	-		1.268	0.000	7.835	-
FY 2023 SBIR/STTR Transfer	TBD	Funding transferred in accordance with Title 15 USC 638 : Funding transferred in accordance with Title 15 US	-	-		3.521		-		-		-	0.000	3.521	-
		Subtotal	-	-		10.088		1.268		-		1.268	0.000	11.356	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Original Equipment Manufacturer (OEM)	SS/CPFF	Lockheed Martin : various	-	-		74.607	Jan 2023	8.200	Jan 2024	-		8.200	0.000	82.807	-
		Subtotal	-	-		74.607		8.200		-		8.200	0.000	82.807	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR4 / *Mid-Range Cap Launcher Payload Deployment System*

Test and Evaluation ($ in Millions)

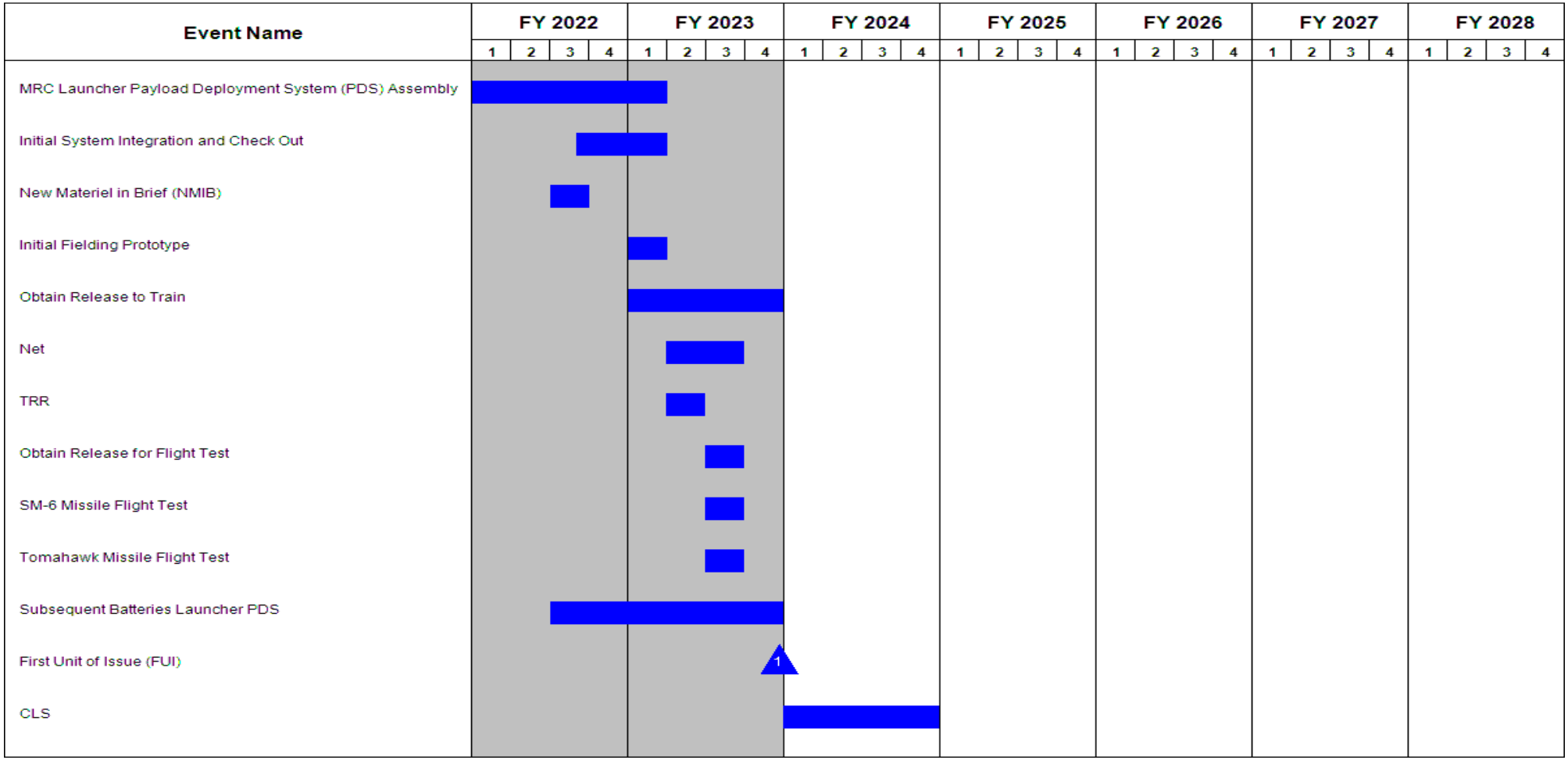
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	various : Various	-	-		5.291	Jan 2023	-		-		-	0.000	5.291	-
		Subtotal	-	-		5.291		-		-		-	0.000	5.291	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		96.477		9.468		-		9.468	0.000	105.945	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).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR4 / *Mid-Range Cap Launcher Payload Deployment System*



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).

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604135A / *Strategic Mid-Range Fires*	**Project (Number/Name)** MR4 / *Mid-Range Cap Launcher Payload Deployment System*

Schedule Details

	Start		End	
Events	**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).

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604182A *I Hypersonics*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	305.406	238.168	43.435	0.000	43.435	0.000	0.000	0.000	0.000	0.000	587.009
HX1: *Long-Range Hypersonic Weapon*	-	305.406	10.000	-	-	-	-	-	-	-	0.000	315.406
HX3: *All Up Round and Canister (AUR+C)*	-	-	45.233	-	-	-	-	-	-	-	0.000	45.233
HX4: *Common Hypersonic Glide Body (CHGB)*	-	-	105.710	-	-	-	-	-	-	-	0.000	105.710
HX5: *Ground Support Equipment (GSE)*	-	-	62.842	43.435	-	43.435	-	-	-	-	0.000	106.277
HX6: *Test and Evaluation*	-	-	14.383	-	-	-	-	-	-	-	0.000	14.383

Note

This funding will transition Program Element (PE) 0604182A / Hypersonics 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604182A *I Hypersonics*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	315.131	173.168	43.244	-	43.244
Current President's Budget	305.406	238.168	43.435	-	43.435
Total Adjustments	-9.725	65.000	0.191	-	0.191
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	75.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.725	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.191	-	0.191

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: HX1: *Long-Range Hypersonic Weapon*		
Congressional Add: *Program increase - hypersonic glide body risk reduction*	44.000	-
Congressional Add: *Program Increase - Near Net Shape Materials*	5.000	-
Congressional Add: *Program Increase - Materials, Manufacturing & Machine Learning for Hypersonics*	-	10.000
Congressional Add Subtotals for Project: HX1	49.000	10.000
Project: HX4: *Common Hypersonic Glide Body (CHGB)*		
Congressional Add: *Hypersonic Glide Body Risk Reduction*	-	60.000
Congressional Add: *Near Net Shape Materials*	-	5.000
Congressional Add Subtotals for Project: HX4	-	65.000
Congressional Add Totals for all Projects	49.000	75.000

Change Summary Explanation

Increased funding due to revised economic assumptions.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX1 / *Long-Range Hypersonic Weapon*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
HX1: *Long-Range Hypersonic Weapon*	-	305.406	10.000	-	-	-	-	-	-	-	0.000	315.406
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 2022	FY 2023	FY 2024
Title: Common Hypersonic Glide Body (CHGB) ***Description:*** This effort is the development, purchase of hardware, integration, assembly, test and delivery of the Common Hypersonic Glide Body (CHGB) system for the All Up Round and Canister (AUR+C).	29.944	-	-
Title: All Up Round and Canister (AUR+C) ***Description:*** This effort is the development, purchase of hardware, integration, assembly, test and delivery of the All Up Round and Canister (AUR+C).	123.213	-	-
Title: Ground Support Equipment (GSE) ***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.	78.448	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX1 / *Long-Range Hypersonic Weapon*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Test and Evaluation ***Description:*** Test and evaluation includes test planning, execution and analysis of 3 major flight tests. Also provides required support for environmental testing.	24.801	-	-
Accomplishments/Planned Programs Subtotals	256.406	-	-

	FY 2022	FY 2023
Congressional Add: Program increase - hypersonic glide body risk reduction ***FY 2022 Accomplishments:*** Furthers efforts executed under FY21 109 $50.000M "Hypersonic Glidebody Risk Reduction". Purchased additional equipment for Common Hypersonic Glidebody (CHGB) production ramp up, purchase critical spare parts to offset risk for flight tests, improve supplier base and manufacturing capabilities, develop test equipment and continue production engineering efforts to make design more affordable.	44.000	-
Congressional Add: Program Increase - Near Net Shape Materials ***FY 2022 Accomplishments:*** This effort focuses on optimizing the use of 3 Dimensional Carbon-Carbon (3DCC) in the Thermal Protection System (TPS). The intent is to decrease waste, improve producibility and reduce overall cost.	5.000	-
Congressional Add: Program Increase - Materials, Manufacturing & Machine Learning for Hypersonics ***FY 2023 Plans:*** Produce and qualify additively manufactured components to support future production line incorporation to the Common Hypersonic Glide Body. Develop and coordinate Non-Destructive Inspection (NDI) criteria for Additively Manufactured parts to help reduce program cost and accelerate schedule for product acceptance. Perform 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.	-	10.000
Congressional Adds Subtotals	49.000	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX1 / *Long-Range Hypersonic Weapon*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX1 / *Long-Range Hypersonic Weapon*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CHGB: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	3.426		1.000		-		-		-	0.000	4.426	-
AUR+C: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	5.693		-		-		-		-	0.000	5.693	-
GSE: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	7.052		-		-		-		-	0.000	7.052	-
Test: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	4.219		-		-		-		-	0.000	4.219	-
		Subtotal	-	20.390		1.000		-		-		-	0.000	21.390	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CHGB: Dynetics Technical Solution (DTS)	C/CPFF	Manufacturing of the CHGB : Huntsville, AL	-	25.100		-		-		-		-	0.000	25.100	-
TPS: Dynetics Technical Solutions (DTS)	C/CPFF	Manufacturing of TPS : Huntsville, AL	-	20.999		-		-		-		-	0.000	20.999	-
CHGB: Various	Various	CHGB/TPS : Huntsville, AL	-	29.419		9.000		-		-		-	0.000	38.419	-
AUR+C: Lockheed Martin	C/Various	Manufacturing and delivery of the LRHW booster and canister : Denver, CO	-	115.660		-		-		-		-	0.000	115.660	-
AUR+C: Various	Various	AUR+C : Multiple	-	1.860		-		-		-		-	0.000	1.860	-
GSE: Lockheed Martin	C/CPFF	Software development and maintenance,	-	69.547		-		-		-		-	65.642	135.189	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX1 / *Long-Range Hypersonic Weapon*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		weapons systems integration, test planning and execution support for JFC-2 and JFC-3 : Huntsville, AL													
GSE: Various	Various	Ground Spt Equipment : Huntsville, AL	-	1.849		-		-		-		-	0.992	2.841	-
		Subtotal	-	264.434		9.000		-		-		-	66.634	340.068	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test: Flight Test Planning and Execution	Various	Flight Test Planning and Execution : Various	-	20.582		-		-		-		-	0.000	20.582	-
		Subtotal	-	20.582		-		-		-		-	0.000	20.582	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	305.406		10.000		-		-		-	66.634	382.040	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX1 / *Long-Range Hypersonic Weapon*

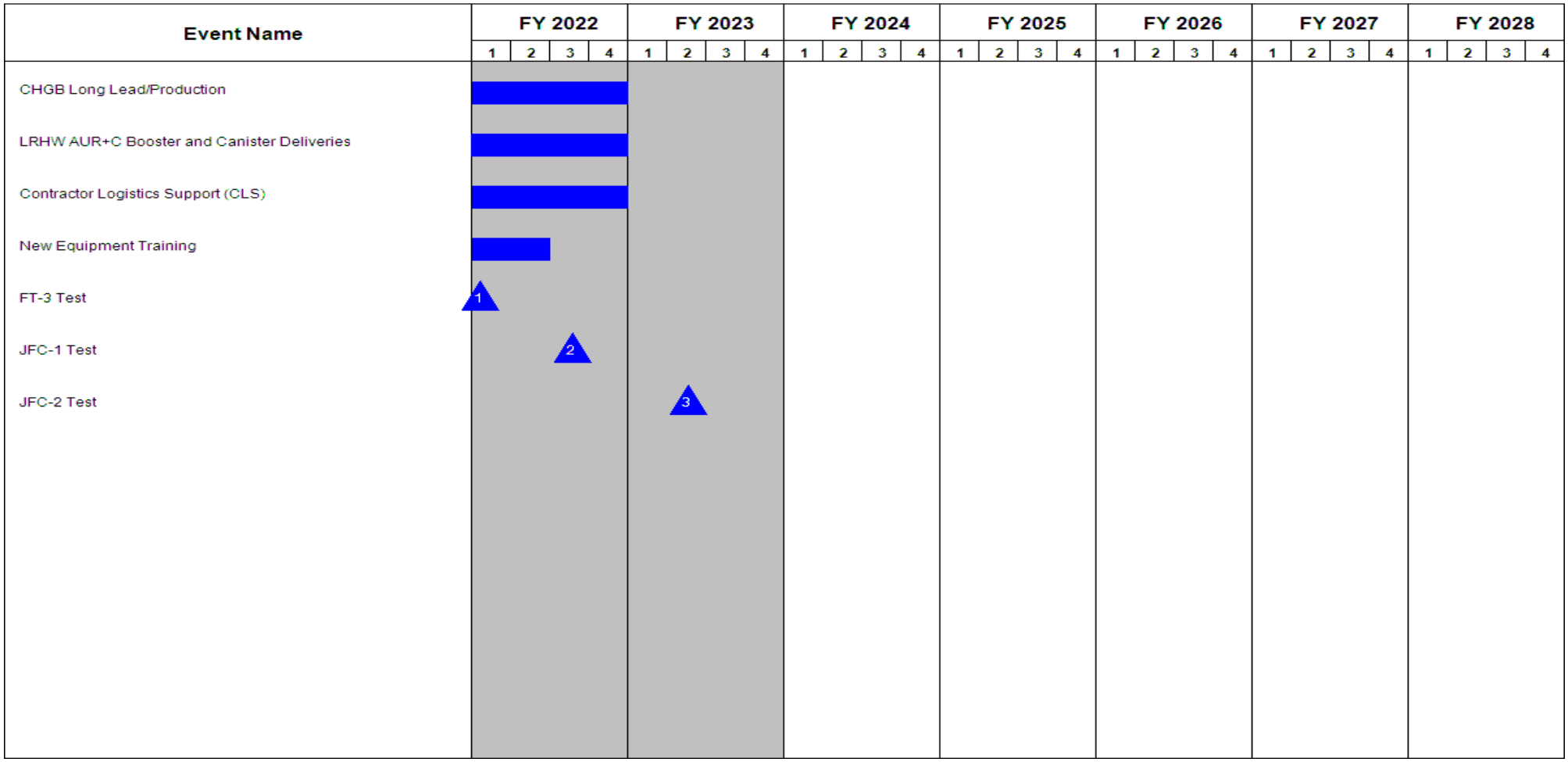


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX1 / *Long-Range Hypersonic Weapon*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX3 / *All Up Round and Canister (AUR+C)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
HX3: *All Up Round and Canister (AUR+C)*	-	-	45.233	-	-	-	-	-	-	-	0.000	45.233
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 2022	FY 2023	FY 2024
Title: All Up Round and Canister (AUR+C)	-	45.233	-
Description: This effort is the development, purchase of hardware, integration, assembly, test and delivery of the All Up Round and Canister (AUR+C). ***FY 2023 Plans:*** Technologies will continue to be updated based on FY 2022 test outcomes. Complete All Up Round and Canister (AUR+C) assembly, integration, acceptance testing and delivery. Support test preparation, execution, and post-flight analysis. Complete Insensitive Munition / Hazard Classification tests. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease reflects the transition of the Long Range Hypersonic Weapon (LRHW) program to PE 060523A/Hypersonics EMD.			
Accomplishments/Planned Programs Subtotals	-	45.233	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX3 / *All Up Round and Canister (AUR+C)*

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX3 / *All Up Round and Canister (AUR+C)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUR+C: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	-		7.554		-		-		-	0.000	7.554	-
		Subtotal	-	-		7.554		-		-		-	0.000	7.554	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUR+C: Lockheed Martin	C/Various	Manufacturing and delivery of the LRHW booster and canister : Denver, CO	-	-		29.975		-		-		-	0.000	29.975	-
AUR+C: Various	Various	Manufacturing and delivery of the LRHW booster and canister : Multiple	-	-		7.704		-		-		-	0.000	7.704	-
		Subtotal	-	-		37.679		-		-		-	0.000	37.679	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		45.233		-		-		-	0.000	45.233	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX3 / *All Up Round and Canister (AUR+C)*

