

UNCLASSIFIED

**Department of Defense
Fiscal Year (FY) 2022 Budget Estimates**

May 2021



Army

Justification Book of

Research, Development, Test & Evaluation, Army

RDT&E – Volume II, Budget Activity 5C

UNCLASSIFIED

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

Table of Contents

Introduction and Explanation of Contents..... ii

Comptroller Exhibit R-1..... xi

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

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

Exhibit R-2s..... 1

UNCLASSIFIED
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, \$12,799,645,000.00 to remain available for obligation until September 30, 2023.

The FY 2022 Overseas Contingency Operations accounted for in the base budget are as follows:

Direct War cost accounted for in the Base Budget \$67,710,000: Direct War costs are those combat or direct combat support costs that will not continue to be expended once combat operations end at major contingency locations.

Enduring costs accounted for in the Base budget: \$41,546,000: Enduring Requirements are enduring in theater and in CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO.

FY 2021 includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

FY 2020 includes Division A, Title IX and X of the Consolidated Appropriations Act, 2020 (P.L. 116-93), Division F, title IV and V from the Further Consolidated Appropriations Act, 2020 (P.L. 116-94) and the Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136).

COST STATEMENT

The following Justification Books were prepared at a cost of \$472,560: 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 6, Budget Activity 7, and Budget Activity 8.

UNCLASSIFIED
FY 2022 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 2021.

2. **Relationship of the FY 2022 Budget Submitted to Congress to the FY 2021 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:

<u>Budget Activity</u>	<u>OSDPE / Project</u>	<u>Project Title</u>
01	0601104A / CI9	Strategic University Basic Research Alliance
02	0602141A / CJ1	Lethality Enabling University Applied Research
02	0602147A / AF1	Long Range Maneuverable Fires (LRMF) Technology
02	0602181A / CM7	Collaborative Convergence Applied Research
02	0602182A / CN4	Network Enabling University Applied Research
02	0602183A / CL5	Air Platform Enabling University Applied Research
02	0602184A / CK9	Advancing Concepts and Technology Forecasting Tech
02	0602184A / CN2	Intelligent Weapons Concepts and Technologies
02	0602184A / CN9	Soldier Enabling University Applied Research
02	0602184A / CO1	Soldier Power And Energy Concepts and Technologies
02	0602184A / CO2	Soldier-Intelligent Technology Research
02	0602386A / CP6	Biotechnology Demonstration and Evaluation
03	0603025A / CK8	Advanced Technology Development and Convergence
03	0603041A / CL9	Collab Battlefield Networked Leth Sys Adv Tech
03	0603041A / CM2	Collaborative Convergence Adv Tech Development
03	0603041A / CM8	Convergence Battlefield Integration

03	0603042A / CN3	Network Enabling University Adv Development
03	0603043A / CL4	Air Platform Enabling University Adv Development
03	0603044A / CN8	Soldier Enabled University Advanced Development
03	0603119A / CJ9	Ground Enabling University Adv Development
03	0603386A / CP7	Foundational Biotechnology Design and Development
03	0603462A / BH4	Ground Vehicle Holistic Defense Adv Tech
03	0603463A / AO3	Network C3I Advanced Technology
03	0603463A / AO6	Network C3I Advanced Technology
03	0603463A / AP6	Network C3I Advanced Technology
03	0603463A / AP8	Network C3I Advanced Technology
04	0604019A / BU9	IFPC High Energy Laser
04	0604019A / CO6	IFPC High Power Microwave (HPM)
04	0604115A / CE4	Emerging Technology Initiatives Development
04	0604403A / FM3	Future Interceptor
04	0604531A / CQ5	C-SUAS JOINT NEW CAPABILITIES DEVELOPMENT
04	0604531A / CQ6	C-SUAS JOINT ENABLING CAPABILITIES DEVELOPMENT
05	0303667A / CR1	Citizen Broadband Radio System
05	0304270A / CK3	TLS Echelon Above Brigade (EAB)
05	0604601A / S70	Personnel Recovery Support System (PRSS)
05	0604802A / CE3	Precision Munition (Sniper)
05	0604804A / VR7	Combat Service Support Systems
05	0604818A / EJ6	TACTICAL ENHANCEMENT
05	0605053A / BS9	Robotic Payloads
05	0605143A / BX5	Biometrics Enabling Capability (BEC)
05	0605531A / CQ7	C-SUAS JOINT NEW CAPABILITIES
05	0605531A / CQ8	C-SUAS JOINT ENABLING CAPABILITIES
07	0307665A / BI7	Biometrics Enabled Intelligence
07	0607131A / CP2	Precision Fire Technology Improvements

Program Element/Project Restructures:

<u>Budget Activity</u>	<u>Old OSDPE / Project: Title</u>	<u>New OSDPE / Project</u>
01	0601102A / AA1 AA2 AA6 AA7 AA8 AB1 AB2 AB4 AC6: Multiple	0601601A / CL3
01	0602785A / 790: Manpower/Personnel/Training Technology	0603040A / CL1
02	0602787A / MM8: Infectious Diseases and Applied Rsch Technology	0603002A / CJ3
02	0602787A / MN1: Applied Sensory Systems Trauma Technology	0602787A / MK4, MM4
02	0602141A / AH9: Advanced Warheads Technology	0602141A / CJ6
02	0602141A / AI1: Advanced Terrain Shaping Technology	0602141A / CF8
02	0602143A / BC3: Soldier Decision Making & Comms Performance Tech	0602184A / CO2
02	0602143A / BD6: Soldier Sys Interfaces/Integration- Sensor Tech	0602180A / CL7
02	0602144A / CA9: Predictive Maintenance	0602180A / CN7
02	0602145A / BF6: Crew Augmentation and Optimization Tech	0602144A / CG8
02	0602145A / BF8: Artificial Intelligence & Machine Learning Tech	0602180A / CL7
02	0602145A / BF8: Artificial Intelligence & Machine Learning Tech	0602183A / CL5
02	0602145A / BF9: Sensors for Autonomous Operations and Surv Tech	0602180A / CL2
02	0602145A / BG6: Advanced Concepts for Active Defense Technology	0602144A / CG7
02	0602145A / BH5: Platform Electrification and Mobility Tech	0602144A / CG6
02	0602145A / BH9: Protection for Autonomous Systems Tech	0603041A / CM8
02	0602145A / BI2: Sensor Protection Technology	0602144A / CG5
02	0602146A / AN7: COE - Every Receiver is a Sensor Technology	0602180A / CL2
02	0602146A / AO5: Tag Track and Locate Small Satellites Technology	0602146A / CK1, CG3
02	0602146A / AP4: CEMA Camouflage Technology	0602182A / CM9, CN5
02	0602146A / AQ9: Expeditionary Data to Decisions Technology	0602146A / CI3
02	0602146A / AV6: Airborne Engineering Support Technology	0603463A / CI7
02	0602148A / AI5: Next Gen Tactical UAS TD Technology	0602148A / CH2
02	0602148A / AJ4: Digital Vehicle Management and Control Technology	0602148A / CG9
02	0602148A / AK2: Aviation Survivability Technology	0602183A / CN1
02	0602148A / AK2: Aviation Survivability Technology	0602148A / CH3
02	0602148A / AK4: Multi-Role Small Guided Missile Technology	0602148A / CI5