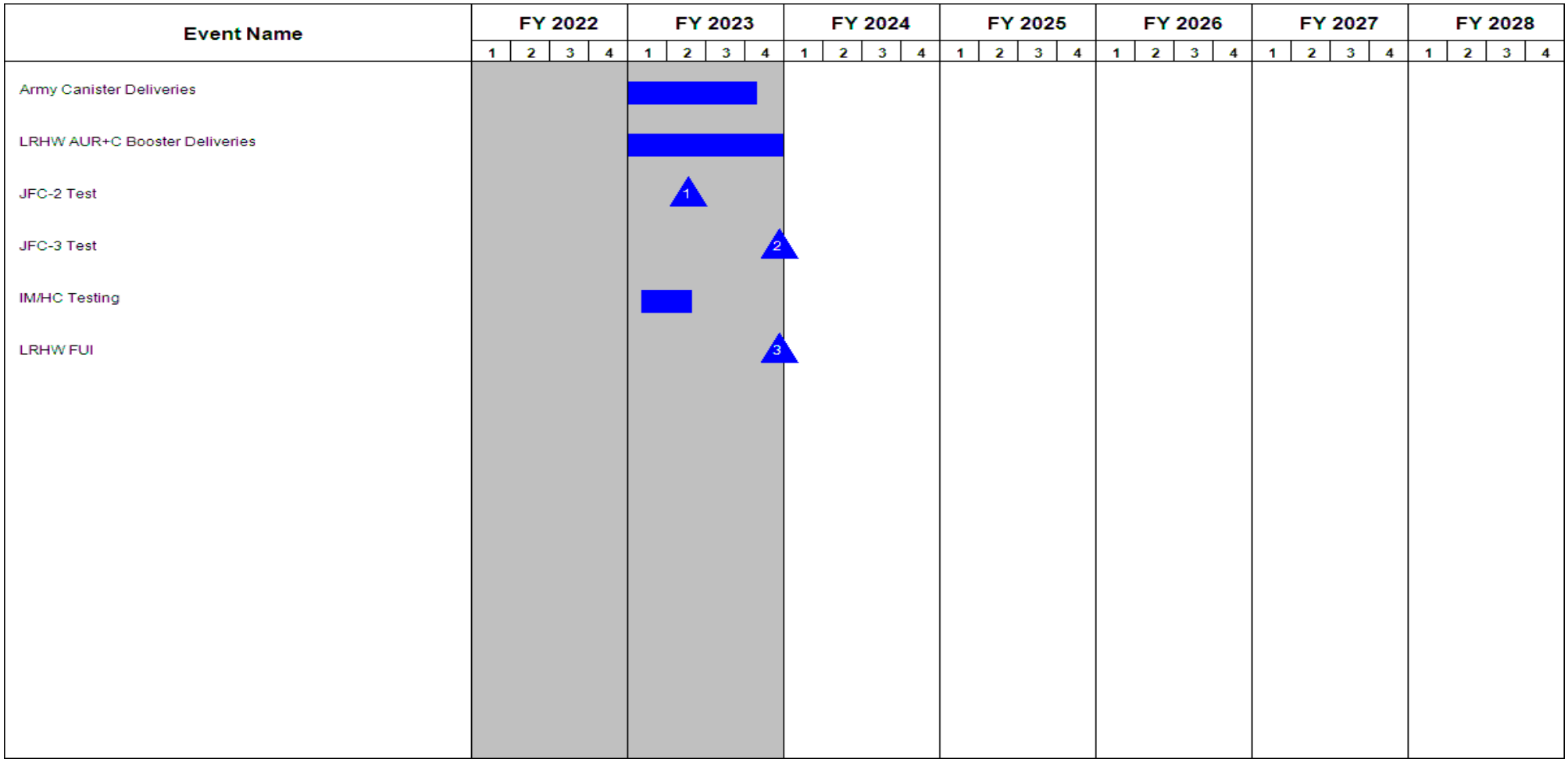


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX3 / *All Up Round and Canister (AUR+C)*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
HX4: *Common Hypersonic Glide Body (CHGB)*	-	-	105.710	-	-	-	-	-	-	-	0.000	105.710
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 2022	FY 2023	FY 2024
Title: Common Hypersonic Glide Body (CHGB)	-	40.710	-
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. ***FY 2023 Plans:*** In FY 2023, fabrication and assembly of Common Hypersonic Glide Body (CHGB) prototypes will ramp up to JFC-3 flight test, qualification testing and fielding of the first LRHW battery. Primary efforts include manufacturing, assembly, test and checkout of the CHGB components and subsystems. Additional efforts include sub-assembly activities and integration, assembly and test of complete CHGBs for the Army's first LRHW battery. The new industry Thermal Protection System (TPS) integrator will begin integration, assembly and test efforts and continue long lead material procurements to support future deliveries. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease reflects the transition of the Long Range Hypersonic Weapon (LRHW) program to PE 060523A/Hypersonics EMD.			
Accomplishments/Planned Programs Subtotals	-	40.710	-

	FY 2022	FY 2023
Congressional Add: Hypersonic Glide Body Risk Reduction	-	60.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX4 / *Common Hypersonic Glide Body (CHGB)*

	FY 2022	FY 2023
FY 2023 Plans: Furthers efforts executed under FY22 80 $44,000K "Hypersonic Glidebody Risk Reduction" to purchase additional equipment for Common Hypersonic Glidebody (CHGB) production ramp up, purchase critical spare parts to offset risk for flight tests, improve supplier base and manufacturing capabilities, develop test equipment and continue production engineering effort to make design more affordable.		
Congressional Add: Near Net Shape Materials ***FY 2023 Plans:*** Furthers 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 will also seek to design and produce a prototype part that can validate manufacturing rate, scaling limitations, and mechanical properties.	-	5.000
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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX4 / *Common Hypersonic Glide Body (CHGB)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CHGB: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	-		12.323		-		-		-	0.000	12.323	-
		Subtotal	-	-		12.323		-		-		-	0.000	12.323	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CHGB: Dynetics Technical Solutions (DTS)	C/CPFF	Manufacturing of the CHGB : Huntsville, AL	-	-		79.452		-		-		-	0.000	79.452	-
CHGB: Various	Various	Manufacturing of the CHGB : Huntsville, AL	-	-		13.935		-		-		-	0.000	13.935	-
		Subtotal	-	-		93.387		-		-		-	0.000	93.387	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		105.710		-		-		-	0.000	105.710	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX4 / *Common Hypersonic Glide Body (CHGB)*

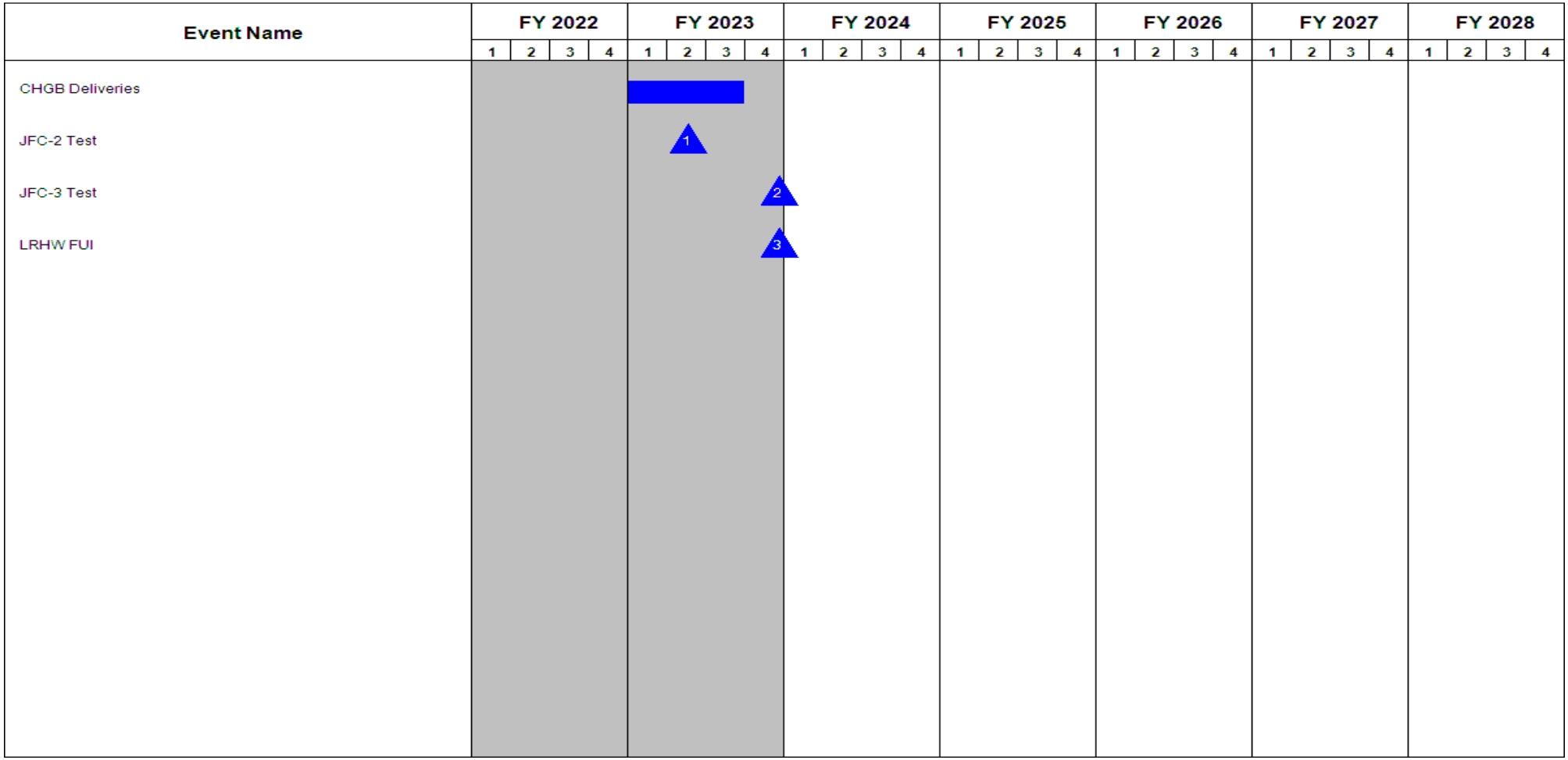


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX4 / *Common Hypersonic Glide Body (CHGB)*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX5 / *Ground Support Equipment (GSE)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
HX5: *Ground Support Equipment (GSE)*	-	-	62.842	43.435	-	43.435	-	-	-	-	0.000	106.277
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY24 this funding 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 2022	FY 2023	FY 2024
Title: Ground Support Equipment (GSE)	-	62.842	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 2023 Plans: Supports execution of training and logistics for fielded equipment including maintenance and repair/replacement of system components (Contractor Logistics Support (CLS)) in order to maintain operational readiness. Includes systems integration activities in lab and field environment of the All-Up Round and Canister (AUR+C), Transporter Erector Launcher (TEL) and Battery Operations Center (BOC) hardware and software. Planning and execution of ground and flight test events utilizing TEL and BOC followed by post-test data analysis and evaluation of test results. Software development and maintenance to incorporate design changes resulting from test events as well as user feedback. Development of the product-level technical data package documenting the design of the TEL and BOC. Includes engineering support for technology insertion to the weapon system driving hardware and software changes to the system. Complete a delta New Equipment Training (NET) event to cover hardware and software changes as well as Soldier rotations.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX5 / *Ground Support Equipment (GSE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease supports one year of Contractor Logistics Support (CLS), following the fielding of Battery #1 and transition to PE 0605232A/ Hypersonics EMD.			
Accomplishments/Planned Programs Subtotals	-	62.842	43.435

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX5 / *Ground Support Equipment (GSE)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GSE: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	-		9.324		0.710		-		0.710	0.000	10.034	-
		Subtotal	-	-		9.324		0.710		-		0.710	0.000	10.034	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GSE: Lockheed Martin	C/CPFF	Lockheed Martin: Various : Huntsville, AL	-	-		43.531		42.725		-		42.725	0.000	86.256	-
GSE: Various	Various	Various : Huntsville, AL	-	-		9.987		-		-		-	0.000	9.987	-
		Subtotal	-	-		53.518		42.725		-		42.725	0.000	96.243	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		62.842		43.435		-		43.435	0.000	106.277	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX5 / *Ground Support Equipment (GSE)*

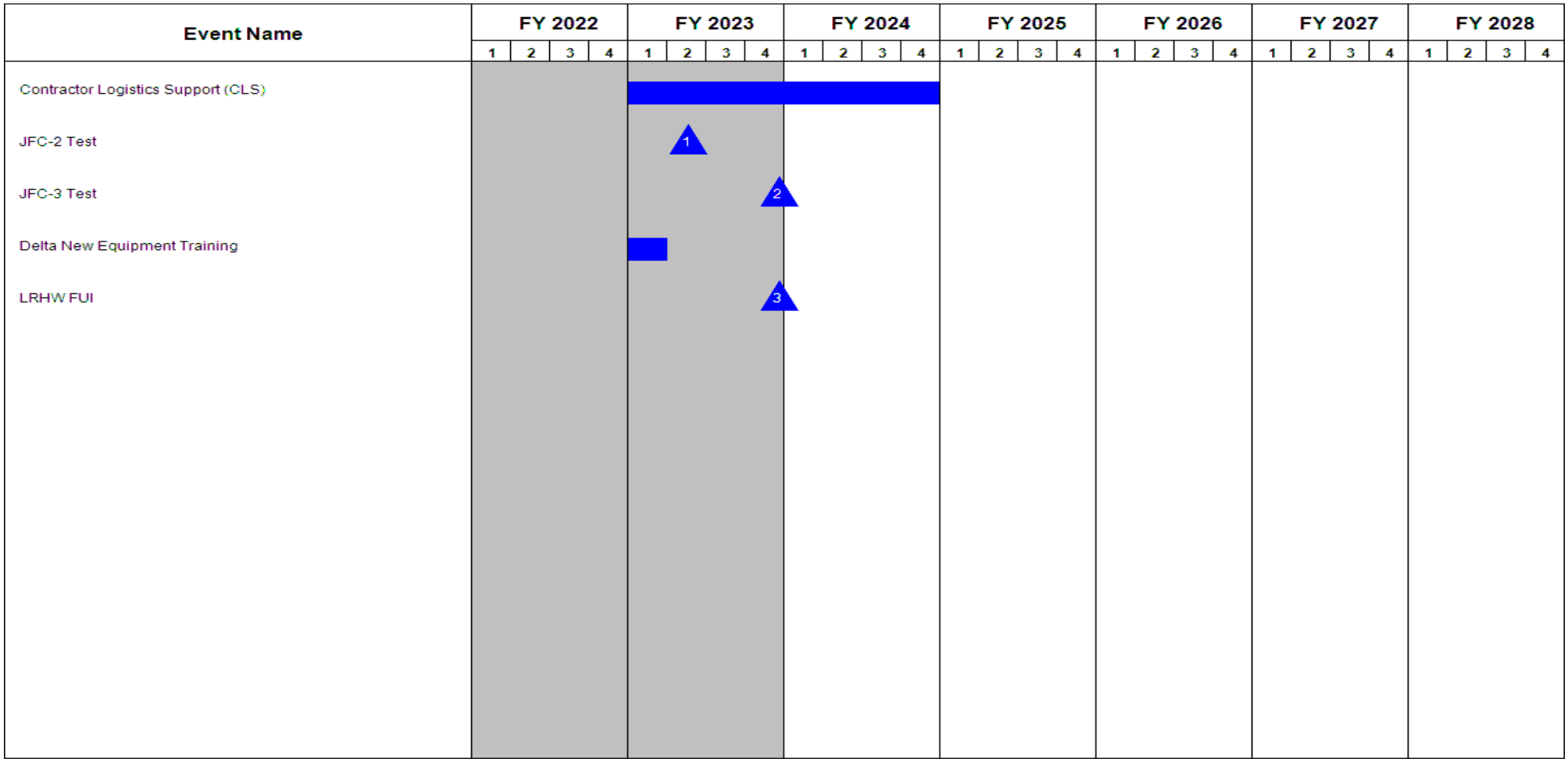


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX5 / *Ground Support Equipment (GSE)*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
HX6: *Test and Evaluation*	-	-	14.383	-	-	-	-	-	-	-	0.000	14.383
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 2022	FY 2023	FY 2024
Title: Test and Evaluation	-	14.383	-
Description: Test and evaluation includes test planning, execution, and analysis of 2 major flight tests. Also provides required support for environmental testing. ***FY 2023 Plans:*** JFC-2 requirements include Post Flight Test analysis. JFC-3 requirements include data collection infrastructure, execution costs, Soldier TDY and Post Flight Test analysis. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease reflects the transition of the Long Range Hypersonic Weapon (LRHW) program to PE 060523A/Hypersonics EMD.			
Accomplishments/Planned Programs Subtotals	-	14.383	-

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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX6 / *Test and Evaluation*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604182A / *Hypersonics*	Project (Number/Name) HX6 / *Test and Evaluation*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation: Government Personnel and Operations Support	Various	Project Office Support : Huntsville, AL	-	-		6.384		-		-		-	0.000	6.384	-
		Subtotal	-	-		6.384		-		-		-	0.000	6.384	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation: Flight Test Planning and Execution	Various	Flight Test Planning and Execution : Multiple	-	-		7.999		-		-		-	0.000	7.999	-
		Subtotal	-	-		7.999		-		-		-	0.000	7.999	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		14.383		-		-		-	0.000	14.383	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX6 / *Test and Evaluation*

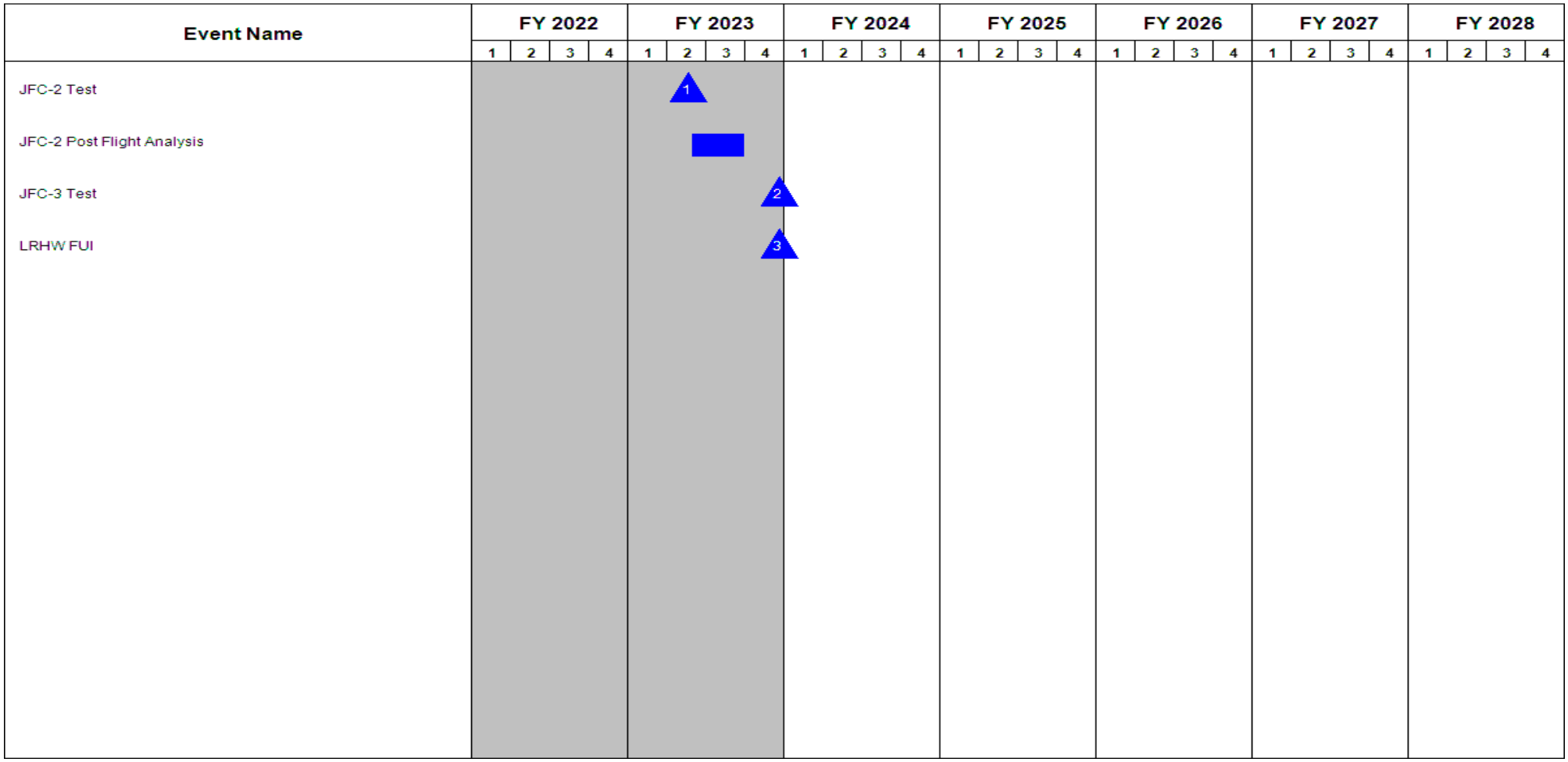


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604182A / *Hypersonics*	**Project (Number/Name)** HX6 / *Test and Evaluation*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604403A / *Future Interceptor*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	6.643	8.179	8.040	-	8.040	8.042	8.052	8.138	8.229	Continuing	Continuing
FM3: *Future Interceptor*	-	6.643	8.179	8.040	-	8.040	8.042	8.052	8.138	8.229	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of Air and Missile Defense.

The warfighter community is actively staffing operational requirements for the Future Interceptor that will defend against current and emerging near-peer threats. The Future Interceptor program will provide operational effectiveness against current and evolving air, missile, and hypersonic threats within the lower tier portion of the ballistic missile defense battlespace. The future interceptor will increase Air and Missile Defense (AMD) capability through increased velocity, altitude, and maneuverability. Current funding provides refinements/updates to drafted Architecture Design/Concept Definitions, Performance Study Reports, Program Feasibility/ Acquisition Strategy documents already delivered to the USG as part of Phase I. It also continues Virtual Missile Model (VMM) development to support concept definition. Products from the Future Interceptor concept definition phase support development of technologies that will be used in future efforts to competitively down select to a single vendor.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	6.895	8.179	8.210	-	8.210
Current President's Budget	6.643	8.179	8.040	-	8.040
Total Adjustments	-0.252	0.000	-0.170	-	-0.170
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.252	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.170	-	-0.170

Change Summary Explanation

Decreased funding to support higher Army priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604403A / *Future Interceptor*	Project (Number/Name) FM3 / *Future Interceptor*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
FM3: *Future Interceptor*	-	6.643	8.179	8.040	-	8.040	8.042	8.052	8.138	8.229	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The warfighter community is actively staffing operational requirements for the Future Interceptor that will defend against current and emerging near-peer threats. The Future Interceptor program will provide operational effectiveness against current and evolving air, missile, and hypersonic threats within the lower tier portion of the ballistic missile defense battlespace. The future interceptor will increase Air and Missile Defense (AMD) capability through increased velocity, altitude, and maneuverability. Current funding provides refinements/ updates to drafted Architecture Design/Concept Definitions, Performance Study Reports, Program Feasibility/ Acquisition Strategy documents already delivered to the USG as part of Phase I. It also continues Virtual Missile Model (VMM) development to support concept definition. Products from the Future Interceptor concept definition phase support development of technologies that will be used in future efforts to competitively down select to a single vendor.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Program Development and Support	6.643	7.880	8.040
Description: Provide program development and support for the Future Interceptor program, including technical work, concept definition, modeling & simulation work, and other related efforts. ***FY 2023 Plans:*** - Refinements/updates to drafted Architecture Design/Concept Definitions - Performance Study Reports - Program Feasibility/Acquisition Strategy documents - Virtual Missile Model (VMM) development ***FY 2024 Plans:*** - Support the user community with technical subject matter expertise and assist the FCoE in requirements development for Future Interceptor - Modeling and Sims (M&S) support from AvMC to provide Subject-Matter-Expertise (SME) on the government furnished simulation framework that the contractors are using to build their VMMs ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase supports planned lifecycle of the effort.			
Title: SBIR/STTR Transfer	-	0.299	-
Description: Funding transferred in accordance with Title 15 USC §638.			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604403A / *Future Interceptor*	**Project (Number/Name)** FM3 / *Future Interceptor*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.			
Accomplishments/Planned Programs Subtotals	6.643	8.179	8.040

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) 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604403A / *Future Interceptor*	Project (Number/Name) FM3 / *Future Interceptor*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PAC-3 Product Office	MIPR	Project Office : Huntsville, AL	-	0.350	Apr 2022	0.357	Dec 2022	0.364	Dec 2023	-		0.364	0.000	1.071	Continuing
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.299	Jan 2023	-		-		-	0.000	0.299	Continuing
		Subtotal	-	0.350		0.656		0.364		-		0.364	0.000	1.370	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SETA	Various	Multiple : Multiple	-	0.830	May 2022	0.847	Feb 2023	0.864	Feb 2024	-		0.864	0.000	2.541	Continuing
US Other Government Agencies (OGA)	MIPR	Various : Huntsville, AL	1.909	5.463	May 2022	6.676	Feb 2023	6.812	Feb 2024	-		6.812	0.000	20.860	Continuing
		Subtotal	1.909	6.293		7.523		7.676		-		7.676	0.000	23.401	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.909	6.643		8.179		8.040		-		8.040	0.000	24.771	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604403A / *Future Interceptor*	**Project (Number/Name)** FM3 / *Future Interceptor*

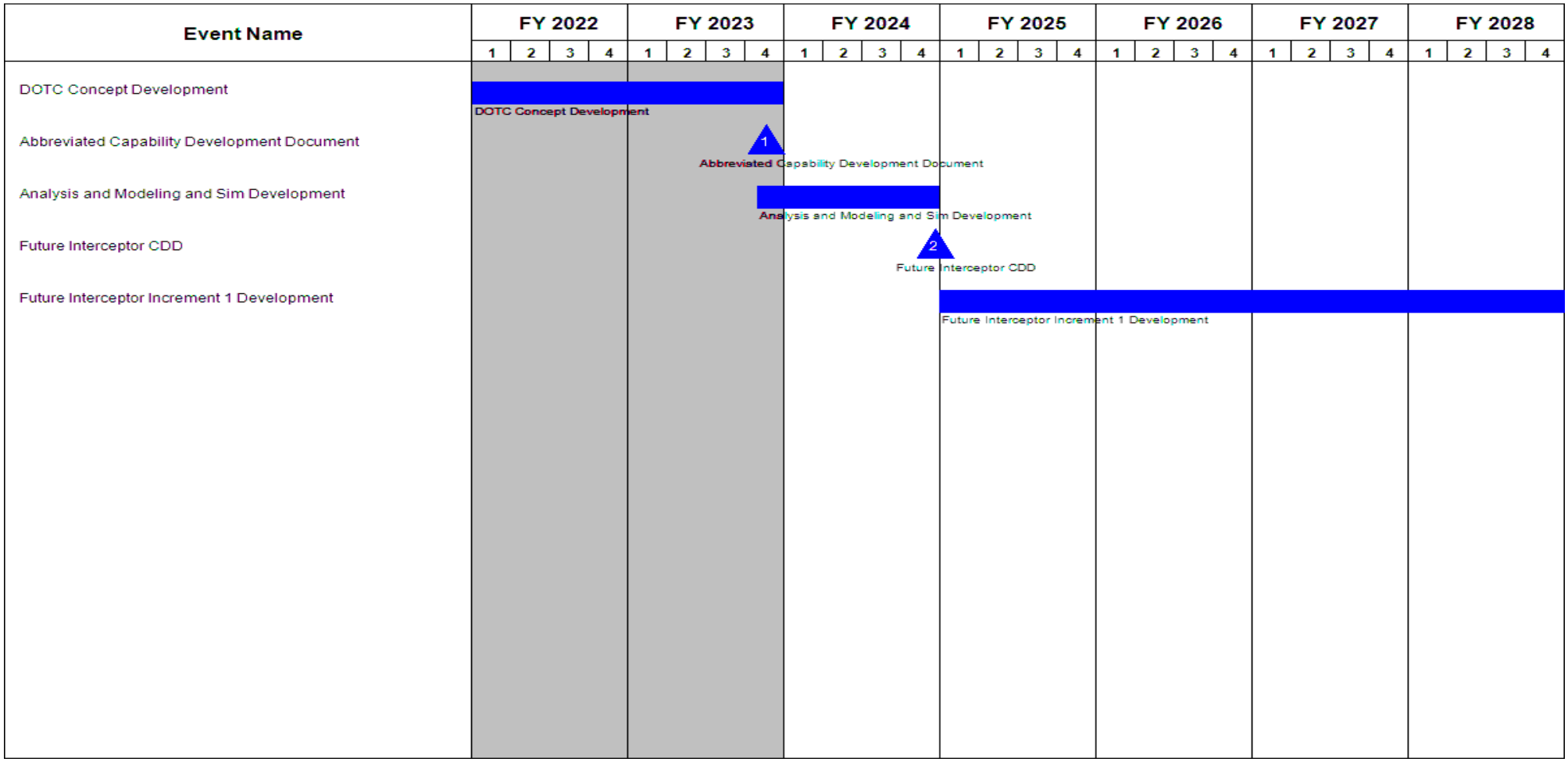


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604403A / *Future Interceptor*	**Project (Number/Name)** FM3 / *Future Interceptor*

Schedule Details

	Start		End	
Events	**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	4	2024
Future Interceptor CDD	4	2024	4	2024
Future Interceptor Increment 1 Development	1	2025	4	2029

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604531A *I Counter - Small Unmanned Aircraft Systems Advanced Development*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	18.449	35.110	64.242	-	64.242	59.862	45.318	49.852	44.832	0.000	317.665
CQ5: *C-sUAS Joint New Capabilities Development*	-	7.629	26.229	43.263	-	43.263	34.471	15.826	15.083	7.370	0.000	149.871
CQ6: *C-sUAS Joint Enabling Capabilities Development*	-	10.820	8.881	20.979	-	20.979	25.391	29.492	34.769	37.462	0.000	167.794

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)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	19.148	35.110	39.314	-	39.314
Current President's Budget	18.449	35.110	64.242	-	64.242
Total Adjustments	-0.699	0.000	24.928	-	24.928
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.699	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	24.928	-	24.928

Change Summary Explanation

FY 2024 funding increase reflects the Department's additional investment in joint C-sUAS ongoing efforts and new capabilities to address sUAS emerging threats.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CQ5: *C-sUAS Joint New Capabilities Development*	-	7.629	26.229	43.263	-	43.263	34.471	15.826	15.083	7.370	0.000	149.871
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 C-sUAS systems must be deployed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: C-sUAS Prototyping New Joint Capabilities	7.629	25.272	43.263

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 2023 Plans:

Continue the prototype development of joint capabilities to address capability gaps in detection, identification, defeat, and enhance command and control. Technology includes the prototyping of Command and Control Decision aids to include Automation, Autonomy, and Human-Machine Teaming; Electronic Warfare detect and defeat; High Energy Lasers; and Combating Emerging sUAS Threats.

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 2023 to FY 2024 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY2024 increase supports the prototype development of joint capabilities to combat current and emerging sUAS threats and includes the addition of the efforts under Collaborative Framework Environment, High Power Microwave, Joint Common Electronic Warfare, and Ninja Software Update capabilities.			
Title: SBIR/STTR ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 FY 2023 to FY 2024 ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY23 funding transferred in accordance with Title 15 USC §638	-	0.957	-
Accomplishments/Planned Programs Subtotals	7.629	26.229	43.263

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 the prototyping effort to meet identified gap and the joint capability 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, and 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.957		-		-		-	Continuing	Continuing	Continuing
		Subtotal	-	-		0.957		-		-		-	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
High Power Microwave Ground Increment 1	TBD	Various : Various	-	3.711		-		-		-		-	Continuing	Continuing	Continuing
High Energy Laser - Ground	TBD	Various : Various	-	-		10.822		6.450		-		6.450	Continuing	Continuing	Continuing
Software Defined Radio Identification Enhancement	TBD	Various : Various	-	-		2.000		5.240		-		5.240	Continuing	Continuing	Continuing
Low Collateral Effects Interceptor Development and Integration	TBD	Various : Various	-	-		4.950		5.500		-		5.500	Continuing	Continuing	Continuing
Command and Control Decision Aids	TBD	Various : Various	-	3.918		7.500		6.700		-		6.700	Continuing	Continuing	Continuing
High Power Microwave Ground (Solid State) Increment 2	TBD	Various : Various	-	-		-		10.700		-		10.700	Continuing	Continuing	Continuing
NinjaNet	TBD	Various : Various	-	-		-		1.200		-		1.200	Continuing	Continuing	Continuing
Collaborative Framework Environment	TBD	Various : Various	-	-		-		1.800		-		1.800	Continuing	Continuing	Continuing
Joint Common Electronic Warfare	TBD	Various : Various	-	-		-		5.673		-		5.673	Continuing	Continuing	Continuing
		Subtotal	-	7.629		25.272		43.263		-		43.263	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.629		26.229		43.263		-		43.263	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

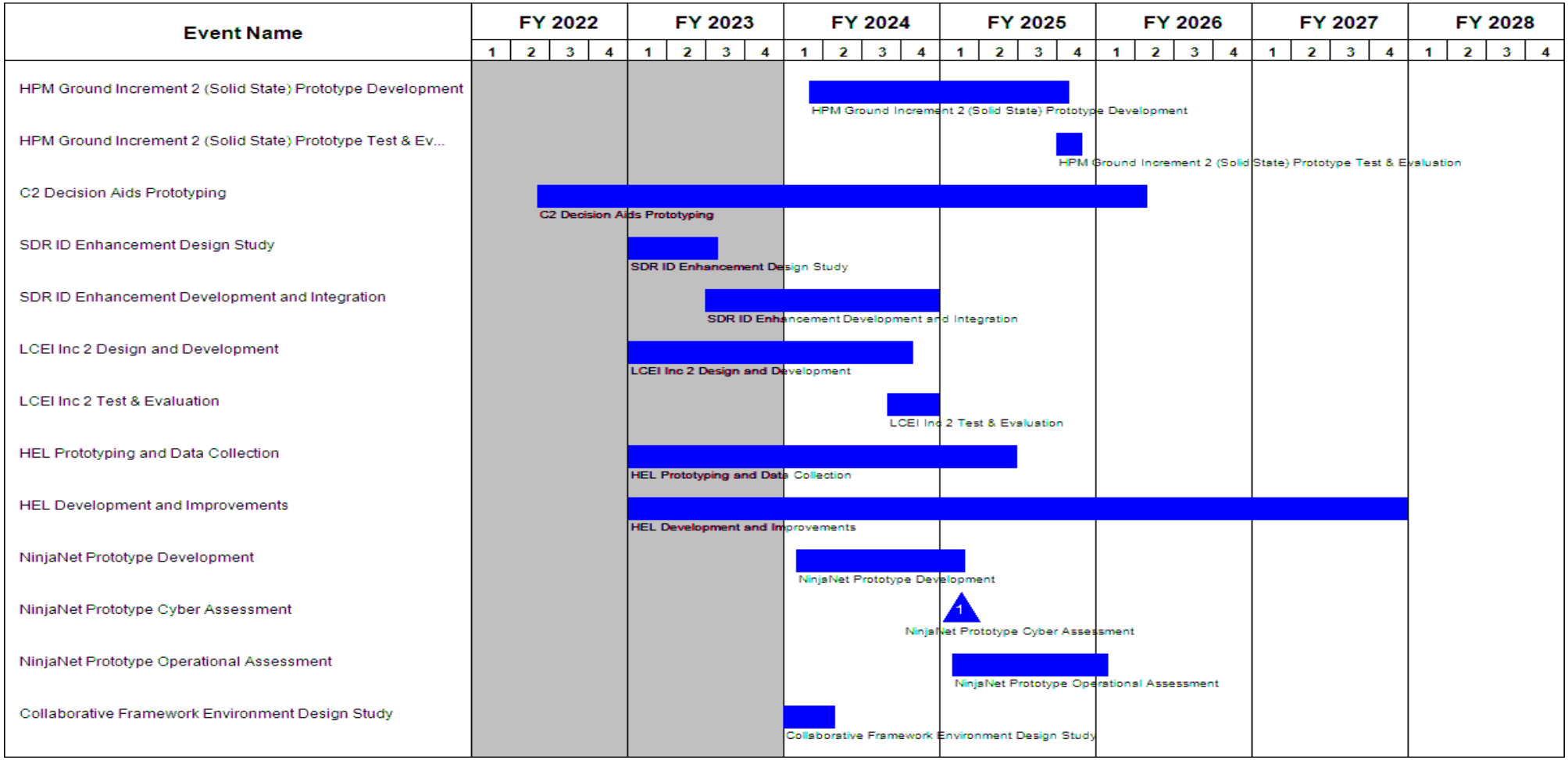


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604531A / *Counter - Small Unmanned Aircraft Systems Advanced Development*	**Project (Number/Name)** CQ5 / *C-sUAS Joint New Capabilities Development*