02	0602148A / AK9: Adv Teaming for Tactical Aviation Operations Tech	0602183A / CL8
02	0602148A / AM4: Opt Energy Stg & Therm Mgmt for FVL Survivability	0602148A / CH4
02	0602150A / AC9: High Energy Laser Tactical Vehicle Demonstrator Te	0603466A / AD1
02	0602150A / AD2: High Energy Laser (HEL) Enabling and Support Techn	0602141A / CF7
02	0602150A / AD3: Maneuver Air Defense Technology	0602141A / CJ7
02	0602213A / CY8: Cyber Security App Research and Exper Partner Tech	0603463A / CI7
02	0602213A / CY8: Cyber Security App Research and Exper Partner Tech	0602146A / CI3
02	0603002A / MO9: Vaccines to Prevent Dengue Fever Advanced Tech	0603002A / CJ3
02	0603007A / 792: Personnel Performance & Training	0603040A / CL6
03	0603116A / AI3: Terminal Weapons Effects Against Structures and Critical Targets Tech	0603116A / CH5
03	0603118A / BC4: Soldier Decision Making&Comms Performance AdvTech	0603465A / AL9
03	0603463A / AM9: Protected SATCOM Advanced Technology	0603463A / CI7
03	0603463A / AM9: Protected SATCOM Advanced Technology	0602146A / AN3
03	0603463A / AO3: Stand-In Advanced RF Effects (STARE) Adv Tech	0603463A / AO7
03	0603463A / AO6: Tag Track and Locate Small Satellites Adv Tech	0603463A / CJ8
03	0603463A / AP6: C4ISR Integrated Demonstrations Advanced Tech	0603463A / AN4, AM9, AP9
03	0603463A / AP8: Comms/Horiz Int for Army Mod Priorities Adv Tech	0603041A / CL9, CL2, CM8
03	0603463A / AQ1: Spectrum Obfuscation Advanced Technology	0603463A / CI7
03	0603463A / AQ5: Sensor CE-Integrated Sensor Architecture Adv Tech	0603463A / CI7
03	0603463A / AQ8: High Tempo Data Driven Decision Tools Adv Tech	0603463A / CI7
03	0603463A / AU6: Automated Analytics for Operational Environment AT	0603463A / CF9
03	0603463A / AV2: LEO Advanced Technology	0603463A / CJ8
03	0603463A / BZ8: Aerial Tier Networking (High Altitude)	0602146A / AN3
03	0603465A / AJ1: Future UAS Engine Advanced Technology	0603465A / AI8
03	0603465A / AJ5: Digital Vehicle Management & Control Advanced Tech	0603465A / CH6
03	0603465A / AK3: Aviation Survivability Advanced Technology	0603465A / CH8, CG1
03	0603465A / AM5: Opt Energy Stg & Therm Mgmt for FVL Surv Adv Tech	0603465A / CH7
03	0603466A / AD6: Next Generation Fires Radar Advanced Technology	0602141A / CG4
04	0603327A / FG9: Air and Missile Defense (AMD) Electronic Warfare	0604741A / 126
04	0603619A / 606: Cntrmn/Barrier Adv Dev	0603619A / CE5

04	0603639A / BQ4: 155mm Artillery Propulsion XM654	0604802A / BQ3
04	0603639A / FG1: Cannon-Delivered Area Effects Munitions (C-DAEM)	0604802A / FG1
04	0603766A / 907: Tactical Electronic Surveillance System - Adv Dev	0603766A / BX9, CC5, BY9
04	0603774A / VT7: Soldier Maneuver Sensors - Adv Dev	0603774A / BQ5
04	0603801A / F12: Future Attack Reconnaissance Aircraft	0603801A / CK7
04	0603807A / 811: Mil HIV Vac&Drug Dev	0604807A / 849
04	0604017A / FD2: Soldier Robotics Systems	0605053A / BS9
04	0604117A / FI4: Maneuver - Short Range Air Defense (M-SHORAD)	0604117A / CR9, CS1
04	0604120A / ED5: Assured Positioning, Navigation and Timing (PNT)	1206120A / FJ8
04	0604120A / EH8: DISMOUNTED	1206120A / FJ9
04	0604120A / EH9: PSEUDOLITES	1206120A / FK1
04	0604120A / EJ2: MOUNTED	1206120A / FK2
04	0604120A / EJ3: ANTI-JAM ANTENNA	1206120A / FK3
04	0604121A / FD6: Synthetic Training Environment Refine & Prototype	0604121A / CR2, CR3, CR4, CR5, CR7
04	0604121A / SV1: Soldier/Squad Virtual Trainer	0604121A / CR4, CR6
04	0604182A / HX1: Long-Range Hypersonic Weapon	0605232A / HX2
04	0604319A / DU3: IFPC2	0605052A / EY7
04	0604710A / L67: Soldier Night Vision Devices	0604710A / BQ6
04	0604807A / 812: Mil HIV Vac&Drug Dev	0604807A / 849
04	0604808A / 016: Close Combat Capabilities ENG DEV	0604808A / CS2, CS3
04	0604823A / L86: LIGHTWEIGHT COUNTER MORTAR RADAR (LCMR)	0607148A / BY8
04	0604823A / L88: Enhanced AN/TPQ 36	0607148A / BY8
05	0304270A / EW5: Electronic Warfare Development - MIP	0607313A / CE2
05	0304270A / EW6: ARAT-TSS - MIP	0304270A / CR8
05	0604798A / FG7: Emerging Technology Initiatives	0605054A / FI3
05	0605013A / 738: AcqBiz	0605013A / FL9
05	0605013A / FL9: Army Accessioning IT Development	0605233A / CP8
05	0605036A / EQ5: Combating Weapons of Mass Destruction (CWMD)	0605036A / CS6
05	0605041A / EV5: Defensive CYBER Operations	0608041A / CD1
05	0605053A / FB8: Soldier Borne Sensor (SBS)	0604827A / FK4

05	0605766A / DX9: National Integration To Tactical Systems(MIP)	0605766A / BV3
06	0604256A / 976: Army Threat Sim (ATS)	0604759A / FF1
06	0605898A / XW7: Command HQ - ARI	0605801A / M15
07	0303140A / DV4: Key Management Infrastructure (KMI)	0605144A / BY6
07	0305208A / D07: DCGS-A Common Modules (MIP)	0605148A / BY5
07	0305208A / D07: DCGS-A Common Modules (MIP)	0605224A / CK4
07	0305208A / D07: DCGS-A Common Modules (MIP)	0604037A / BY4
07	0205402A / EF2: Integrated Base Defense	0604785A / DS4
07	0607134A / ES1: Long Range Precision Fires (LRPF)	0605231A / CO3

Program Terminations (including transfers to Procurement and Sustainment):

<i>Budget Activity</i>	<i>OSDPE / Project</i>	<i>Project Title</i>
02	0602143A / BB7	Soldier Lethality Technology / Exoskeleton: Technology for Man-Machine Interface
02	0602145A / BF1	Next Generation Combat Vehicle Technology / Autonomous Ground Resupply Tech
02	0602146A / AM6	Network C3I Technology / Modular RF Communications Technology
02	0602146A / AP7	Network C3I Technology / Comms/Horiz Int for Army Mod Priorities Tech
02	0602146A / AQ7	Network C3I Technology / High Tempo Data Driven Decision Tools Technology
02	0602146A / AT2	Network C3I Technology / Subterranean Detection and Monitoring Technology
02	0602146A / AU3	Network C3I Technology / Geospatially Enabled Operational Design Technology
02	0602146A / AW3	Network C3I Technology / DoD PNT M&S Collaborative Initiative (CI) Technolo
02	0602146A / BZ6	Network C3I Technology / Narrowband SATCOM Technology
02	0602150A / AC9	Air and Missile Defense Technology / High Energy Laser Tactical Vehicle Demonstrator Te
02	0602150A / AE4	Air and Missile Defense Technology / Collaborative ISR Sensors Technology
03	0603118A / BB6	Soldier Lethality Advanced Technology / Physical Augmentation: Adv Tech for Field Demo
03	0603462A / BF2	Next Generation Combat Vehicle Advanced Technology / Autonomous Ground Resupply (AGR) Adv Tech
03	0603462A / BG5	Next Generation Combat Vehicle Advanced Technology / Extended Line of Sight (ELOS) Advanced Technology
03	0603462A / BH1	Next Generation Combat Vehicle Advanced Technology / Survivability Systems Controls Advanced Technology