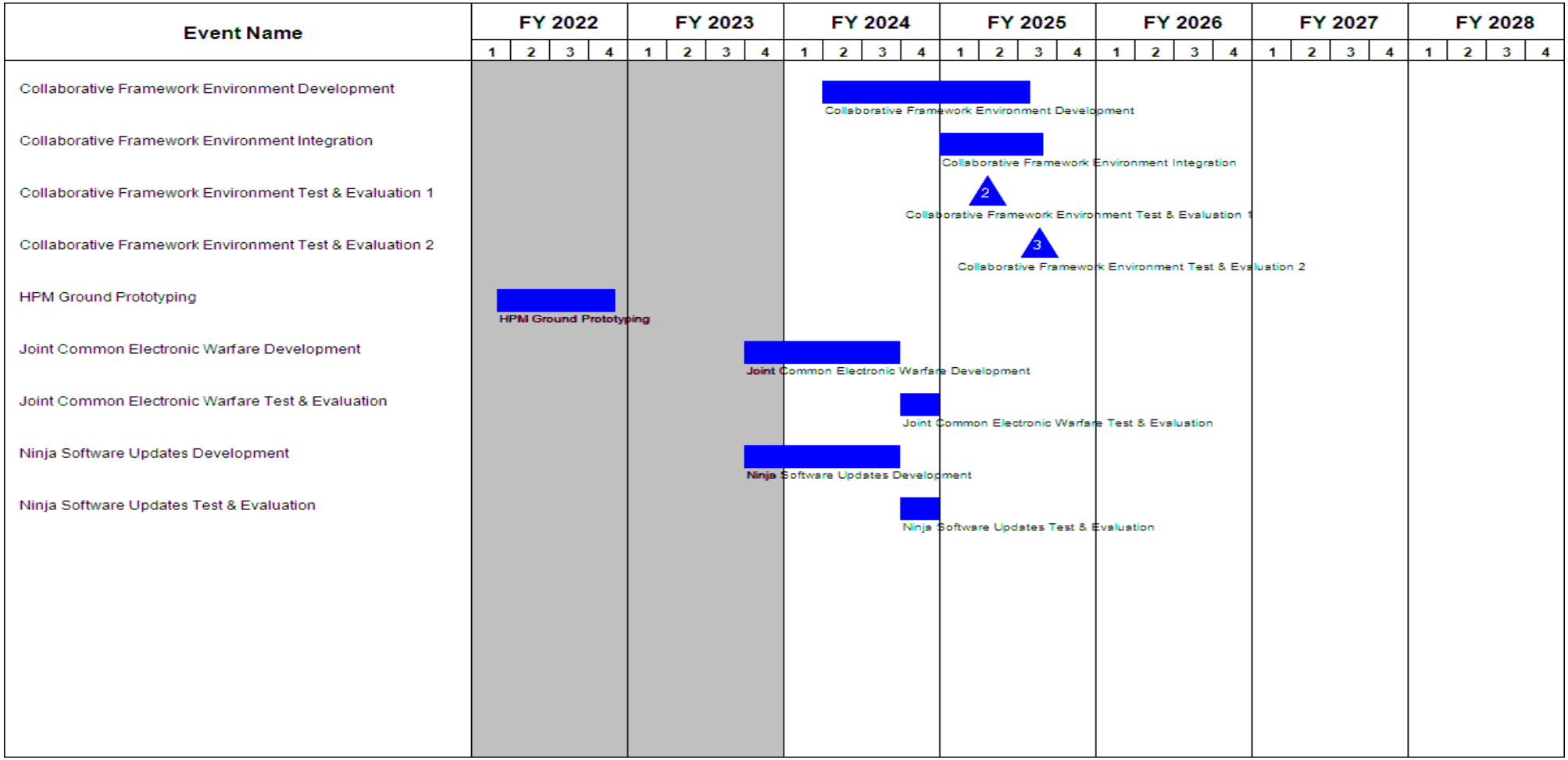


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604531A / *Counter - Small Unmanned Aircraft Systems Advanced Development*	**Project (Number/Name)** CQ5 / *C-sUAS Joint New Capabilities Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
HPM Ground Increment 2 (Solid State) Prototype Development	1	2024	4	2025
HPM Ground Increment 2 (Solid State) Prototype Test & Evaluation	4	2025	4	2025
C2 Decision Aids Prototyping	2	2022	2	2026
SDR ID Enhancement Design Study	1	2023	3	2023
SDR ID Enhancement Development and Integration	3	2023	4	2024
LCEI Inc 2 Design and Development	1	2023	4	2024
LCEI Inc 2 Test & Evaluation	3	2024	4	2024
HEL Prototyping and Data Collection	1	2023	2	2025
HEL Development and Improvements	1	2023	4	2027
NinjaNet Prototype Development	1	2024	1	2025
NinjaNet Prototype Cyber Assessment	1	2025	1	2025
NinjaNet Prototype Operational Assessment	1	2025	1	2026
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
HPM Ground Prototyping	1	2022	4	2022
Joint Common Electronic Warfare Development	4	2023	3	2024
Joint Common Electronic Warfare Test & Evaluation	4	2024	4	2024
Ninja Software Updates Development	4	2023	3	2024
Ninja Software Updates Test & Evaluation	4	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CQ6: *C-sUAS Joint Enabling Capabilities Development*	-	10.820	8.881	20.979	-	20.979	25.391	29.492	34.769	37.462	0.000	167.794
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 the evolving s-UAS threats and new environments to which systems must be deployed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Joint Studies and Analysis	3.310	0.766	-
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. ***FY 2023 Plans:*** Continue the executions of joint studies to explore promising concepts and enabling technologies. Activities may include analysis, studies, experimentation, modeling and simulation, virtual prototyping, and workshops. Specific studies are not detailed until late FY22 to ensure they are relevant to FY23 and FY24 decisions. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 decrease aligns funding to higher JCO priority development efforts.			
Title: Common Test Range	3.520	2.630	-
Description: Execution of 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 C-sUAS technology is adequately assessed against a realistic environment and deliver reliable capabilities to the warfighter. These			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
advances in ranges will support the Department of Defense testing activities for C-sUS 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. ***FY 2023 Plans:*** Continue to execute test range equipment prototyping of urban environmental conditions to include 5G technology, complex electro-magnetic environment, and urban terrain. Activities include prototyping range equipment, experimentation, and analysis of the effectiveness of tactics, techniques, and procedures. This will include iterative updates to the C-sUAS Test protocol. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 decrease focuses on higher priority JCO assessment and demonstration efforts.			
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 2023 Plans:*** Continue the execution semi-annual demonstrations and assessments of C-sUAS technology. Demonstrations will focus on capability gaps and emerging threats identified by the JCO and the Executive Agent C-sUAS Governance. ***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 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 increases the Department's additional investments in demonstrations and plans to accelerate C-sUAS prototyping efforts.	3.990	5.161	20.979
Title: SBIR/STTR ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638 FY 2023 to FY 2024 ***FY 2023 to FY 2024 Increase/Decrease Statement:***	-	0.324	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY23 funding transferred in accordance with Title 15 USC §638			
Accomplishments/Planned Programs Subtotals	10.820	8.881	20.979

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	TBD	Various : Various	-	0.470		-		-		-		-	Continuing	Continuing	Continuing
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.324		-		-		-	0.000	0.324	-
		Subtotal	-	0.470		0.324		-		-		-	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total 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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Studies and Analysis	TBD	Various : Various	-	3.310		0.766		-		-		-	Continuing	Continuing	Continuing
		Subtotal	-	3.310		0.766		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Assessment and Demonstration	TBD	Various : Various	-	3.520		5.161		20.979		-		20.979	Continuing	Continuing	Continuing
		Subtotal	-	3.520		5.161		20.979		-		20.979	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	10.820		8.881		20.979		-		20.979	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
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*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
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*

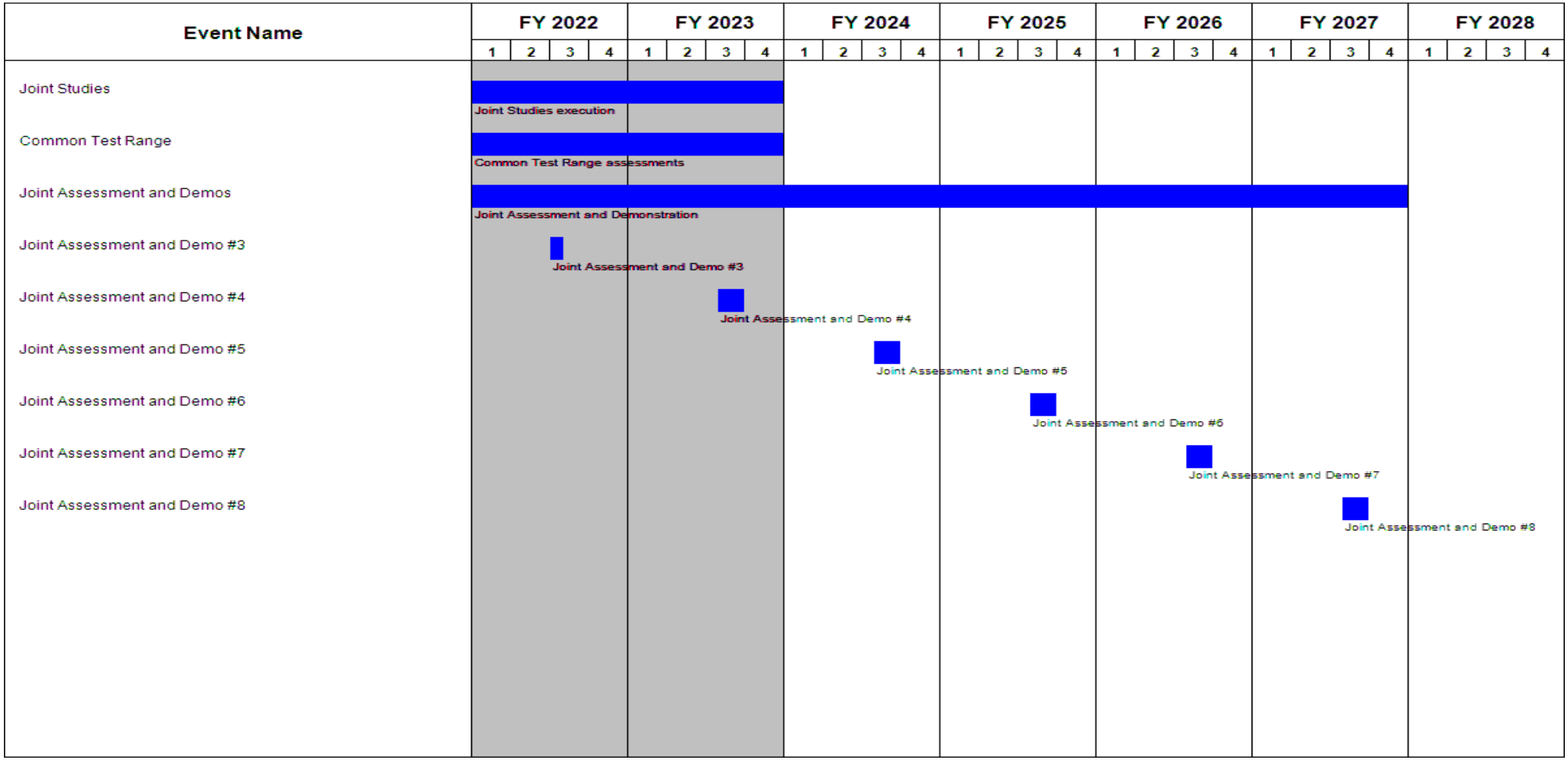


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604531A / *Counter - Small Unmanned Aircraft Systems Advanced Development*	**Project (Number/Name)** CQ6 / *C-sUAS Joint Enabling Capabilities Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Joint Studies	1	2022	4	2023
Common Test Range	1	2022	4	2023
Joint Assessment and Demos	1	2022	4	2027
Joint Assessment and Demo #3	3	2022	3	2022
Joint Assessment and Demo #4	3	2023	3	2023
Joint Assessment and Demo #5	3	2024	3	2024
Joint Assessment and Demo #6	3	2025	3	2025
Joint Assessment and Demo #7	3	2026	3	2026
Joint Assessment and Demo #8	3	2027	3	2027

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	33.879	36.966	40.915	-	40.915	42.883	45.298	44.690	44.102	Continuing	Continuing
BT2: *Command Post Mobility/ Survivability*	-	5.581	8.729	8.581	-	8.581	8.588	8.599	8.690	8.787	Continuing	Continuing
BT3: *Common Operating Environment (COE)*	-	7.708	7.335	7.215	-	7.215	7.232	7.241	7.318	7.400	Continuing	Continuing
BT5: *Integrated Tactical Network/Enterprise Network*	-	20.590	20.902	25.119	-	25.119	27.063	29.458	28.682	27.915	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority. Unified Network Transport is directly aligned to the Army Network Modernization Strategy Line of Effort 1 (LOE 1) Unified Network; LOE 2, Common Operating Environment (COE), LOE 3, Interoperability; and LOE 4, Command Post Mobility and Survivability. These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

The Program Executive Office Command, Control, Communications-Tactical (PEO C3T) is responsible for prioritizing, programming, managing and executing these projects and ensuring these funds are prioritized to support the Army's Network Modernization priorities and prototyping. The Network Cross-Functional Team (N-CFT) and PEO C3T prioritize 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 2024 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 Site (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 inform the Integrated Tactical Network/Enterprise Network and Enabling Functions, Computing Environments, Interoperability and Command Posts. 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 the other Modernization CFT efforts to ensure network dependencies are addressed.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army					Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	35.172	36.966	37.123	-	37.123
Current President's Budget	33.879	36.966	40.915	-	40.915
Total Adjustments	-1.293	0.000	3.792	-	3.792
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.293	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	3.792	-	3.792

Change Summary Explanation

Current President's Budget increased due to additional FY 2024 requirements aligned to Army Network Modernization Strategy Line of Effort 1 (LOE 1) Unified Network.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT2 / *Command Post Mobility/Survivability*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BT2: *Command Post Mobility/ Survivability*	-	5.581	8.729	8.581	-	8.581	8.588	8.599	8.690	8.787	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority. Project BT2, Command Post Mobility/Survivability, is directly aligned to the Army Network Modernization Strategy Line of Effort 4 (LOE 4), Command Post Mobility and Survivability. These efforts support advanced component development activities that are directly aligned to the Army's Tactical Network Capability Set development and fielding plans.

This project supports mobile Command Post efforts that may transition to sponsoring programs that get integrated in Command Post Integrated Infrastructure (CPI2) platforms. 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 the Command Post efforts for CPI2 Increment 1 and beyond.

FY 2024 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 Modernization Cross Functional Team (CFT) efforts to ensure network dependencies are addressed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: BT2 Command Post Mobility and Survivability	5.184	7.920	8.081
Description: This funding is used to identify and acquire technologies for evaluation that address gaps associated with LOE 4, Command Post (CP), in the overall Integrated Tactical Network. The CP LOE will focus on developing and obtaining approval of requirements for integrated command posts, then delivering these integrated command post designs to Army units. LOE 4 addresses the operational requirement of Deployable, Integrated, and Mobile Command Post and integrates Knowledge Management.			
FY 2023 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 integrated power capabilities to provide redundancy in power generation that will inform design choices for the Army's Command Post infrastructure. Effort also includes creating			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT2 / *Command Post Mobility/Survivability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
signature awareness, 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 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. ***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. 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding remains relatively consistent.			
Title: Program Management ***Description:*** Program management includes overall management of program execution, major events, reporting, funding execution, and contract management. Includes participation in program planning and Integrated Product Team meetings with key stakeholders including the Network Cross Functional Team (N-CFT). ***FY 2023 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. ***FY 2024 Plans:***	0.397	0.490	0.500

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT2 / *Command Post Mobility/Survivability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding remains relatively consistent.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	0.319	-
Accomplishments/Planned Programs Subtotals	5.581	8.729	8.581

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will coordinate with the Army Modernization Cross Functional Teams on 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT2 / *Command Post Mobility/Survivability*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office Support	TBD	BAH/ACC/NIWC-LANT : APG, MD	-	0.397	Feb 2022	0.490	Dec 2022	0.500	Dec 2023	-		0.500	0.000	1.387	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.319	Mar 2023	-		-		-	0.000	0.319	-
		Subtotal	-	0.397		0.809		0.500		-		0.500	0.000	1.706	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Science & Technology - Surv Cmd Post	TBD	CCDC/Polaris Alpha/ AASKI : APG, MD/ Fredericksburg,VA/ APG, MD	8.560	-		-		-		-		-	0.000	8.560	-
Science & Technology - Spectrum Obfuscation	TBD	BAH : Mclean, VA	5.088	1.270	Mar 2022	-		-		-		-	0.000	6.358	-
Science & Technology Maturation Prototyping & Evaluation	TBD	DEVCOM C5ISR / PEO C3T : APG, MD	-	-		4.194	Dec 2022	5.500	Dec 2023	-		5.500	0.000	9.694	-
Industry Innovation Prototyping & Evaluation	TBD	TBD : TBD	1.047	3.914	Mar 2022	3.726	Feb 2023	2.581	Feb 2024	-		2.581	0.000	11.268	-
		Subtotal	14.695	5.184		7.920		8.081		-		8.081	0.000	35.880	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.695	5.581		8.729		8.581		-		8.581	0.000	37.586	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT2 / *Command Post Mobility/Survivability*