03	0603462A / BK6	Next Generation Combat Vehicle Advanced Technology / Adv Direct InDirect Armament Sys (ADIDAS) Adv Tech
03	0603463A / AN6	Network C3I Advanced Technology / Prot SATCOM-WB Global SATCOM Inter Canc Adv Tech
03	0603463A / AW4	Network C3I Advanced Technology / DoD PNT M&S Collaborative Initiative (CI) Adv Tech
03	0603464A / AE9	Long Range Precision Fires Advanced Technology / Low-Cost Tact Ext Range Missile (LC-TERM) Adv Tech
03	0603466A / AE1	Air and Missile Defense Advanced Technology / Close Combat High Energy Laser Advanced Technology
04	0603639A / 694	Tank and Medium Caliber Ammunition / Medium Caliber Ammunition
04	0603747A / C08	Soldier Support and Survivability / Rapid Equipping Force
04	0603804A / G11	Logistics and Engineer Equipment - Adv Dev / Adv Elec Energy Con Ad
04	0603807A / VS7	Medical Systems - Adv Dev / MEDEVAC Mission Equipment Package (MEP) - Adv Dev
04	0604021A / AW7	Electronic Warfare Technology Maturation (MIP) / Electronic Warfare Technology Maturation (MIP)
04	0604115A / AX4	Technology Maturation Initiatives / Computational Prototyping Environment (CPE)
04	0604115A / AX6	Technology Maturation Initiatives / Active Protection Systems Integration
04	0604115A / AX7	Technology Maturation Initiatives / Multi-Mission High Energy Laser (MMHEL) Sys Demo
04	0604115A / AY1	Technology Maturation Initiatives / MUM-T Platform Enabler
04	0604115A / AY3	Technology Maturation Initiatives / Strategic Long Range Cannon
05	0604622A / VR5	Family of Heavy Tactical Vehicles / TWV Protection Kits
05	0604741A / 149	Air Defense Command, Con trol and Intelligence - Eng Dev / Counter-Rockets, Artillery & Mortar
05	0604768A / 688	Brilliant Anti-Armor Submunition (BAT) / ATACMS BLK II
05	0604780A / 582	Combined Arms Tactical Trainer (CATT) Core / Synthetic Envir Core
05	0604798A / DY5	Brigade Analysis, Integration and Evaluation / Production/Field Coordination for Capability Sets
05	0604802A / 613	Weapons and Munitions - Eng Dev / MORTAR SYSTEMS
05	0604802A / EU5	Weapons and Munitions - Eng Dev / .50 Caliber All-Purpose Tactical cartridge (APTC)
05	0604802A / XT2	Weapons and Munitions - Eng Dev / 40mm Door Breach
05	0604804A / FG4	Logistics and Engineer Equipment - Eng Dev / Ultra-Lightweight Camouflage Net System (ULCANS)
05	0604808A / 415	Landmine Warfare/Barrier - Eng Dev / Mine Neutral/Detection
05	0604854A / HB6	Artillery Systems - EMD / Mobile 155MM Howitzer
05	0605033A / EQ3	Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E) / Grnd-Based Opnl

		Surv Sys -Exped (GBOSS-E)
05	0605053A / FB4	Ground Robotics / Common Robotic Systems
07	0203744A / EB6	Aircraft Modifications/Product Improvement Programs / MQ-1C Gray Eagle MODS
07	0305204A / 123	Tactical Unmanned Aerial Vehicles / Joint Technology Center System Integration

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.

UNCLASSIFIED

Department of Defense
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

<u>Appropriation</u>	<u>FY 2020 Actual*</u>	<u>FY 2021 Enacted**</u>	<u>FY 2022 Request</u>
Research, Development, Test & Eval, Army	12,842,958	14,144,856	12,799,645
Total Research, Development, Test & Evaluation	12,842,958	14,144,856	12,799,645
<u>Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title</u>			
Chem Agents & Munitions Destruction	890,830	942,493	1,001,231
Total Not in Research, Development, Test & Evaluation Title	890,830	942,493	1,001,231

UNCLASSIFIED

Department of Defense
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Summary Recap of Budget Activities -----	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
Basic Research	557,265	552,521	473,475
Applied Research	1,227,661	1,518,770	914,288
Advanced Technology Development	1,520,145	1,940,015	1,297,437
Advanced Component Development & Prototypes	2,895,592	3,577,387	3,806,330
System Development & Demonstration	3,072,662	2,948,445	3,392,358
Management Support	1,759,840	1,834,218	1,416,698
Operational Systems Development	1,809,793	1,716,794	1,380,248
Software and Digital Technology Pilot Programs		56,706	118,811
Total Research, Development, Test & Evaluation	12,842,958	14,144,856	12,799,645
 Summary Recap of FYDP Programs -----			
General Purpose Forces	733,243	589,525	542,571
Intelligence and Communications	287,081	362,184	280,473
Research and Development	11,434,683	13,058,379	11,911,888
Central Supply and Maintenance	105,885	130,785	61,720
Administration and Associated Activities	61		
Space	274,732		
Classified Programs	7,273	3,983	2,993
Total Research, Development, Test & Evaluation	12,842,958	14,144,856	12,799,645

UNCLASSIFIED

Department of Defense
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>			
Central Supply and Maintenance	890,830	942,493	1,001,231
Total Research, Development, Test & Evaluation	890,830	942,493	1,001,231

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Summary Recap of Budget Activities	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
Basic Research	557,265	552,521	473,475
Applied Research	1,227,661	1,518,770	914,288
Advanced Technology Development	1,520,145	1,940,015	1,297,437
Advanced Component Development & Prototypes	2,895,592	3,577,387	3,806,330
System Development & Demonstration	3,072,662	2,948,445	3,392,358
Management Support	1,759,840	1,834,218	1,416,698
Operational Systems Development	1,809,793	1,716,794	1,380,248
Software and Digital Technology Pilot Programs		56,706	118,811
Total Research, Development, Test & Evaluation	12,842,958	14,144,856	12,799,645
Summary Recap of FYDP Programs			
General Purpose Forces	733,243	589,525	542,571
Intelligence and Communications	287,081	362,184	280,473
Research and Development	11,434,683	13,058,379	11,911,888
Central Supply and Maintenance	105,885	130,785	61,720
Administration and Associated Activities	61		
Space	274,732		
Classified Programs	7,273	3,983	2,993
Total Research, Development, Test & Evaluation	12,842,958	14,144,856	12,799,645