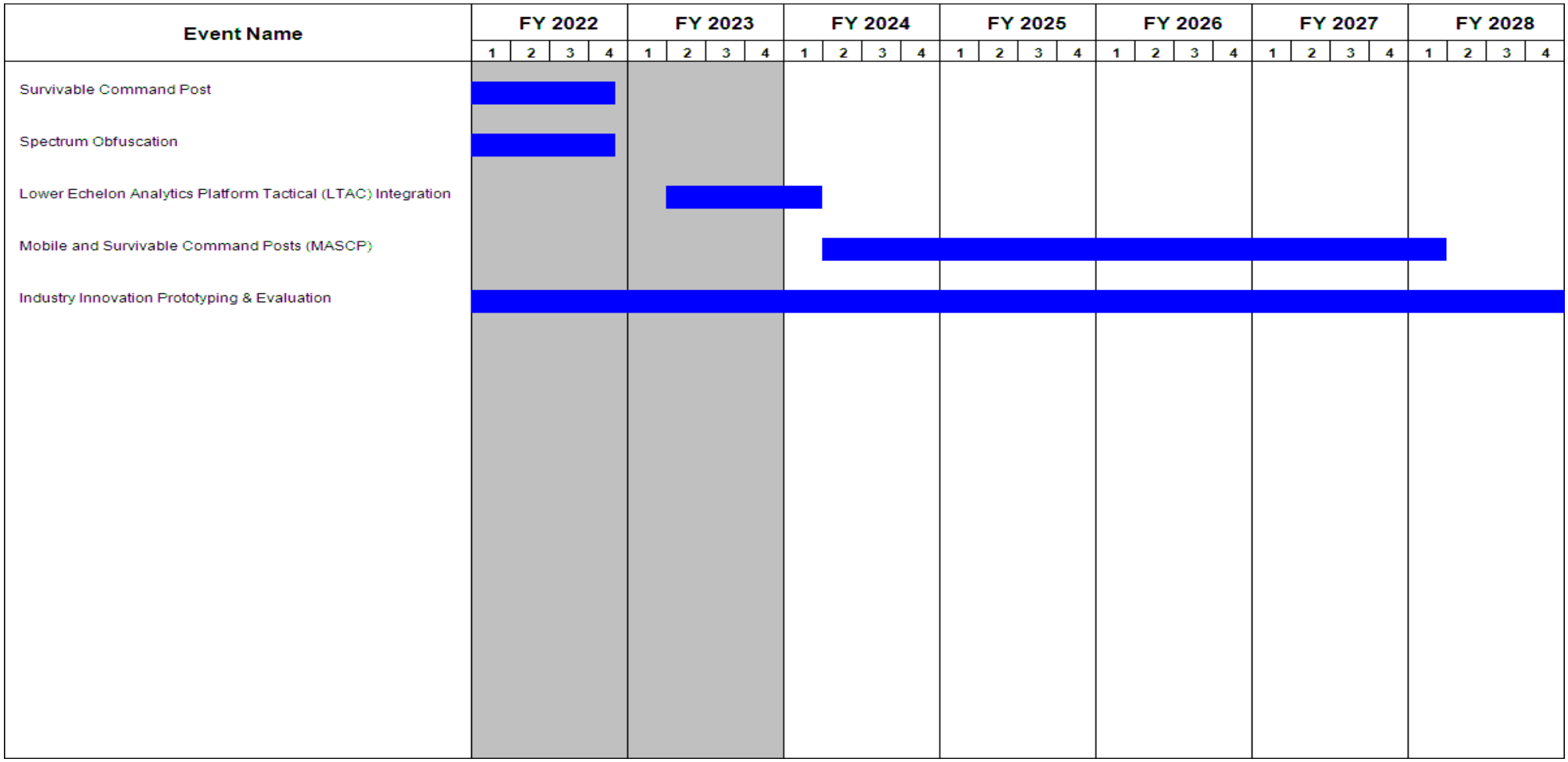


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT2 / *Command Post Mobility/Survivability*

Schedule Details

	Start		End	
Events	**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	2024
Mobile and Survivable Command Posts (MASCP)	2	2024	1	2028
Industry Innovation Prototyping & Evaluation	4	2020	1	2029

Note

Industry Innovation Prototyping and Evaluation projects are awarded following Technical Exchange Meetings (TEM) and are continuous activities; Network Cross Functional Team (N-CFT) and Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will reach out to 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 PB23 Schedule:
- Science and Technology (S&T) projects are evaluated based on ongoing forums with the S&T community. N-CFT and PEO C3T track changes to the S&T efforts, including but not limited to, titles, descriptions, Technology Readiness Level (TRL), planned program transition and transfer agreement status. N-CFT and PEO C3T utilize this information to prioritize the S&T projects by fiscal year.
- Lower Echelon Analytics Platform Tactical (LTAC) Integration was identified as a 6.4 RDTE effort scheduled to commence in 2Q FY 2023.
- The schedule for Mobile and Survivable Command Posts (MASCP) is inclusive of multiple sub-efforts from 2Q FY 2024 through 2Q FY2028.
- The schedule for Industry Innovation Prototyping & Evaluation extends through FY 2028 to reflect the continuous nature of industry engagements.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT3 / *Common Operating Environment (COE)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BT3: *Common Operating Environment (COE)*	-	7.708	7.335	7.215	-	7.215	7.232	7.241	7.318	7.400	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority. Project BT3, Common Operating Environment (COE), is directly aligned to the Army Network Modernization Strategy Line of Effort 2 (LOE 2), Common Operating Environment (COE). These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

This project will inform future network, applications and data capability sets 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 2024 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 Modernization Cross Functional Team (CFT) efforts to ensure network dependencies are addressed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: BT3 Common Operating Environment	7.565	6.675	6.815
Description: This funding is used to identify and acquire technologies to address gaps associated with LOE 2, Common Operating Environment (COE), in the overall Integrated Network. This LOE 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 LOE delivers an integrated body of requirements that meet operational needs.			
FY 2023 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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT3 / *Common Operating Environment (COE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
capabilities. Funds will also be used to evaluate the technical feasibility of solutions for expanded computing in tactical environments, data convergence, data fabric, sensor integration across identified platforms, flexible and scalable computing hardware/software, 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. ***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 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding remains relatively consistent.			
Title: Program Management ***Description:*** Program management includes overall management of program execution, major events, reporting, funding execution, and contract management. Includes participation in program planning and Integrated Product Team meetings with key stakeholders including the Network Cross Functional Team (N-CFT). ***FY 2023 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. ***FY 2024 Plans:***	0.143	0.392	0.400

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT3 / *Common Operating Environment (COE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding remains relatively consistent.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	0.268	-
Accomplishments/Planned Programs Subtotals	7.708	7.335	7.215

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will coordinate with the Army Modernization Cross Functional Teams on 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT3 / *Common Operating Environment (COE)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office Support	TBD	BAH/ACC/NIWC-LANT : APG, MD	0.827	0.143	Nov 2022	0.392	Dec 2022	0.400	Dec 2023	-		0.400	0.000	1.762	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.268	Mar 2023	-		-		-	0.000	0.268	-
		Subtotal	0.827	0.143		0.660		0.400		-		0.400	0.000	2.030	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Science & Technology (S&T) Maturation - Spectrum Awareness	TBD	CCDC/BAH/MITRE : APG, MD	1.000	-		-		-		-		-	0.000	1.000	-
S&T Maturation - Cyber Situational Awareness	TBD	CCDC/MITRE/CACI/ MIT LL : APG, MD, Various	3.500	-		-		-		-		-	0.000	3.500	-
S&T Maturation - Modular RF	TBD	DEVCOM AvMC/ SAIC : Huntsville, AL	1.883	3.055	Jan 2022	-		-		-		-	0.000	4.938	-
S&T Maturation - C5ISR Modular Open Suite of Standards	TBD	CCDC/Spectranetix : APG, MD/Sunnyvale, CA	0.157	-		-		-		-		-	0.000	0.157	-
S&T Maturation - Rainmaker	TBD	DEVCOM : APG, MD / Picatinny, NJ	-	2.804	Apr 2022	-		-		-		-	0.000	2.804	-
Science & Technology Maturation Prototyping & Evaluation	TBD	DEVCOM C5ISR, PEO C3T : APG, MD	-	-		3.763	Dec 2022	4.000	Dec 2023	-		4.000	0.000	7.763	-
Industry Innovation - Common Data Fabric	TBD	Palantir : Palo Alto, CA	3.775	-		-		-		-		-	0.000	3.775	-
Industry Innovation - Predictive Combat Power	C/CPFF	Parsons Government Services : Centreville, VA	-	1.706	Jul 2022	-		-		-		-	0.000	1.706	-
Industry Innovation Prototyping & Evaluation	TBD	TBD : TBD	0.895	-		2.912	Feb 2023	2.815	Feb 2024	-		2.815	0.000	6.622	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT3 / *Common Operating Environment (COE)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	11.210	7.565		6.675		6.815		-		6.815	0.000	32.265	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.037	7.708		7.335		7.215		-		7.215	0.000	34.295	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT3 / *Common Operating Environment (COE)*

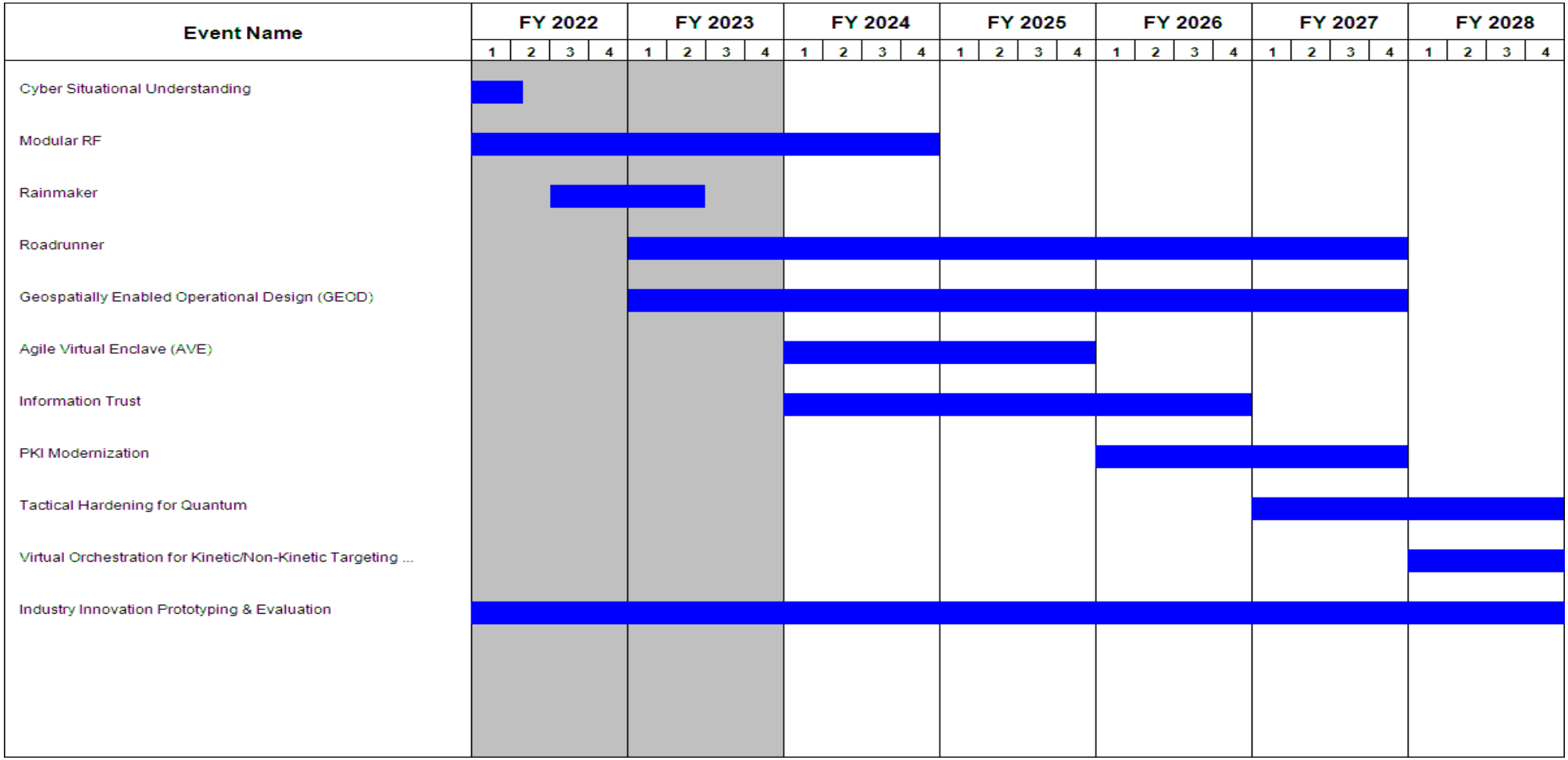


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT3 / *Common Operating Environment (COE)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Cyber Situational Understanding	2	2020	1	2022
Spectrum Awareness	2	2020	2	2021
Hardened Transport	4	2020	1	2021
Modular RF	4	2021	4	2024
Rainmaker	3	2022	2	2023
Roadrunner	1	2023	4	2027
Geospatially Enabled Operational Design (GEOD)	1	2023	4	2027
Agile Virtual Enclave (AVE)	1	2024	4	2025
Information Trust	1	2024	4	2026
PKI Modernization	1	2026	4	2027
Tactical Hardening for Quantum	1	2027	4	2028
Virtual Orchestration for Kinetic/Non-Kinetic Targeting Effects	1	2028	4	2029
Industry Innovation Prototyping & Evaluation	4	2020	1	2029

Note

Industry Innovation Prototyping and Evaluation projects are awarded following Technical Exchange Meetings (TEM) and are continuous activities; Network Cross Functional Team (N-CFT) and Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will reach out to 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 PB23 Schedule:
- Science and Technology (S&T) projects are evaluated based on ongoing forums with the S&T community. N-CFT and PEO C3T track changes to the S&T efforts, including but not limited to - titles, descriptions, Technology Readiness Level (TRL), planned program transition and transfer agreement status. N-CFT and PEO C3T utilize this information to prioritize the S&T projects by fiscal year.
- Rainmaker commenced in 3Q FY 2022 continuing to 2Q FY 2023.
- Applications Security-Containers (AppSec-C) is removed from the 6.4 RDTE schedule.

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT3 / *Common Operating Environment (COE)*

- Information Trust is now projected to conclude at the end of FY 2026 in support of future Capability Set development and fielding.
- Roadrunner was identified as a 6.4 RDTE effort commencing in FY 2023.
- Geospatially-Enabled Operation Design was identified as a 6.4 RDTE effort commencing in FY 2023.
- Agile Virtual Enclave was identified as a 6.4 RDTE effort commencing in FY 2024.
- PKI Modernization was identified as a 6.4 RDTE effort commencing in FY 2026.
- Tactical Hardening for Quantum was identified as a 6.4 RDTE effort commencing in FY 2027.
- Virtual Orchestration for Kinetic/Non-Kinetic Targeting Effects was identified as a 6.4 RDTE effort commencing in FY 2028.
- The schedule for Industry Innovation Prototyping & Evaluation extends through FY 2028 to reflect the continuous nature of industry engagements.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT5 / *Integrated Tactical Network/Enterprise Network*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
BT5: *Integrated Tactical Network/Enterprise Network*	-	20.590	20.902	25.119	-	25.119	27.063	29.458	28.682	27.915	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority. Project BT5, Integrated Tactical Network/Enterprise Network (ITN/IEN), is directly aligned to the Army Network Modernization Strategy Line of Effort 1 (LOE 1), Unified Network. These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

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 2024 funding will be used to inform design decisions for future tactical network capability sets 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 Site (BLOS) capability in support of legacy high frequency waveforms. Funds also support development of Cyber Electromagnetic Activities (CEMA) situational understanding and operations 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 Modernization Cross Functional Team (CFT) efforts 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 2022	FY 2023	FY 2024
Title: Project BT5: Integrated Tactical Network/Integrated Enterprise Network	19.984	18.934	23.890
Description: This funding is used to identify and acquire technologies to address gaps associated with LOE 1, Unified Network, for evaluation and demonstration in the overall Integrated Network. The Unified Network LOE 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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024

environments and features a unified transport layer that permits "plug and play" for specific network capabilities. LOE 1 addresses the following operational requirements: Converged Mission Command Network, Network Augmentation / Extension, and Synthetic Training Environment.