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Element Number	Program Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se
1	0601102A	Defense Research Sciences	01	343,481	344,031	297,241	U
2	0601103A	University Research Initiatives	01	85,148	84,697	66,981	U
3	0601104A	University and Industry Research Centers	01	123,654	118,716	94,003	U
4	0601121A	Cyber Collaborative Research Alliance	01	4,982	5,077	5,067	U
5	0601601A	Artificial Intelligence and Machine Learning Basic Research	01			10,183	U
		Basic Research		557,265	552,521	473,475	
6	0602115A	Biomedical Technology	02		11,403	11,925	U
7	0602134A	Counter Improvised-Threat Advanced Studies	02		1,927	1,976	U
8	0602141A	Lethality Technology	02	68,852	117,484	64,126	U
9	0602142A	Army Applied Research	02	30,733	30,757	28,654	U
10	0602143A	Soldier Lethality Technology	02	141,154	201,750	105,168	U
11	0602144A	Ground Technology	02	143,172	158,158	56,400	U
12	0602145A	Next Generation Combat Vehicle Technology	02	255,041	258,351	172,166	U
13	0602146A	Network C3I Technology	02	133,804	202,257	84,606	U
14	0602147A	Long Range Precision Fires Technology	02	117,395	119,007	64,285	U
15	0602148A	Future Verticle Lift Technology	02	94,888	169,536	91,411	U
16	0602150A	Air and Missile Defense Technology	02	93,937	107,584	19,316	U
17	0602180A	Artificial Intelligence and Machine Learning Technologies	02			15,034	U
18	0602181A	All Domain Convergence Applied Research	02			25,967	U
19	0602182A	C3I Applied Research	02			12,406	U
20	0602183A	Air Platform Applied Research	02			6,597	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se c
21	0602184A	Soldier Applied Research	02			11,064	U
22	0602213A	C3I Applied Cyber	02	17,351	18,816	12,123	U
23	0602386A	Biotechnology for Materials - Applied Research	02			20,643	U
24	0602785A	Manpower/Personnel/Training Technology	02	20,406	20,399	18,701	U
25	0602787A	Medical Technology	02	110,928	101,341	91,720	U
		Applied Research		1,227,661	1,518,770	914,288	
26	0603002A	Medical Advanced Technology	03	82,256	94,669	43,804	U
27	0603007A	Manpower, Personnel and Training Advanced Technology	03	10,225	11,344	14,273	U
28	0603025A	Army Agile Innovation and Demonstration	03			22,231	U
29	0603040A	Artificial Intelligence and Machine Learning Advanced Technologies	03			909	U
30	0603041A	All Domain Convergence Advanced Technology	03			17,743	U
31	0603042A	C3I Advanced Technology	03			3,151	U
32	0603043A	Air Platform Advanced Technology	03			754	U
33	0603044A	Soldier Advanced Technology	03			890	U
34	0603115A	Medical Development	03		26,711	26,521	U
35	0603116A	Lethality Advanced Technology	03			8,066	U
36	0603117A	Army Advanced Technology Development	03	66,424	62,663	76,815	U
37	0603118A	Soldier Lethality Advanced Technology	03	131,119	151,370	107,966	U
38	0603119A	Ground Advanced Technology	03	136,544	196,055	23,403	U
39	0603134A	Counter Improvised-Threat Simulation	03		24,087	24,747	U
40	0603386A	Biotechnology for Materials - Advanced Research	03			53,736	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se c
41	0603457A	C3I Cyber Advanced Development	03	25,492	43,357	31,426	U
42	0603461A	High Performance Computing Modernization Program	03	217,389	221,161	189,123	U
43	0603462A	Next Generation Combat Vehicle Advanced Technology	03	255,386	302,209	164,951	U
44	0603463A	Network C3I Advanced Technology	03	138,937	216,520	155,867	U
45	0603464A	Long Range Precision Fires Advanced Technology	03	196,393	177,142	93,909	U
46	0603465A	Future Vertical Lift Advanced Technology	03	180,163	220,334	179,677	U
47	0603466A	Air and Missile Defense Advanced Technology	03	79,817	175,703	48,826	U
48	0603920A	Humanitarian Demining	03		16,690	8,649	U
		Advanced Technology Development		1,520,145	1,940,015	1,297,437	
49	0603305A	Army Missile Defense Systems Integration	04	59,318	140,195	11,702	U
50	0603308A	Army Space Systems Integration	04		25,584	18,755	U
51	0603327A	Air and Missile Defense Systems Engineering	04	52,672	47,098		U
52	0603619A	Landmine Warfare and Barrier - Adv Dev	04	79,504	56,067	50,314	U
53	0603639A	Tank and Medium Caliber Ammunition	04	72,456	100,367	79,873	U
54	0603645A	Armored System Modernization - Adv Dev	04	138,300	138,685	170,590	U
55	0603747A	Soldier Support and Survivability	04	9,246	5,712	2,897	U
56	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	37,490	182,400	113,365	U
57	0603774A	Night Vision Systems Advanced Development	04	192,530	15,429	18,000	U
58	0603779A	Environmental Quality Technology - Dem/Val	04	19,089	20,906	11,921	U
59	0603790A	NATO Research and Development	04	5,184	4,589	3,777	U
60	0603801A	Aviation - Adv Dev	04	488,397	694,296	1,125,641	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se c
61	0603804A	Logistics and Engineer Equipment - Adv Dev	04	7,081	8,587	7,055	U
62	0603807A	Medical Systems - Adv Dev	04	36,307	33,085	22,071	U
63	0603827A	Soldier Systems - Advanced Development	04	25,204	23,184	17,459	U
64	0604017A	Robotics Development	04	80,909	95,367	87,198	U
65	0604019A	Expanded Mission Area Missile (EMAM)	04			50,674	U
66	0604021A	Electronic Warfare Technology Maturation (MIP)	04	23,043	15,034		U
67	0604035A	Low Earth Orbit (LEO) Satellite Capability	04		21,850	19,638	U
68	0604036A	Multi-Domain Sensing System (MDSS) Adv Dev	04			50,548	U
69	0604037A	Tactical Intel Targeting Access Node (TITAN) Adv Dev	04			28,347	U
70	0604100A	Analysis Of Alternatives	04	9,811	9,714	10,091	U
71	0604101A	Small Unmanned Aerial Vehicle (SUAV) (6.4)	04		1,328	926	U
72	0604113A	Future Tactical Unmanned Aircraft System (FTUAS)	04	40,745	57,083	69,697	U
73	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor	04	364,154	308,805	327,690	U
74	0604115A	Technology Maturation Initiatives	04	171,058	141,109	270,124	U
75	0604117A	Maneuver - Short Range Air Defense (M-SHORAD)	04	41,690	4,813	39,376	U
76	0604119A	Army Advanced Component Development & Prototyping	04	117,335	172,990	189,483	U
77	0604120A	Assured Positioning, Navigation and Timing (PNT)	04		115,688	96,679	U
78	0604121A	Synthetic Training Environment Refinement & Prototyping	04	99,357	112,093	194,195	U
79	0604134A	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04		13,326	13,379	U
80	0604182A	Hypersonics	04	394,619	832,166	300,928	U
81	0604403A	Future Interceptor	04	1,918		7,895	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	S e c
82	0604531A	Counter - Small Unmanned Aircraft Systems Advanced Development	04			19,148	U
83	0604541A	Unified Network Transport	04	28,478	39,192	35,409	U
84	0604644A	Mobile Medium Range Missile	04	4,794	88,100	286,457	U
85	0604785A	Integrated Base Defense (Budget Activity 4)	04	2,000	2,020	2,040	U
86	0305251A	Cyberspace Operations Forces and Force Support	04	58,611	50,525	52,988	U
87	1206120A	Assured Positioning, Navigation and Timing (PNT)	04	133,307			U
88	1206308A	Army Space Systems Integration	04	100,985			U
		Advanced Component Development & Prototypes		2,895,592	3,577,387	3,806,330	
89	0604201A	Aircraft Avionics	05	8,069	7,011	6,654	U
90	0604270A	Electronic Warfare Development	05	57,090	56,624	30,840	U
91	0604601A	Infantry Support Weapons	05	86,154	88,552	67,873	U
92	0604604A	Medium Tactical Vehicles	05		8,213	11,374	U
93	0604611A	JAVELIN	05	14,377	5,983	7,094	U
94	0604622A	Family of Heavy Tactical Vehicles	05	12,085	22,254	31,602	U
95	0604633A	Air Traffic Control	05	5,543	3,383	4,405	U
96	0604642A	Light Tactical Wheeled Vehicles	05	2,843	4,193	2,055	U
97	0604645A	Armored Systems Modernization (ASM) - Eng Dev	05	273,433	123,992	137,256	U
98	0604710A	Night Vision Systems - Eng Dev	05	135,283	54,234	62,690	U
99	0604713A	Combat Feeding, Clothing, and Equipment	05	7,295	2,734	1,658	U
100	0604715A	Non-System Training Devices - Eng Dev	05	29,785	27,013	26,540	U
101	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	70,279	62,058	59,518	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	S e c
102	0604742A	Constructive Simulation Systems Development	05	11,158	9,779	22,331	U
103	0604746A	Automatic Test Equipment Development	05	10,466	5,375	8,807	U
104	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	7,480	7,605	7,453	U
105	0604768A	Brilliant Anti-Armor Submunition (BAT)	05	19,177	24,064		U
106	0604780A	Combined Arms Tactical Trainer (CATT) Core	05	8,861	3,438		U
107	0604798A	Brigade Analysis, Integration and Evaluation	05	29,852	18,737	21,534	U
108	0604802A	Weapons and Munitions - Eng Dev	05	182,119	268,858	309,778	U
109	0604804A	Logistics and Engineer Equipment - Eng Dev	05	105,668	53,676	59,261	U
110	0604805A	Command, Control, Communications Systems - Eng Dev	05	12,077	10,674	20,121	U
111	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	70,489	51,285	44,424	U