FY 2023 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, Air to ground integration, commercial 5G capabilities for mounted/dismounted soldiers and solutions for a hardened, resilient network. Efforts will include evaluation of artificial intelligence and other advanced solutions for communications network processing, transport, and operations to support resiliency in a distributed environment. 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 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 integration of commercial 5G and high throughput resilient wideband satellite communications. 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 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 2023 to FY 2024 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Increase is due to requirements associated with transitioning science & technology and industry innovation efforts in support of Army Capability Set 25 and 27+ development.			
Title: Program Management ***Description:*** Program management includes overall management of program execution, major events, reporting, funding execution, and contract management. Includes participation in program planning and Integrated Product Team meetings with key stakeholders including the Network Cross Functional Team (N-CFT). ***FY 2023 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. ***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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding remains relatively consistent.	0.606	1.205	1.229
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	0.763	-
Accomplishments/Planned Programs Subtotals	20.590	20.902	25.119

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

D. Acquisition Strategy

Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will coordinate with the Army Modernization Cross Functional Teams on 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT5 / *Integrated Tactical Network/Enterprise Network*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Office Support	MIPR	CCDC/BAH/ACC/ NIWC-LANT : APG, MD/North Charleston, SC	0.364	0.606	Feb 2022	1.205	Dec 2022	1.229	Dec 2023	-		1.229	0.000	3.404	-
SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.763	Mar 2023	-		-		-	0.000	0.763	-
		Subtotal	0.364	0.606		1.968		1.229		-		1.229	0.000	4.167	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Science & Technology (S&T) Maturation - Soldier Authentication	Various	CCDC/FlexTech Alliance : APG, MD	4.000	-		-		-		-		-	0.000	4.000	-
S&T Maturation - INB2	Various	CodeMettle : Atlanta, GA	7.529	0.417	Jan 2022	-		-		-		-	0.000	7.946	-
S&T Maturation - AppSecC	MIPR	CCDC : APG, MD	2.800	-		-		-		-		-	0.000	2.800	-
S&T Maturation - TSM IC	Various	CCDC/BAH/CACI : APG, MD/Mclean, VA/Arlington, VA	1.008	-		-		-		-		-	0.000	1.008	-
S&T Maturation - Next Generation High Frequency	TBD	CCDC/MIT-LL : APG, MD/Lexington, MA	3.696	-		-		-		-		-	0.000	3.696	-
S&T Maturation - Non-traditional Waveforms	TBD	CCDC/BAH/CACI : APG, MD	1.454	-		-		-		-		-	0.000	1.454	-
S&T Maturation - Protected Comms for Manned-Unmanned Teaming	TBD	DEVCOM/BAH/ CACI : APG, MD	2.500	3.150	Apr 2022	-		-		-		-	0.000	5.650	-
S&T Maturation - Resilient Wideband SATCOM Interference Cancellation	TBD	CCDC/BAE : APG, MD/Burlington, MA	2.000	-		-		-		-		-	0.000	2.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604541A / *Unified Network Transport*	Project (Number/Name) BT5 / *Integrated Tactical Network/Enterprise Network*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
S&T Maturation - CMOSS Mounted Form Factor	TBD	CCDC/Polaris Alpha/ Spectranetix : APG, MD/Sunnyvale, CA	1.241	1.450	Mar 2022	-		-		-		-	0.000	2.691	-
S&T Maturation - Secured Handheld on Assured Resilient Networks at the Tactical Edge (SHARE)	TBD	Two Six Technologies : Arlington, VA	-	1.465	Apr 2022	-		-		-		-	0.000	1.465	-
S&T Maturation - Aerial Tier Networking	TBD	DEVCOM/CACI/ BAH : APG, MD	-	2.282	Jun 2022	-		-		-		-	0.000	2.282	-
Science & Technology (S&T) Maturation Prototyping & Evaluation	TBD	DEVCOM C5ISR / PEO C3T : APG, MD	-	-		11.000	Dec 2022	19.764	Dec 2023	-		19.764	0.000	30.764	-
Industry Innovation - C5ISR Modular Open Suite of Standards	C/Various	Trellisware/ Spectranetix/GDMS/ NGC : San Diego, CA/Sunnyvale, CA/ Scottsdale, AZ	5.296	7.458	Dec 2021	-		-		-		-	0.000	12.754	-
Industry Innovation - Intra-CP Node Wireless	MIPR	L3Harris/BATS, Inc : Rochester, NY/ Indianapolis, IN	1.526	0.247	Sep 2022	-		-		-		-	0.000	1.773	-
Industry Innovation - SATCOM Modem Modernization & Virtualization	C/Various	Kratos/L3Harris : Colorado Springs, CO/Palm Bay, FL	-	3.515	Apr 2022	-		-		-		-	0.000	3.515	-
Industry Innovation Prototyping & Evaluation	TBD	TBD : TBD	0.261	-		7.934	Feb 2023	4.126	Feb 2024	-		4.126	0.000	12.321	-
		Subtotal	33.311	19.984		18.934		23.890		-		23.890	0.000	96.119	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.675	20.590		20.902		25.119		-		25.119	0.000	100.286	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

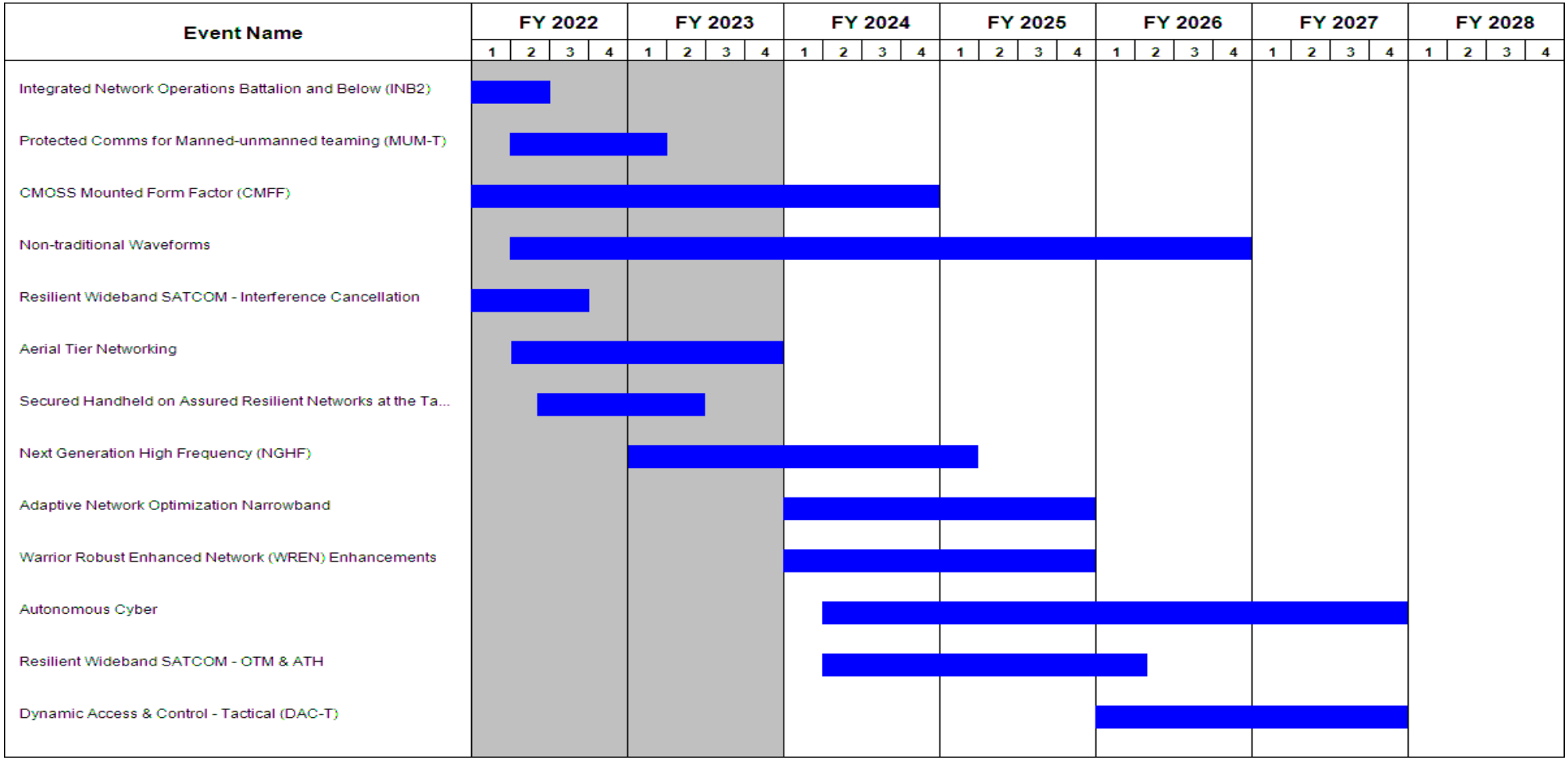


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

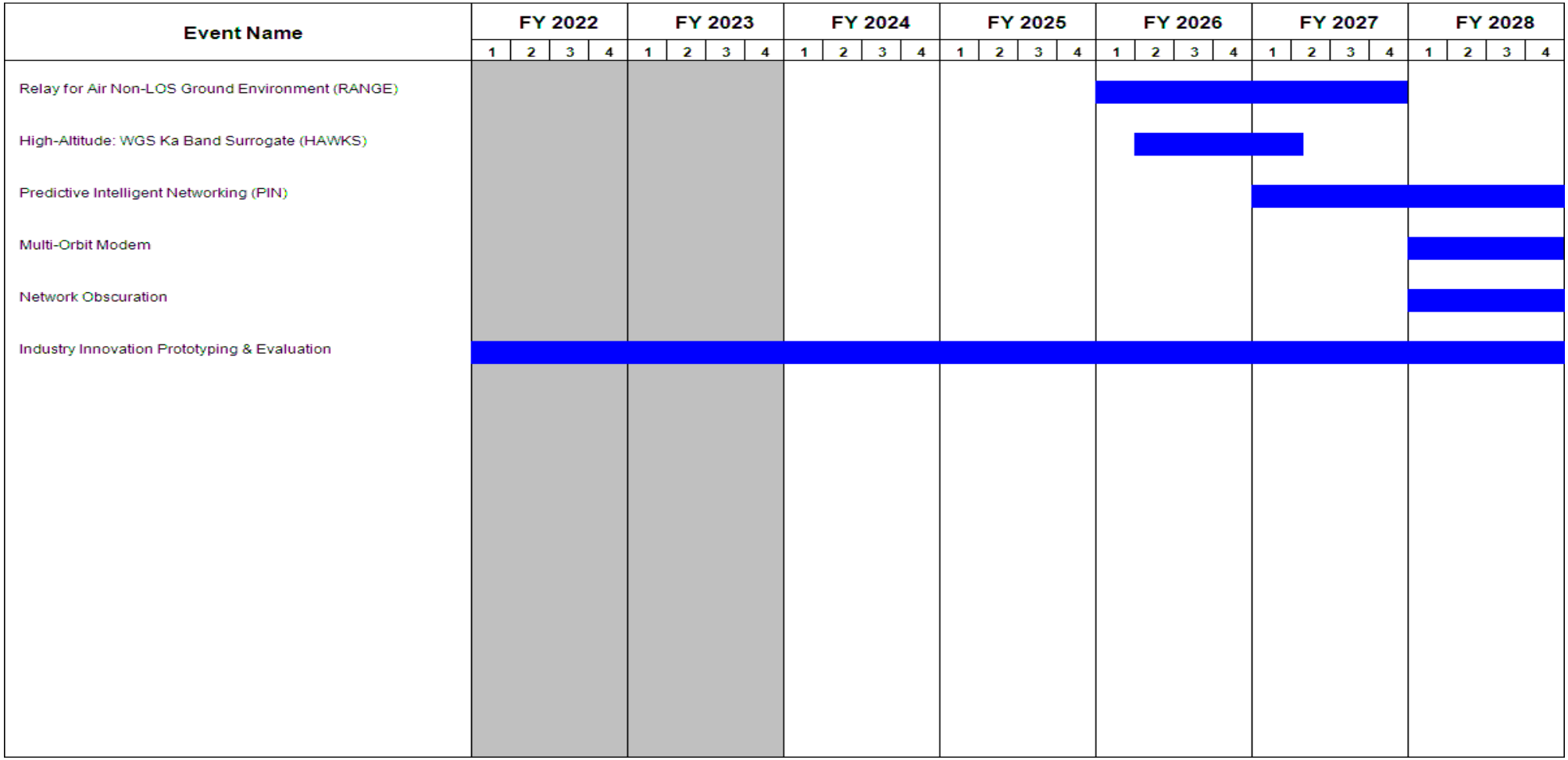


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

Schedule Details

	Start		End	
Events	**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
Protected Comms for Manned-unmanned teaming (MUM-T)	1	2021	1	2023
CMOSS Mounted Form Factor (CMFF)	2	2021	4	2024
Non-traditional Waveforms	1	2021	4	2026
Resilient Wideband SATCOM - Interference Cancellation	3	2021	3	2022
Aerial Tier Networking	2	2022	4	2023
Secured Handheld on Assured Resilient Networks at the Tactical Edge (SHARE)	2	2022	2	2023
Next Generation High Frequency (NGHF)	1	2023	1	2025
Adaptive Network Optimization Narrowband	1	2024	4	2025
Warrior Robust Enhanced Network (WREN) Enhancements	1	2024	4	2025
Autonomous Cyber	2	2024	4	2027
Resilient Wideband SATCOM - OTM & ATH	2	2024	2	2026
Dynamic Access & Control - Tactical (DAC-T)	1	2026	4	2027
Relay for Air Non-LOS Ground Environment (RANGE)	1	2026	4	2027
High-Altitude: WGS Ka Band Surrogate (HAWKS)	2	2026	2	2027
Predictive Intelligent Networking (PIN)	1	2027	4	2029
Multi-Orbit Modem	1	2028	4	2028
Network Obscuration	1	2028	4	2029

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604541A / *Unified Network Transport*	**Project (Number/Name)** BT5 / *Integrated Tactical Network/Enterprise Network*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Industry Innovation Prototyping & Evaluation	4	2020	1	2029

Note

Industry Innovation Prototyping and Evaluation projects are awarded following Technical Exchange Meetings (TEM) and are continuous activities; Network Cross Functional Team (N-CFT) and Program Executive Office Command, Control, Communications-Tactical (PEO C3T) will reach out to 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 PB23 Schedule:
- Science and Technology (S&T) projects are evaluated based on ongoing forums with the S&T community. N-CFT and PEO C3T track changes to the S&T efforts, including but not limited to - titles, descriptions, Technology Readiness Level (TRL), planned program transition and transfer agreement status. N-CFT and PEO C3T utilize this information to prioritize the S&T projects by fiscal year.
- The schedule for Non-traditional Waveforms (NTW) is inclusive of multiple sub-efforts concluding in FY 2026.
- CMOSS Mounted Form Factor (CMFF) 6.4 RDTE is projected to conclude in FY 2024.
- Aerial Tier Experimentation is renamed Aerial Tier Networking to better specify the nature of the effort.
- The schedule for Next Generation High Frequency (NGHF) is inclusive of multiple sub-efforts and continues in FY 2023.
- Adaptive Network Optimization Narrowband is identified as a 6.4 RTDE effort projected to begin in FY 2024.
- Warrior Robust Enhanced Network (WREN) Enhancements is identified as a 6.4 RTDE effort projected to begin in FY 2024.
- Dynamic Access & Control-Tactical (DAC-T) is identified as a 6.4 RDTE effort projected to begin in FY 2026.
- Relay for Air Non-LOS Ground Environment (RANGE) is identified as a 6.4 RDTE effort projected to begin in FY 2026.
- Predictive Intelligent Networking (PIN) is identified as a 6.4 RDTE effort projected to begin in FY 2027.
- Multi-Orbit Modem is identified as a 6.4 RDTE effort projected to begin in FY 2028.
- Network Obscuration is identified as a 6.4 RDTE effort projected to begin in FY 2028.
- The schedule for Industry Innovation Prototyping & Evaluation extends through FY 2028 to reflect the continuous nature of industry engagements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army												Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604644A / *Mobile Medium Range Missile*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	275.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	275.989
MR1: *Mobile Intermediate Range Missile*	-	275.989	-	-	-	-	-	-	-	-	0.000	275.989

Note

The Program Element (PE) 0604644A / Mobile Medium Range Missile was moved to PE 0604135A / Strategic Mid-Range Fires and PE 0605235A / Mid-Range Capability in FY 2023.

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Long-Range Precision Fires Modernization Priority. The Program Element (PE) 0604644A / Mobile Medium Range Missile was moved from PE 0604644A to PE 0604135A / Strategic Mid-Range Fires and PE 0605235A / Mid-Range Capability in FY 2023. Four MRC batteries will be developed and deployed. 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 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 and one BOC, to be deployed NLT 4Q FY 2023 as the First Unit of Issue (FUI). Delivery of follow-on batteries will occur annually thereafter.

FY 2023 Base funding of the PE 0604644A in the amount of $404.291 million has been moved from PE 0604644A to PE 0604135A / Strategic Mid-Range Fires in the amount of $404.291 million and funds the integration of design requirements to complete and deploy the prototype battery, and to support fabrication of subsequent prototype batteries. Base funding allows for integration and evaluation of required characteristics to ensure safe and effective operational fielding of the prototype battery. Base funding also allows for purchasing and receiving hardware and materials to implement prototype fabrication, and to support component-level and system-level qualification.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army					Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604644A / *Mobile Medium Range Missile*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	286.445	0.000	0.000	-	0.000
Current President's Budget	275.989	0.000	0.000	-	0.000
Total Adjustments	-10.456	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-10.456	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604644A / *Mobile Medium Range Missile*	Project (Number/Name) MR1 / *Mobile Intermediate Range Missile*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MR1: *Mobile Intermediate Range Missile*	-	275.989	-	-	-	-	-	-	-	-	0.000	275.989
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Program Element (PE) 0604644A / Mobile Medium Range Missile was moved to PE 0604135A / Strategic Mid-Range Fires and PE 0605235A / Mid-Range Capability in FY 2023.

A. Mission Description and Budget Item Justification

The Program Element (PE) 0604644A / Mobile Medium Range Missile was moved from PE 0604644A to PE 0604135A / Strategic Mid-Range Fires and PE 0605235A / Mid-Range Capability in FY 2023. Four MRC batteries will be developed and fielding. 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 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 and one BOC, to be deployed NLT 4Q FY 2023 as the First Unit of Issue (FUI). Delivery of follow-on batteries will occur annually thereafter.

FY 2023 Base funding in the amount of $404.291 million was moved from PE 0604644A to PE 0604135A and funds the integration of design requirements to complete and field the prototype battery, and to support fabrication of subsequent prototype batteries. Base funding allows for integration and evaluation of required characteristics to ensure safe and effective operational fielding of the prototype battery. Base funding also allows for purchasing and receiving hardware and materials to implement prototype fabrication, and to support component-level and system-level qualification.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Mid-Range Capability (MRC) Launcher Payload Deployment System (PDS)	43.165	-	-
Description: The MRC Launcher Payload Deployment System (PDS) project leverages Joint Service technologies and integration of common hardware, software, and mutually supporting test events for the MRC PDS. 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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604644A / *Mobile Medium Range Missile*	**Project (Number/Name)** MR1 / *Mobile Intermediate Range Missile*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
distances to engage 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.			
Title: Mid-Range Capability (MRC) Ground Support Equipment (GSE) ***Description:*** The MRC Ground Support Equipment 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.	93.083	-	-
Title: Mid-Range Capability (MRC) Missiles ***Description:*** MRC funds 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 Systems Engineering and Government Program Management for missile buys.	139.741	-	-
Accomplishments/Planned Programs Subtotals	275.989	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The Program Element (PE) 0604644A / Mobile Medium Range Missile (RCCTO) was moved from PE 0604644A to PE 0604135A / Strategic Mid-Range Fires (RCCTO) and PE 0605235A / Mid-Range Capability (PEO M&S) in FY 2023.