112	0604808A	Landmine Warfare/Barrier - Eng Dev	05	33,881	9,239	14,137	U
113	0604818A	Army Tactical Command & Control Hardware & Software	05	124,749	128,676	162,704	U
114	0604820A	Radar Development	05	91,782	105,271	127,919	U
115	0604822A	General Fund Enterprise Business System (GFEBs)	05	41,119	15,428	17,623	U
116	0604823A	Firefinder	05	16,583	18,278		U
117	0604827A	Soldier Systems - Warrior Dem/Val	05	4,606	6,296	6,454	U
118	0604852A	Suite of Survivability Enhancement Systems - EMD	05	81,899	62,012	106,354	U
119	0604854A	Artillery Systems - EMD	05	20,290	36,187		U
120	0605013A	Information Technology Development	05	89,541	126,498	122,168	U
121	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	97,873	111,078	76,936	U
122	0605028A	Armored Multi-Purpose Vehicle (AMPV)	05	80,381	76,140	35,560	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	S e c
123	0605029A	Integrated Ground Security Surveillance Response Capability (IGSSR-C)	05	6,423			U
124	0605030A	Joint Tactical Network Center (JTNC)	05	15,228	15,671	16,364	U
125	0605031A	Joint Tactical Network (JTN)	05	39,130	30,540	28,954	U
126	0605033A	Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)	05	3,689	5,758		U
127	0605034A	Tactical Security System (TSS)	05	7,343			U
128	0605035A	Common Infrared Countermeasures (CIRCM)	05	22,226	29,770	16,630	U
129	0605036A	Combating Weapons of Mass Destruction (CWMD)	05	9,589			U
130	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	05	5,805	4,669	7,618	U
131	0605041A	Defensive CYBER Tool Development	05	50,662	28,544	18,892	U
132	0605042A	Tactical Network Radio Systems (Low-Tier)	05	27,236	20,511	28,849	U
133	0605047A	Contract Writing System	05	16,379	22,025	22,960	U
134	0605049A	Missile Warning System Modernization (MWSM)	05	1,475			U
135	0605051A	Aircraft Survivability Development	05	130,211	99,208	65,603	U
136	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1	05	186,369	153,362	233,512	U
137	0605053A	Ground Robotics	05	24,747	12,010	18,241	U
138	0605054A	Emerging Technology Initiatives	05	36,146	294,366	254,945	U
139	0605143A	Biometrics Enabling Capability (BEC)	05			4,326	U
140	0605144A	Next Generation Load Device - Medium	05			15,616	U
141	0605145A	Medical Products and Support Systems Development	05		919	962	U
142	0605148A	Tactical Intel Targeting Access Node (TITAN) EMD	05			54,972	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se c
143	0605203A	Army System Development & Demonstration	05	184,410	150,201	122,175	U
144	0605205A	Small Unmanned Aerial Vehicle (SUAV) (6.5)	05		5,780	2,275	U
145	0605224A	Multi-Domain Intelligence	05			9,313	U
146	0605225A	SIO Capability Development	05			22,713	U
147	0605231A	Precision Strike Missile (PrSM)	05			188,452	U
148	0605232A	Hypersonics EMD	05			111,473	U
149	0605233A	Accessions Information Environment (AIE)	05			18,790	U
150	0605450A	Joint Air-to-Ground Missile (JAGM)	05	6,314	7,566	2,134	U
151	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	211,634	206,850	157,873	U
152	0605531A	Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	05			33,386	U
153	0605625A	Manned Ground Vehicle	05	197,304	171,890	225,106	U
154	0605766A	National Capabilities Integration (MIP)	05	7,835	7,670	14,454	U
155	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	05	7,119	1,678	2,564	U
156	0605830A	Aviation Ground Support Equipment	05	1,596	1,413	1,201	U
157	0303032A	TROJAN - RH12	05	3,936	3,451	3,362	U
158	0303267A	Auctioned Spectrum Relocation Fund	05	7,650			U
159	0303467A	SENSR Spectrum Pipeline SRF	05	251			U
160	0303567A	Non-SENSR Spectrum Pipeline SRF	05	1,236			U
161	0304270A	Electronic Warfare Development	05	18,432	59,755	75,520	U
		System Development & Demonstration		3,072,662	2,948,445	3,392,358	
162	0604256A	Threat Simulator Development	06	41,566	41,486	18,439	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	S e c
163	0604258A	Target Systems Development	06	27,984	35,279	17,404	U
164	0604759A	Major T&E Investment	06	140,946	119,231	68,139	U
165	0605103A	Rand Arroyo Center	06	12,573	12,989	33,126	U
166	0605301A	Army Kwajalein Atoll	06	230,051	221,965	240,877	U
167	0605326A	Concepts Experimentation Program	06	35,403	50,394	79,710	U
168	0605502A	Small Business Innovative Research	06	392,999	369,715		U
169	0605601A	Army Test Ranges and Facilities	06	356,231	390,351	354,227	U
170	0605602A	Army Technical Test Instrumentation and Targets	06	60,170	81,829	49,253	U
171	0605604A	Survivability/Lethality Analysis	06	33,632	36,001	36,389	U
172	0605606A	Aircraft Certification	06	3,319	2,736	2,489	U
173	0605702A	Meteorological Support to RDT&E Activities	06	6,094	6,360	6,689	U
174	0605706A	Materiel Systems Analysis	06	21,233	21,830	21,558	U
175	0605709A	Exploitation of Foreign Items	06	11,168	8,936	13,631	U
176	0605712A	Support of Operational Testing	06	52,280	54,116	55,122	U
177	0605716A	Army Evaluation Center	06	60,474	56,827	65,854	U
178	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	2,423	2,478	2,633	U
179	0605801A	Programwide Activities	06	56,800	84,510	96,589	U
180	0605803A	Technical Information Activities	06	30,434	25,487	26,808	U
181	0605805A	Munitions Standardization, Effectiveness and Safety	06	52,401	55,648	43,042	U
182	0605857A	Environmental Quality Technology Mgmt Support	06	4,489	1,715	1,789	U
183	0605898A	Army Direct Report Headquarters - R&D - MHA	06	53,320	54,564	52,108	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se
--	-----	----	---	-----	-----	-----	c
184	0606001A	Military Ground-Based CREW Technology	06	2,053			U
185	0606002A	Ronald Reagan Ballistic Missile Defense Test Site	06	64,311	68,911	80,952	U
186	0606003A	CounterIntel and Human Intel Modernization	06	2,925	5,200	5,363	U
187	0606105A	Medical Program-Wide Activities	06		19,164	39,041	U
188	0606942A	Assessments and Evaluations Cyber Vulnerabilities	06	4,500	6,496	5,466	U
189	0909999A	Financing for Cancelled Account Adjustments	06	61			U
		Management Support		1,759,840	1,834,218	1,416,698	
190	0603778A	MLRS Product Improvement Program	07	14,014	9,786	12,314	U
191	0605024A	Anti-Tamper Technology Support	07	8,141	8,436	8,868	U
192	0607131A	Weapons and Munitions Product Improvement Programs	07	14,222	19,666	22,828	U
193	0607134A	Long Range Precision Fires (LRPF)	07	149,455	100,146		U
194	0607136A	Blackhawk Product Improvement Program	07	22,502	8,300	4,773	U
195	0607137A	Chinook Product Improvement Program	07	164,820	49,409	52,372	U
196	0607139A	Improved Turbine Engine Program	07	197,941	232,159	275,024	U
197	0607142A	Aviation Rocket System Product Improvement and Development	07	1,847	13,421	12,417	U
198	0607143A	Unmanned Aircraft System Universal Products	07	17,386	19,460	4,594	U
199	0607145A	Apache Future Development	07	5,224	52,502	10,067	U
200	0607148A	AN/TPQ-53 Counterfire Target Acquisition Radar System	07			56,681	U
201	0607150A	Intel Cyber Development	07		14,652	3,611	U
202	0607312A	Army Operational Systems Development	07	45,026	35,851	28,029	U
203	0607313A	Electronic Warfare Development	07			5,673	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se
204	0607665A	Family of Biometrics	07	1,576	1,276	1,178	U
205	0607865A	Patriot Product Improvement	07	83,833	178,984	125,932	U
206	0203728A	Joint Automated Deep Operation Coordination System (JADOCs)	07	45,447	43,060	25,547	U
207	0203735A	Combat Vehicle Improvement Programs	07	266,197	213,728	211,523	U
208	0203743A	155mm Self-Propelled Howitzer Improvements	07	191,076	217,959	213,281	U
209	0203744A	Aircraft Modifications/Product Improvement Programs	07	8,896	11,261		U
210	0203752A	Aircraft Engine Component Improvement Program	07	138	80	132	U
211	0203758A	Digitization	07	4,043	4,351	3,936	U
212	0203801A	Missile/Air Defense Product Improvement Program	07	1,235	1,241	127	U
213	0203802A	Other Missile Product Improvement Programs	07		15,268	10,265	U
214	0205412A	Environmental Quality Technology - Operational System Dev	07	10,000	250	262	U
215	0205456A	Lower Tier Air and Missile Defense (AMD) System	07	93,743		182	U
216	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07	112,468	72,817	63,937	U
217	0208053A	Joint Tactical Ground System	07		9,510	13,379	U
219	0303028A	Security and Intelligence Activities	07	26,674	23,367	24,531	U
220	0303140A	Information Systems Security Program	07	25,710	28,270	15,720	U
221	0303141A	Global Combat Support System	07	57,604	70,652	52,739	U
222	0303142A	SATCOM Ground Environment (SPACE)	07		18,002	15,247	U
223	0303150A	WWMCCS/Global Command and Control System	07	1,988			U
226	0305179A	Integrated Broadcast Service (IBS)	07	459	382	5,430	U
227	0305204A	Tactical Unmanned Aerial Vehicles	07	22,147	38,151	8,410	U

R-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 5, 2021 at 15:01:27

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 May 2021

Appropriation: 2040A Research, Development, Test & Eval, Army

Line No	Element Number	Program Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	Se c
228	0305206A	Airborne Reconnaissance Systems	07	13,177	28,858	24,460	U
229	0305208A	Distributed Common Ground/Surface Systems	07	28,821	40,771		U
230	0305219A	MQ-1C Gray Eagle UAS	07	5,000			U
231	0305232A	RQ-11 UAV	07	3,218			U
232	0305233A	RQ-7 UAV	07	7,817			U
233	0307665A	Biometrics Enabled Intelligence	07	4,350		2,066	U
234	0708045A	End Item Industrial Preparedness Activities	07	105,885	130,785	61,720	U
235	1203142A	SATCOM Ground Environment (SPACE)	07	32,764			U
236	1208053A	Joint Tactical Ground System	07	7,676			U
9999	9999999999	Classified Programs		7,273	3,983	2,993	U
		Operational Systems Development		1,809,793	1,716,794	1,380,248	
237	0608041A	Defensive CYBER - Software Prototype Development	08		56,706	118,811	U
		Software and Digital Technology Pilot Programs			56,706	118,811	
Total Research, Development, Test & Eval, Army				12,842,958	14,144,856	12,799,645	

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Non RDT&E Title
 (Dollars in Thousands)

05 May 2021

<u>Summary Recap of Budget Activities</u>	<u>FY 2020 Actual*</u>	<u>FY 2021 Enacted**</u>	<u>FY 2022 Request</u>
Research, Development, Test, And Evaluation	890,830	942,493	1,001,231
Total Research, Development, Test & Evaluation	890,830	942,493	1,001,231
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>			
Central Supply and Maintenance	890,830	942,493	1,001,231
Total Research, Development, Test & Evaluation	890,830	942,493	1,001,231

UNCLASSIFIED

Department of the Army
 FY 2022 President's Budget
 Exhibit R-1 FY 2022 President's Budget
 Non RDT&E Title
 (Dollars in Thousands)

05 May 2021

Appropriation: 0390D Chem Agents & Munitions Destruction

Line No	Program Element Number	Item	Act	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request	S e c
1	0708081D	Chemical Materials Agency	02	6,500	6,494	6,220	U
2	0708083D	Assembled Chemical Weapons Alternatives	02	884,330	935,999	995,011	U
		Research, Development, Test, And Evaluation		890,830	942,493	1,001,231	
Total Chem Agents & Munitions Destruction				890,830	942,493	1,001,231	

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

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

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
120	05	0605013A	Information Technology Development.....	1
121	05	0605018A	Integrated Personnel and Pay System-Army (IPPS-A).....	83
122	05	0605028A	Armored Multi-Purpose Vehicle (AMPV).....	95
123	05	0605029A	Integrated Ground Security Surveillance Response Capability (IGSSR-C).....	106
124	05	0605030A	Joint Tactical Network Center (JTNC).....	113
125	05	0605031A	Joint Tactical Network (JTN).....	125
126	05	0605033A	Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E).....	143
127	05	0605034A	Tactical Security System (TSS).....	150
128	05	0605035A	Common Infrared Countermeasures (CIRCM).....	158
129	05	0605036A	Combating Weapons of Mass Destruction (CWMD).....	167
130	05	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite.....	174
131	05	0605041A	Defensive CYBER Tool Development.....	181
132	05	0605042A	Tactical Network Radio Systems (Low-Tier).....	205
133	05	0605047A	Contract Writing System.....	225
134	05	0605049A	Missile Warning System Modernization (MWSM).....	238
135	05	0605051A	Aircraft Survivability Development.....	243

UNCLASSIFIED

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
136	05	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1.....	261
137	05	0605053A	Ground Robotics.....	274
138	05	0605054A	Emerging Technology Initiatives.....	323
139	05	0605143A	Biometrics Enabling Capability (BEC).....	339
140	05	0605144A	Next Generation Load Device - Medium.....	344
141	05	0605145A	Medical Products and Support Systems Development.....	352
142	05	0605148A	Tactical Intel Targeting Access Node (TITAN) EMD.....	358
143	05	0605203A	Army System Development & Demonstration.....	367
144	05	0605205A	Small Unmanned Aerial Vehicle (SUAV) (6.5).....	368
145	05	0605224A	Multi-Domain Intelligence.....	376
146	05	0605225A	SIO Capability Development.....	383
147	05	0605231A	Precision Strike Missile (PrSM).....	389
148	05	0605232A	Hypersonics EMD.....	400
149	05	0605233A	Accessions Information Environment (AIE).....	409
150	05	0605450A	Joint Air-to-Ground Missile (JAGM).....	418
151	05	0605457A	Army Integrated Air and Missile Defense (AIAMD).....	426
152	05	0605531A	Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration.....	441
153	05	0605625A	Manned Ground Vehicle.....	453

UNCLASSIFIED

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
154	05	0605766A	National Capabilities Integration (MIP).....	464
155	05	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD).....	485
156	05	0605830A	Aviation Ground Support Equipment.....	496
157	05	0303032A	TROJAN - RH12.....	502
158	05	0303267A	Auctioned Spectrum Relocation Fund.....	511
159	05	0303467A	SENSR Spectrum Pipeline SRF.....	512
160	05	0303567A	Non-SENSR Spectrum Pipeline SRF.....	517
161	05	0304270A	Electronic Warfare Development.....	522

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
Accessions Information Environment (AIE)	0605233A	149	05.....	409
Aircraft Survivability Development	0605051A	135	05.....	243
Armored Multi-Purpose Vehicle (AMPV)	0605028A	122	05.....	95
Army Integrated Air and Missile Defense (AIAMD)	0605457A	151	05.....	426
Army System Development & Demonstration	0605203A	143	05.....	367
Auctioned Spectrum Relocation Fund	0303267A	158	05.....	511
Aviation Ground Support Equipment	0605830A	156	05.....	496
Biometrics Enabling Capability (BEC)	0605143A	139	05.....	339
Combating Weapons of Mass Destruction (CWMD)	0605036A	129	05.....	167
Common Infrared Countermeasures (CIRCM)	0605035A	128	05.....	158
Contract Writing System	0605047A	133	05.....	225
Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	0605531A	152	05.....	441
Defensive CYBER Tool Development	0605041A	131	05.....	181
Electronic Warfare Development	0304270A	161	05.....	522
Emerging Technology Initiatives	0605054A	138	05.....	323
Ground Robotics	0605053A	137	05.....	274
Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)	0605033A	126	05.....	143