D. Acquisition Strategy

The MRC project will develop, integrate, and produce 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 will leverage the Strategic Capabilities Office (SCO), Navy, and US Marine Corps (USMC) investments in weapon system development since 2016 by providing a body of data including Technical Data Packages (TDP), Critical Design Review (CDR) artifacts, and active production lines. The MRC project will leverage 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 SCO and 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 M&S) PE 0605235A in FY 2023. Four MRC batteries will be developed and fielded; the initial MRC prototype battery will be developed by RCCTO, and the three remaining MRC batteries by PEO M&S.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604644A / *Mobile Medium Range Missile*	Project (Number/Name) MR1 / *Mobile Intermediate Range Missile*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering and Program Management	Various	TBD : Huntsville, AL; National Capitol Region	-	11.173		-		-		-		-	0.000	11.173	-
		Subtotal	-	11.173		-		-		-		-	0.000	11.173	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Original Equipment Manufacturer (OEM)	SS/CPFF	Lockheed Martin : Various	-	78.212		-		-		-		-	0.000	78.212	-
Government Furnished Equipment (GFE)	Various	Various : Various	-	8.352		-		-		-		-	0.000	8.352	-
Other Government Agencies (OGA)	Various	Various : Various	-	22.371		-		-		-		-	0.000	22.371	-
MRC Missiles	Various	Navy Various : Various	-	139.140		-		-		-		-	0.000	139.140	-
		Subtotal	-	248.075		-		-		-		-	0.000	248.075	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cyber, Software, Transportation	Various	Various : Various	-	7.237		-		-		-		-	0.000	7.237	-
		Subtotal	-	7.237		-		-		-		-	0.000	7.237	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604644A / *Mobile Medium Range Missile*	Project (Number/Name) MR1 / *Mobile Intermediate Range Missile*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	Various	Various : Various	-	9.504		-		-		-		-	0.000	9.504	-
		Subtotal	-	9.504		-		-		-		-	0.000	9.504	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	275.989		-		-		-		-	0.000	275.989	N/A

Remarks

The Program Element (PE) 0604644A / Mobile Medium Range Missile (RCCTO) was moved from PE 0604644A to PE 0604135A / Strategic Mid-Range Fires (RCCTO) and PE 0605235A / Mid-Range Capability (PEO M&S) in FY 2023.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604644A / *Mobile Medium Range Missile*	**Project (Number/Name)** MR1 / *Mobile Intermediate Range Missile*

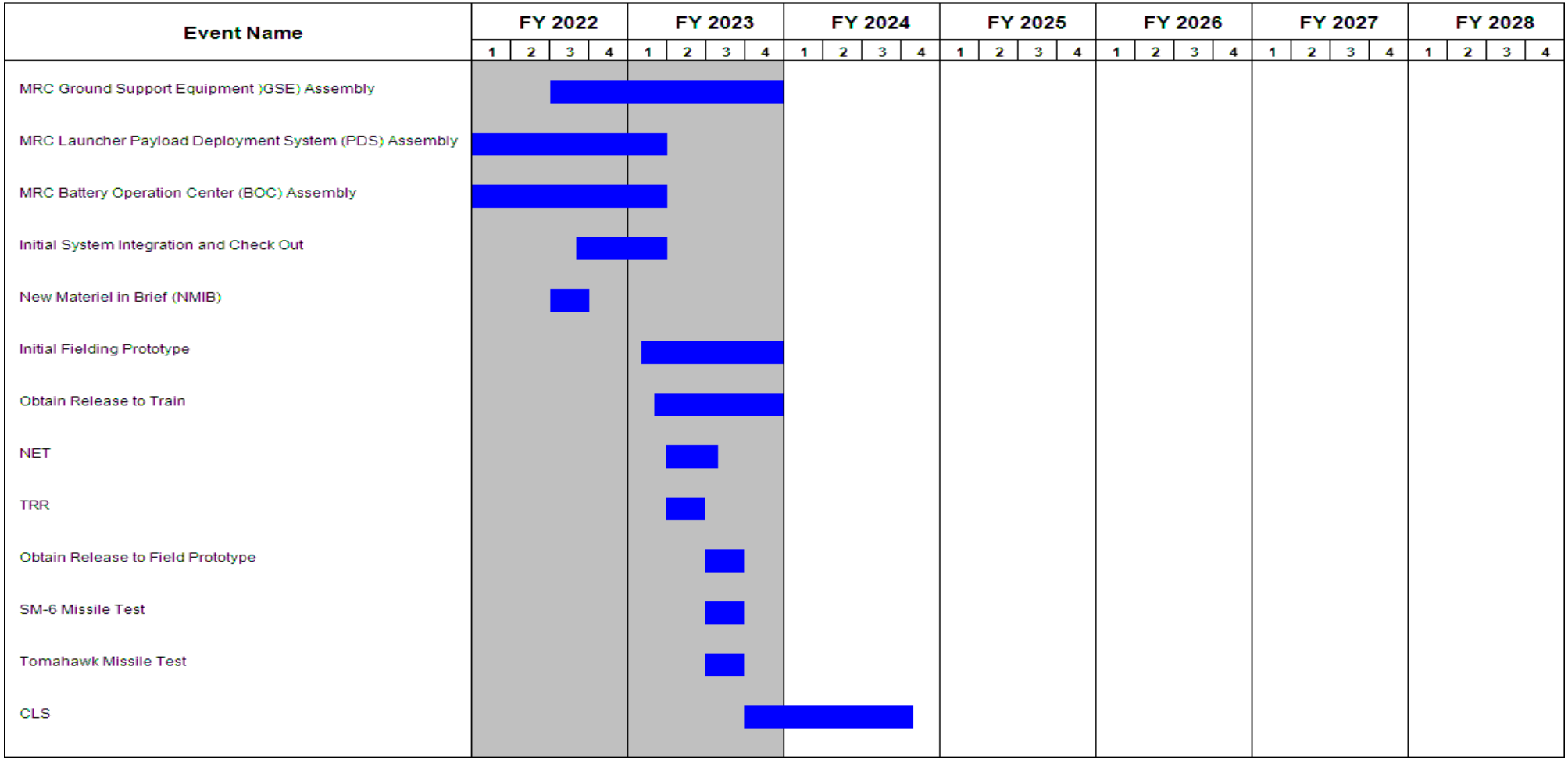


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604644A / *Mobile Medium Range Missile*	**Project (Number/Name)** MR1 / *Mobile Intermediate Range Missile*

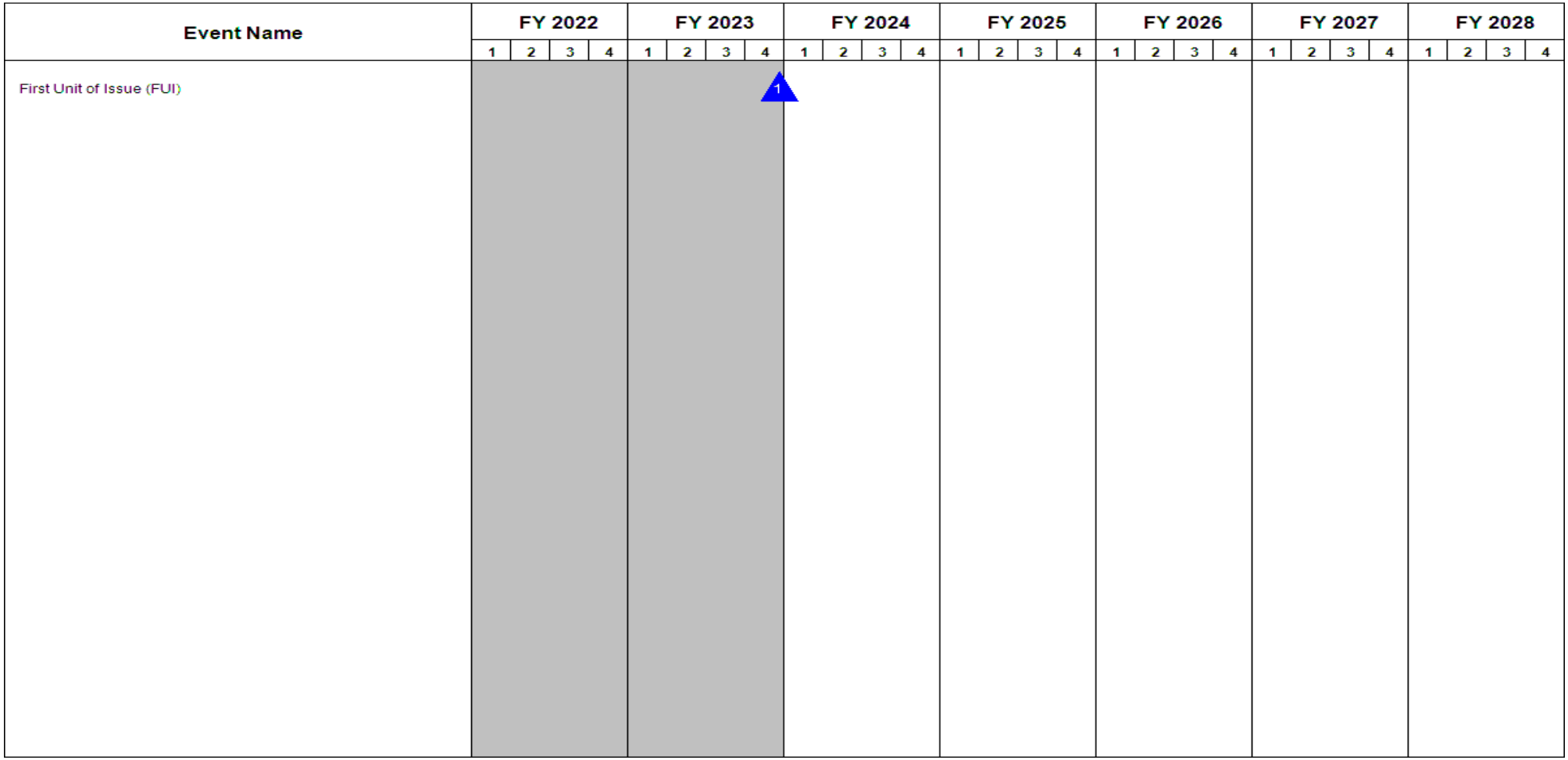


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604644A / *Mobile Medium Range Missile*	**Project (Number/Name)** MR1 / *Mobile Intermediate Range Missile*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MRC Ground Support Equipment)GSE) Assembly	3	2022	4	2023
MRC Launcher Payload Deployment System (PDS) 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	4	2023
Obtain Release to Train	1	2023	4	2023
NET	2	2023	3	2023
TRR	2	2023	2	2023
Obtain Release to Field Prototype	3	2023	3	2023
SM-6 Missile Test	3	2023	3	2023
Tomahawk Missile Test	3	2023	3	2023
CLS	4	2023	4	2024
First Unit of Issue (FUI)	4	2023	4	2023

Note

The Program Element (PE) 0604644A / Mobile Medium Range Missile (RCCTO) was moved from PE 0604644A to PE 0604135A / Strategic Mid-Range Fires (RCCTO) and PE 0605235A / Mid-Range Capability (PEO M&S) in FY 2023.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604785A *I Integrated Base Defense (Budget Activity 4)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	2.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.040
DS4: *Integrated Base Defense*	-	2.040	-	-	-	-	-	-	-	-	0.000	2.040

Note

PE 0604785A / Integrated Base Defense is an FY23 termination.

A. Mission Description and Budget Item Justification

Counter Vehicle Borne Improvised Explosive Device (CVBIED) is an integrated suite of systems developed in response to CENTCOM JUONS CC-0540. The CVBIED program provides an early VBIED detection capability prior to vehicles reaching entry into Forward Operating Bases. Additional sensor systems are being integrated into the current Force Protection infrastructure as part of CVBIED.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	2.040	0.000	0.000	-	0.000
Current President's Budget	2.040	0.000	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604785A / *Integrated Base Defense (Budget Activity 4)*	Project (Number/Name) DS4 / *Integrated Base Defense*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
DS4: *Integrated Base Defense*	-	2.040	-	-	-	-	-	-	-	-	0.000	2.040
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Integrated Base Defense (IBD) RDT&E funding provides for the integration and testing of software and hardware along with the development of analytical capabilities to support force protection systems and capabilities in the field as part of the Counter Vehicle Borne Improvised Explosive Device (CVBIED) program. IBD employs an enterprise approach to enable IBD capabilities across the operational spectrum by leveraging interoperability efforts in support of the Integrated Unit, Base, and Installation Force Protection framework focused on systems engineering, software development and testing.

Counter Vehicle Borne Improvised Explosive Device (CVBIED) is an integrated suite of systems developed in response to CENTCOM JUONS CC-0540. The CVBIED program provides an early VBIED detection capability prior to vehicles reaching entry into Forward Operating Bases. Additional sensor systems are being integrated into the current Force Protection infrastructure as part of CVBIED.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: CVBIED Design and Build	2.040	-	-
Description: RDT&E efforts continue the development, integration and testing of CVBIED technologies into the current Force Protection infrastructure to address capabilities gaps within JUONS CC-0540.			
Accomplishments/Planned Programs Subtotals	2.040	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The IBD acquisition strategy is to leverage the efforts of existing IBD-related government organizations and related technologies in order to award multiple contracts in support of IBD objectives for the development of holistic IBD architectures and products while also ensuring interoperability with fielded and emerging IBD-related systems. JUONS CC-0540 (CVBIED) equipment is comprised of a combination of Commercial and Government Off the Shelf items integrated to meet the requirements of JUONS CC-0540 (CVBIED).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604785A / *Integrated Base Defense (Budget Activity 4)*	Project (Number/Name) DS4 / *Integrated Base Defense*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JUONS CC-0540 System Integration	MIPR	CCDC AvMC : Huntsville, AL	1.061	0.329	Jan 2022	-		-		-		-	0.000	1.390	-
JUONS CC-0540 Hyper spectral Sensor Development Support	MIPR	CCDC C5ISR NVESD : Fort Belvoir, VA	0.471	0.471	Feb 2022	-		-		-		-	0.000	0.942	-
JUONS CC-0540 Wide Area Motion Imagery Sensor Development	MIPR	NAVAIR : Patuxent River, MD	0.840	0.450	Mar 2022	-		-		-		-	0.000	1.290	-
Integrated System Architecture (ISA) SW Development Support	MIPR	CCDC C5ISR NVESD : Fort Belvoir	0.495	0.270	Mar 2022	-		-		-		-	0.000	0.765	-
		Subtotal	2.867	1.520		-		-		-		-	0.000	4.387	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	ATEC - RTC : Redstone Arsenal, Huntsville, AL	1.098	0.520	Oct 2021	-		-		-		-	0.000	1.618	-
		Subtotal	1.098	0.520		-		-		-		-	0.000	1.618	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.965	2.040		-		-		-		-	0.000	6.005	N/A

Remarks

CVBIED will not require RDTE funding in FY23; no further requirements.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604785A / *Integrated Base Defense (Budget Activity 4)*	**Project (Number/Name)** DS4 / *Integrated Base Defense*

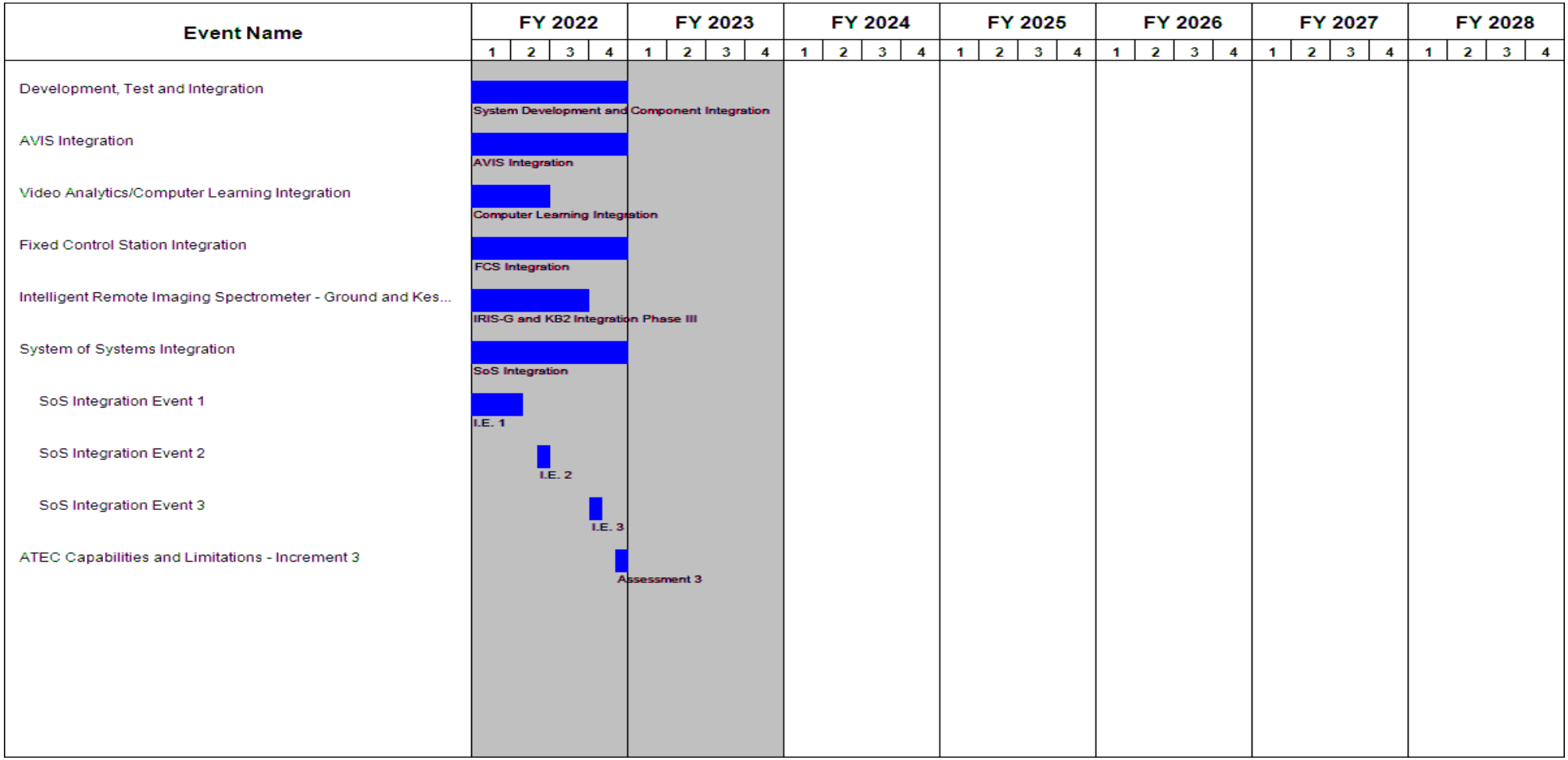


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604785A / *Integrated Base Defense (Budget Activity 4)*	**Project (Number/Name)** DS4 / *Integrated Base Defense*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Development, Test and Integration	4	2019	4	2022
AVIS Integration	4	2019	4	2022
Video Analytics/Computer Learning Integration	4	2019	2	2022
Fixed Control Station Integration	1	2020	4	2022
Facial Recognition/ RFID implementation	4	2020	3	2021
Intelligent Remote Imaging Spectrometer- Ground and Kestrel Block II Phase I	1	2020	4	2020
Intelligent Remote Imaging Spectrometer- Ground and Kestrel Block II Phase II	1	2021	3	2021
Intelligent Remote Imaging Spectrometer - Ground and Kestrel Block II Phase III	4	2021	3	2022
ATEC Capabilities and Limitations- Increment 1	3	2020	4	2020
ATEC Capabilities and Limitations - Increment 2	2	2021	3	2021
System of Systems Integration	3	2021	4	2022
SoS Integration Event 1	1	2022	1	2022
SoS Integration Event 2	2	2022	2	2022
SoS Integration Event 3	4	2022	4	2022
ATEC Capabilities and Limitations - Increment 3	4	2022	4	2022