UNCLASSIFIED

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

Program Element Title	Program Element Number	Line #	BA	Page
Hypersonics EMD	0605232A	148	05.....	400
Indirect Fire Protection Capability Inc 2 - Block 1	0605052A	136	05.....	261
Information Technology Development	0605013A	120	05.....	1
Integrated Ground Security Surveillance Response Capability (IGSSR-C)	0605029A	123	05.....	106
Integrated Personnel and Pay System-Army (IPPS-A)	0605018A	121	05.....	83
Joint Air-to-Ground Missile (JAGM)	0605450A	150	05.....	418
Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	0605812A	155	05.....	485
Joint Tactical Network (JTN)	0605031A	125	05.....	125
Joint Tactical Network Center (JTNC)	0605030A	124	05.....	113
Manned Ground Vehicle	0605625A	153	05.....	453
Medical Products and Support Systems Development	0605145A	141	05.....	352
Missile Warning System Modernization (MWSM)	0605049A	134	05.....	238
Multi-Domain Intelligence	0605224A	145	05.....	376
National Capabilities Integration (MIP)	0605766A	154	05.....	464
Next Generation Load Device - Medium	0605144A	140	05.....	344
Non-SENSR Spectrum Pipeline SRF	0303567A	160	05.....	517
Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	0605038A	130	05.....	174
Precision Strike Missile (PrSM)	0605231A	147	05.....	389
SENSR Spectrum Pipeline SRF	0303467A	159	05.....	512

UNCLASSIFIED

UNCLASSIFIED

Army • Budget Estimates FY 2022 • RDT&E Program

Program Element Title	Program Element Number	Line #	BA	Page
SIO Capability Development	0605225A	146	05.....	383
Small Unmanned Aerial Vehicle (SUAV) (6.5)	0605205A	144	05.....	368
TROJAN - RH12	0303032A	157	05.....	502
Tactical Intel Targeting Access Node (TITAN) EMD	0605148A	142	05.....	358
Tactical Network Radio Systems (Low-Tier)	0605042A	132	05.....	205
Tactical Security System (TSS)	0605034A	127	05.....	150

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	89.541	126.498	122.168	-	122.168	-	-	-	-	-	-
099: <i>Army Human Resource System</i>	-	11.427	0.944	0.197	-	0.197	-	-	-	-	-	-
184: <i>Installation Support Modules</i>	-	0.880	11.859	1.262	-	1.262	-	-	-	-	-	-
193: <i>Medical Communications For Combat Casualty</i>	-	0.050	-	-	-	-	-	-	-	-	-	-
FL9: <i>Army Accessioning IT Development</i>	-	29.992	36.986	5.436	-	5.436	-	-	-	-	-	-
FM7: <i>Human Resouces Information Technology</i>	-	6.740	10.184	12.971	-	12.971	-	-	-	-	-	-
FM8: <i>Information Technology for Training Systems</i>	-	15.860	37.011	62.969	-	62.969	-	-	-	-	-	-
FM9: <i>Information Technology for Criminal Investigations</i>	-	0.865	1.190	1.226	-	1.226	-	-	-	-	-	-
T04: <i>USMEPCOM TRANSFORMATION - IT MODERNIZATION</i>	-	14.609	8.997	10.892	-	10.892	-	-	-	-	-	-
T05: <i>Army Business System Modernization Initiatives</i>	-	6.398	16.286	24.035	-	24.035	-	-	-	-	-	-
VR3: <i>ASMIS-R (REPORTIT)</i>	-	2.720	3.041	3.180	-	3.180	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element is made up of over 30 programs across 10 Program Elements that represents numerous Army Information Technology missions.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>
--	---

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	88.689	142.678	122.951	-	122.951
Current President's Budget	89.541	126.498	122.168	-	122.168
Total Adjustments	0.852	-16.180	-0.783	-	-0.783
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-21.474			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.500	-			
• SBIR/STTR Transfer	-3.648	-5.206			
• Adjustments to Budget Years	-	-	-0.783	-	-0.783

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

Project: 184: *Installation Support Modules*

Congressional Add: *Program increase - installation access control technology*

	FY 2020	FY 2021
	-	10.500
Congressional Add Subtotals for Project: 184	-	10.500
Congressional Add Totals for all Projects	-	10.500

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) 099 / <i>Army Human Resource System</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
099: <i>Army Human Resource System</i>	-	11.427	0.944	0.197	-	0.197	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army Human Resource System (099) contains the following programs: Go Army Education managed by the Human Resource Command, Commanders Risk Reduction Dashboard managed by Program Executive Office Enterprise Information Systems (PEO EIS) and Regional Level Applications Software (RLAS) managed by United States Army Reserves (USAR).

In support of recruiting and retention for a more educated workforce, GoArmyEd is the virtual financial management portal and decision-support tool for 1) AD, USAR and ARNG Soldiers to request Tuition Assistance (TA); 2) Cadets to request Scholarship payments and 3) Department of the Army (DA) Civilians and Apprentices to request professional development funds. GoArmyEd is an enterprise system that enforces eligibility for higher education funds and creates efficiencies with its automated processes. Soldiers, Scholarship Cadets, DA Civilians and Apprentices use it to pursue post-secondary educational goals and professional development objectives; Army Education Counselors use it to provide educational guidance; Career Program Managers and Training Managers use it to manage civilian training; and Academic Institutions use it to deliver degree and course offerings and to report user progress and degree completions for 206K Soldiers, Cadets and Civilians.

Commanders Risk Reduction Dashboard (CRRD) has been transitioned to the Army Leader Dashboard (ALD). The program began with the identification of capability gaps arising out of the 2010 Red Book and 2012 Gold Book, two extensive studies directed by senior army leadership to examine suicide prevention (Red Book) and the Army's health and discipline (Gold Book). The studies illustrated that Commanders faced capability gaps in their ability to identify high risk behavior and risk factors, analyze soldier and unit risk, and identify risk trends and develop intervention strategies. CRRD provides Commanders at echelons Company through Major Army Command the ability to visualize and take preventive action to mitigate risk factors impacting their soldiers and formations by going to one dashboard and seeing data from multiple data sources.

The United States Army Reserve (USAR) utilizes the Regional Level Application Software (RLAS) as an enterprise system for duty attendance, military pay, Soldier records management and training calendar management to access, transact, store and manage Soldier and unit data required to conduct synchronized USAR operations. Unlike the Army Active Component (AC) where Soldier military pay is centrally managed and input at the installation level, the USAR utilizes RLAS to manage and input decentralized Soldier pay transactions at the unit level. RLAS consists of four modules: Pay, Personnel, Training, and Resource Management. Research and Development (R&D) authority and funding will provide RLAS with investment funds for necessary system development and system modifications. R&D funding amounts increase slightly towards the end of RLAS lifecycle (FY 2019 and 2020) in order to fully support the Integrated Pay and Personnel System - Army (IPPS-A) transition. Annually, USAR will provide sustainment funding. R&D authority and sustainment funding will meet the USAR Staff Judge Advocate (SJA) and Office of the Secretary of Defense Judge Advocate General (OTJAG) opinions regarding defense information Technology (IT) system for R&D activities. Necessary RLAS system development and system modifications include: 1) IPPS-A interface requirements; 2) implementing Microsoft .net Framework 4.5 standards; 3) implementing new Operating Systems (OS), system utilities and other technology products. Enhanced development and modification to RLAS will improve RLAS system