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0305251A *I Cyberspace Operations Forces and Force Support*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	55.895	55.599	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	111.494
DD3: *Joint Cyber Warfighting Architecture Cyber Train*	-	-	55.599	-	-	-	-	-	-	-	0.000	55.599
FA8: *Cyberspace Operations Forces and Force Support*	-	55.895	-	-	-	-	-	-	-	-	0.000	55.895

Note

Funding from PE 0305251A / Cyberspace Operations Forces and Force Support moves to U.S. Cyber Command in FY2024.

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 (IS-CDD) 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0305251A *I Cyberspace Operations Forces and Force Support*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	55.895	55.677	0.000	-	0.000
Current President's Budget	55.895	55.599	0.000	-	0.000
Total Adjustments	0.000	-0.078	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Transfer	-	-0.078	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: FA8: *Cyberspace Operations Forces and Force Support*		
Congressional Add: *Program increase - Army Cyber Institute*	4.000	-
Congressional Add Subtotals for Project: FA8	4.000	-
Congressional Add Totals for all Projects	4.000	-

Change Summary Explanation

FY2024 - Funding was moved to U.S. Cyber Command.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / *Cyberspace Operations Forces and Force Support*	Project (Number/Name) DD3 / *Joint Cyber Warfighting Architecture Cyber Train*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
DD3: *Joint Cyber Warfighting Architecture Cyber Train*	-	-	55.599	-	-	-	-	-	-	-	0.000	55.599
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Under PE 0305251A / Cyberspace Operations Forces and Force Support Project FA8 / Cyberspace Operations Forces and Force Support moves to Project DD3 in FY 2023. Funding from PE 0305251A / Cyberspace Operations Forces and Force Support moves to U.S. Cyber Command in FY2024.

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 2022	FY 2023	FY 2024
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			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** DD3 / *Joint Cyber Warfighting Architecture Cyber Train*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
include event design, planning and execution, supported by standardized training assessment tools and capabilities. ***FY 2023 Plans:*** 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 - Funding was moved to U.S. Cyber Command.			
Title: Environment Operations and Management for Persistent Cyber Training Environment (PCTE) ***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. ***FY 2023 Plans:*** FY 2023 PCTE funding will continue to focus on USCC priorities as they relate to integration with JCWA components within the JCWA data fabric in collaboration with all stakeholders. Areas of planned focus include JCWA pilots that increase mission relevant content sharing and discoverability across JCWA mission threads, in addition to enterprise compute integration for range resources within cloud cyber terrain. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 - Funding was moved to U.S. Cyber Command.	-	4.814	-
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. ***FY 2023 Plans:*** The PCTE Regional Compute and Storage (RCS) nodes will execute a cloud migration and continue the consumption based model while continuing to leverage DoD enterprise transport services with access on all classification levels (Top Secret to Unclassified) to perform training. ***FY 2023 to FY 2024 Increase/Decrease Statement:***	-	5.510	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** DD3 / *Joint Cyber Warfighting Architecture Cyber Train*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY2024 - Funding was moved to U.S. Cyber Command.			
Title: Persistent Cyber Training Environment (PCTE) Test and Evaluation	-	1.732	-
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. ***FY 2023 Plans:*** Testing will continue in FY 2023 with integration, verification and validation testing of the PCTE capability with an emphasis on NSA Red Team testing on PCTE throughout the development cycle. The focus for FY 2023 is on verifying existing and new capability through continuous testing and cyber resiliency assessments. Test efforts in FY 2023 include the integration and testing with other platforms within the Joint Capability Warfighter Architecture (JCWA). ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 - Funding was moved to U.S. Cyber Command.			
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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / *Cyberspace Operations Forces and Force Support*	Project (Number/Name) DD3 / *Joint Cyber Warfighting Architecture Cyber Train*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	291.539	-		55.599		-		-		-	0.000	347.138	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** DD3 / *Joint Cyber Warfighting Architecture Cyber Train*

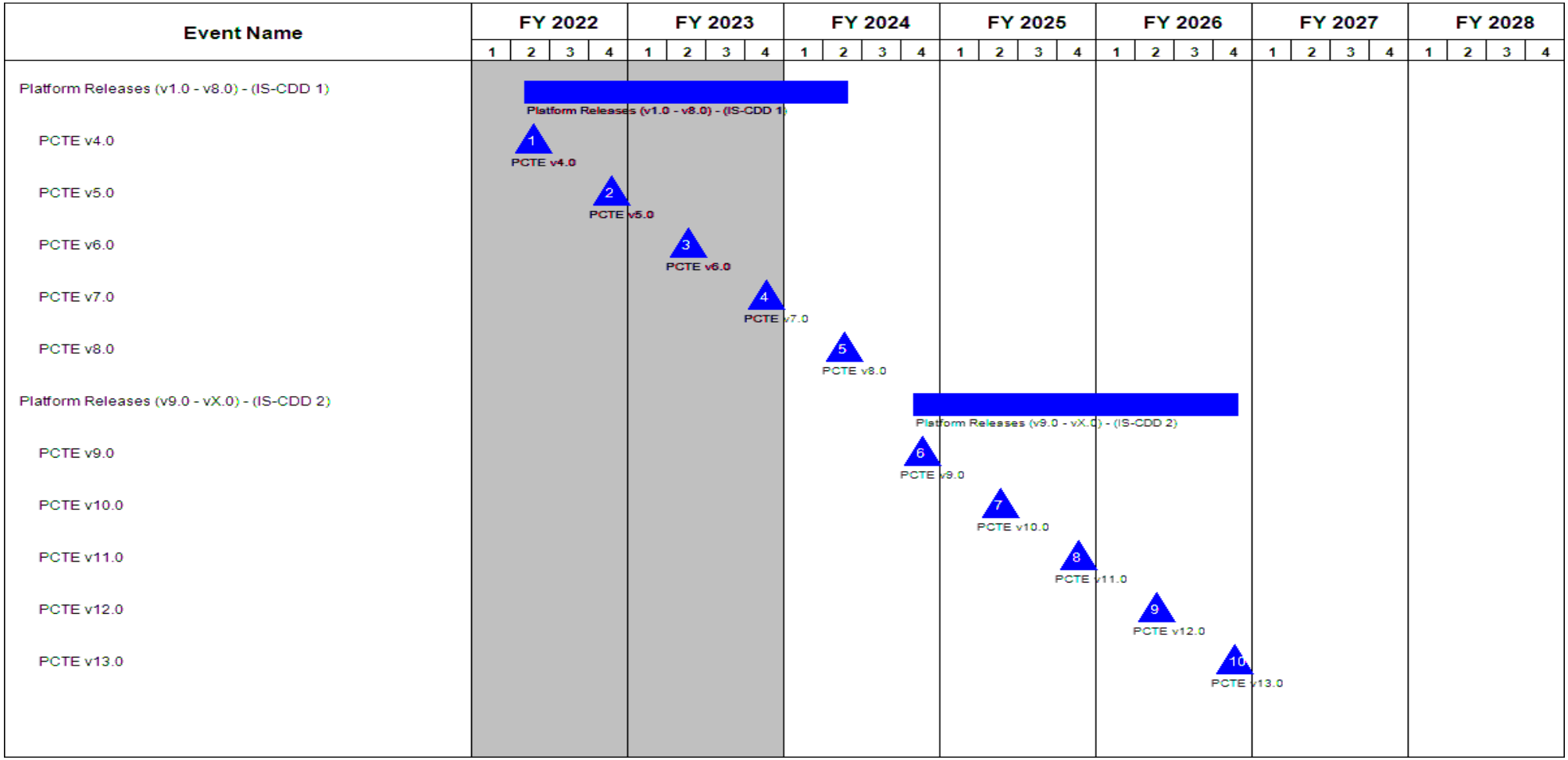


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** DD3 / *Joint Cyber Warfighting Architecture Cyber Train*

Schedule Details

	Start		End	
Events	**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

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / *Cyberspace Operations Forces and Force Support*	Project (Number/Name) FA8 / *Cyberspace Operations Forces and Force Support*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
FA8: *Cyberspace Operations Forces and Force Support*	-	55.895	-	-	-	-	-	-	-	-	0.000	55.895
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Under PE 0305251A / Cyberspace Operations Forces and Force Support Project FA8 / Cyberspace Operations Forces and Force Support moves to Project DD3 in FY2023. Funding from PE 0305251A / Cyberspace Operations Forces and Force Support moves to U.S. Cyber Command in FY2024.

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 (IS-CDD) 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Event Management for Persistent Cyber Training Environment (PCTE) ***Description:*** Develop event scheduling, allocation, and management function for PCTE, to include event design, planning and execution, supported by standardized training assessment tools and capabilities.	40.031	-	-
Title: Environment Operations and Management for Persistent Cyber Training Environment (PCTE) ***Description:*** Develop PCTE with realistic vignettes/scenarios as part of a system (syllabus) of individual and collective training that includes certification and real-world mission rehearsals.	4.657	-	-
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	5.500	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** FA8 / *Cyberspace Operations Forces and Force Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
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.			
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.	1.707	-	-
Accomplishments/Planned Programs Subtotals	51.895	-	-

	FY 2022	FY 2023
Congressional Add: Program increase - Army Cyber Institute	4.000	-
FY 2022 Accomplishments: Program increase - Army Cyber Institute: The funding will be used to create a multi-organization research initiative with academic, government, and industry partners focused on critical infrastructure resilience. The research will continue development of the Army Cyber Institute's Jack Voltaic project through efforts such as: development of automated training tools; assessment of installation force projection resiliency; threatcasting research to analyze future critical infrastructure threats; analysis of critical infrastructure software and firmware through code cloning detection techniques; legal and policy gap evaluations and proposals; analysis of data privacy threats to critical infrastructure and installations; development, testing and evaluation of artificial intelligence enabled models and tools to detect, characterize and respond to attacks against critical infrastructure other cyber-physical systems; and emerging technology (e.g., block-chain) uses with critical infrastructure protection systems. Efforts in FY22 will focus on development, planning, and implementation of the research initiative. Efforts in FY23 will focus on research, development, analysis, and reporting.		
Congressional Adds Subtotals	4.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** FA8 / *Cyberspace Operations Forces and Force Support*

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).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / *Cyberspace Operations Forces and Force Support*	Project (Number/Name) FA8 / *Cyberspace Operations Forces and Force Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PCTE Development and Integration Support	C/IDIQ	Various : Various	180.050	1.700	Feb 2022	-		-		-		-	Continuing	Continuing	Continuing
PCTE Cyber Training, Readiness, Integration, Delivery, and Enterprise Technology (TRIDENT) Contract	C/IDIQ	Various : Various	-	12.953	May 2022	-		-		-		-	Continuing	Continuing	Continuing
PCTE Development and Integration - Other Contracts	Option/ FFP	Various : Various	47.097	35.535	Nov 2021	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	227.147	50.188		-		-		-		-	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Congressional Add: ACI	TBD	TBD : TBD	-	4.000		-		-		-		-	0.000	4.000	-
		Subtotal	-	4.000		-		-		-		-	0.000	4.000	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PCTE Government Test and Evaluation	Various	Various : Various	11.404	1.707	Mar 2022	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	11.404	1.707		-		-		-		-	Continuing	Continuing	N/A

Remarks

Validation and Verification tests at CMF existing training events will be conducted with every capability drop utilizing Cyber Mission Force operators and representatives from the Operational Test Authority.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0305251A / *Cyberspace Operations Forces and Force Support*	Project (Number/Name) FA8 / *Cyberspace Operations Forces and Force Support*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	238.551	55.895		-		-		-		-	Continuing	Continuing	N/A

Remarks

Under PE 0305251A / Cyberspace Operations Forces and Force Support Project FA8 / Cyberspace Operations Forces and Force Support moves to Project DD3 in FY 2023.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** FA8 / *Cyberspace Operations Forces and Force Support*

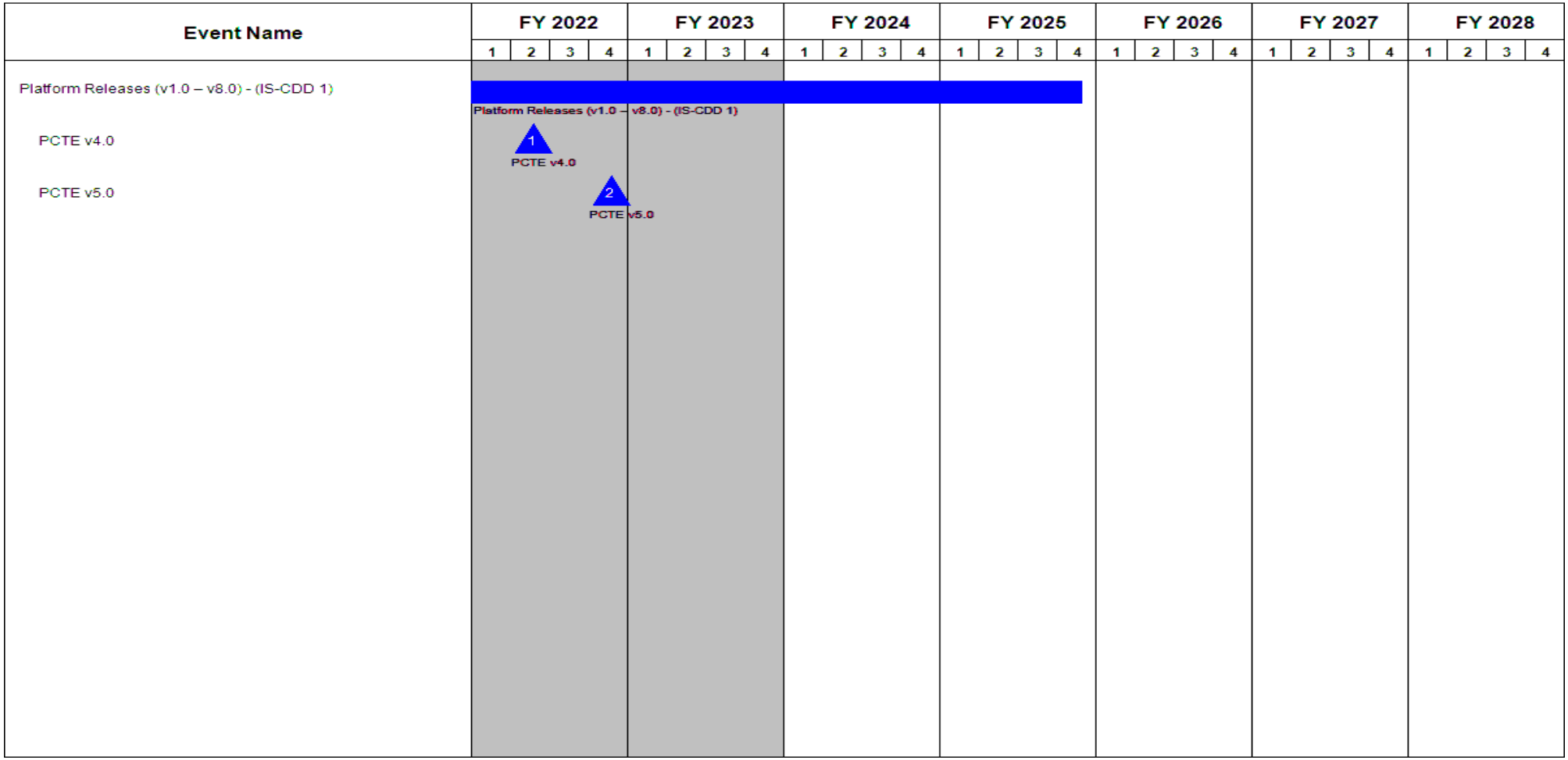


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0305251A / *Cyberspace Operations Forces and Force Support*	**Project (Number/Name)** FA8 / *Cyberspace Operations Forces and Force Support*

Schedule Details

	Start		End	
Events	**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