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 099 / <i>Army Human Resource System</i>
--	---	---

capabilities and bring RLAS into compliance with various Army Cyber Command (ARCYBER) and audit readiness requirements. RLAS will continue to process duty attendance, military pay, Soldier personnel transactions and training calendars until the system is fully subsumed by IPPS-A.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Title: Commanders Risk Reduction Dashboard (CRRD)</p> <p>Description: CRRD is a capability that enable Commanders in the U.S. Army to identify, act upon, monitor, track, and manage soldier-level and unit-level risk. CRRD will consolidate information from multiple Army databases and present to commanders a concise dashboard visualizing which Soldiers and units within their command are impacted by a variety of risk factors Capabilities: Identify High Risk Behaviors and Risk Factors; Analyze Soldier Risk; Analyze Unit Risk; Identify Trend; Develop Intervention Strategies</p> <p>FY 2021 Plans: CRRD Program transitioned to Army Leader Dashboard (ALD) in FY20 for sustainment and program management. Therefore, the FY21 amount of \$596K is planned to be reallocated to the Accession Information Environment (AIE) program management support within the same AHRS portfolio.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: CRRD Program transitioned to Army Leader Dashboard (ALD) in FY20 for sustainment and program management.</p>	1.533	0.596	-	-	-
<p>Title: GoArmyEd Modernization</p> <p>Description: GoArmyEd is an IT financial management portal and decision support tool for Soldiers, Cadets, and Civilians to request Tuition Assistance (TA) and Credentialing Assistance(CA), Scholarship Cadet payments and Army civilians to request training funds online, anytime for classroom, distance learning, and college courses. GoArmyEd enforces policies, procedures and eligibility for over \$492M of funds supporting Soldier and Scholarship Cadets? higher education goals; and Civilians and Apprentices? professional development. The modernized GoArmyEd?s automated interfaces will reduce manpower and other costs while improving all users? interactions and enhancing security features. Funding will support continued modernization/automation of GoArmyEd functionality and the transition to the HRC Data Center from a vendor datacenter. When the modernized system acquires all functionality, the legacy system will be deactivated. In support of recruiting and retention for a more educated workforce, GoArmyEd is the virtual financial management portal and decision-support tool for 1) AD, USAR and ARNG Soldiers to request Tuition Assistance (TA); 2) Cadets to request Scholarship payments and 3) Department of the Army (DA) Civilians and Apprentices to request professional development funds. GoArmyEd is an enterprise system that enforces eligibility for higher</p>	0.216	0.050	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 099 / <i>Army Human Resource System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>education funds and creates efficiencies with its automated processes. Soldiers, Scholarship Cadets, DA Civilians and Apprentices use it to pursue post-secondary educational goals and professional development objectives; Army Education Counselors use it to provide educational guidance; Career Program Managers and Training Managers use it to manage civilian training; and Academic Institutions use it to deliver degree and course offerings and to report user progress and degree completions for 206K Soldiers, Cadets and Civilians.</p> <p>FY 2021 Plans: Finalize all contingency operations. Modern GoArmyEd goes live, current GoArmyEd will be deactivated. NOTE: Still trying to acquire additional RDT&E for GoArmyEd Modernization.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Reduced funding consistent with Project life cycle.</p>					
<p>Title: Regional Level Application Software (RLAS)</p> <p>Description: The United States Army Reserve (USAR) utilizes the Regional Level Application Software (RLAS) as an enterprise system for duty attendance, military pay, Soldier records management and training calendar management to access, transact, store and manage Soldier and unit data required to conduct synchronized USAR operations. Unlike the Army Active Component (AC) where Soldier military pay is centrally managed and input at the installation level, the USAR utilizes RLAS to manage and input decentralized Soldier pay transactions at the unit level. RLAS consists of four modules: Pay, Personnel, Training, and Resource Management. R&D authority and funding will meet the USAR Staff Judge Advocate (SJA) and Office of the Secretary of Defense Judge Advocate General (OTJAG) opinions regarding defense information Technology (IT) system for R&D activities. Necessary RLAS system development and system modifications include: 1) Integrated Pay and Personnel System ? Army (IPPS-A) interface requirements; 2) implementing Microsoft .net Framework 4.5 standards; 3) implementing new Operating Systems (OS), system utilities and other technology products. Enhanced development and modification will improve RLAS system capabilities and bring RLAS into compliance with various Army Cyber Command (ARCYBER) and audit readiness requirements.</p> <p>FY 2021 Plans: Develop and implement open source code solutions. Complete and implement enhanced system user security controls. Modify system architecture to prepare for cloud platform hosting solution. Develop system audit</p>	0.419	0.298	0.197	-	0.197

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 099 / <i>Army Human Resource System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>readiness capabilities and improve system auditability. Improve and refine system cyber compliance. Develop and implement IPPS-A R3 compatible data interface, data transfer, and data processing solutions.</p> <p>FY 2022 Base Plans: Implement enhanced audit logging processes. Develop and refine open source code solutions. Refine system user security controls. Complete full system transition to cloud platform hosting environment. Develop and implement IPPS-A R3.x compatible data interface, data transfer, and data processing solutions. Develop, test, and evaluate IPPS-A R4 source code changes for data interface and data transfer.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding decrease consistent with planned life cycle for this effort.</p> <p>Title: FY 2020 SBIR/STTR Transfer</p>	9.259	-	-	-	-
Accomplishments/Planned Programs Subtotals	11.427	0.944	0.197	-	0.197

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

N/A

Remarks

D. Acquisition Strategy

GoArmyEd - The program manager makes extensive use of Integrated Product Teams (IPTs). Sub-elements of the acquisition (engineering and design, logistics planning, testing, etc.) are intensively managed by integrated teams of government and contractor personnel. Task performance is tracked against the Work Breakdown Structure (WBS) and resources allocated to each task are adjusted based on performance against the WBS. GoArmyEd contractual efforts are acquired on a firm fixed price basis on existing contractual vehicles.

RLAS - Will utilize GSA contract support to solicit FY 2020/2021 two-year software support & development contract - hybrid Firm Fixed Price & Time and Materials. RLAS will utilize GSA contract support to solicit FY 2021/2022/2023 three-year software support & development contract - hybrid Firm Fixed Price & Time and materials. RLAS will utilize existing USAR G6 hardware / servers / virtual environment / Active Directory / level 1-2 help desk / utility software / OS / DB / and other necessary hardware and devices as needed to operate the RLAS system.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development	Project (Number/Name) 099 / Army Human Resource System
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	C/FFP	Acquisition Contract Center : Rock Island, II	1.519	-		-		-		-		-	0.000	1.519	-
GoArmyEd Modernization	TBD	IBM : Various	0.591	-		0.050		-		-		-	0.000	0.641	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	9.259		-		-		-		-	0.000	9.259	-
Subtotal			2.110	9.259		0.050		-		-		-	0.000	11.419	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AHRS - ECPs/SCPs/ICPs/RLAS	C/FFP	Hewlett Packard : various	89.764	0.419		0.298		0.197		-		0.197	0.000	90.678	-
AHRS - Software Development	C/FFP	Hewlett Packard : various	51.723	-		-		-		-		-	0.000	51.723	-
GoArmyEd Modernization	C/FFP	IBM : Various	17.584	0.216		-		-		-		-	0.000	17.800	-
CRRD/AIE - PMSS	C/FFP	Various : Various	8.560	1.533		0.596		-		-		-	0.000	10.689	-
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	0.079	-		-		-		-		-	0.000	0.079	-
Subtotal			167.710	2.168		0.894		0.197		-		0.197	0.000	170.969	N/A

Remarks
CRRD is developed Government to Government by the Army Analytics and Visualization Lab at Redstone Arsenal via competitively awarded development contracts.

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	169.820	11.427	0.944	0.197	-	0.197	0.000	182.388	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 099 / <i>Army Human Resource System</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GoArmyEd Support/Enhancements																												
GoArmyEd Modernization																												
Commanders Risk Reduction Dashboard (CRRD) Full Deployment (FD)																												
Commanders Risk Reduction Dashboard (CRRD) Development																												
Commanders Risk Reduction Dashboard (CRRD) - Transition to Army Leader Dashboard																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 099 / <i>Army Human Resource System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GoArmyEd Support/Enhancements	3	2018	4	2020
Commanders Risk Reduction Dashboard (CRRD) Limited Deployment (LD)	4	2019	4	2019
Commanders Risk Reduction Dashboard (CRRD) Full Deployment (FD)	1	2020	1	2020
Commanders Risk Reduction Dashboard (CRRD) Development	3	2015	2	2020
Commanders Risk Reduction Dashboard (CRRD) - Transition to Army Leader Dashboard	2	2020	3	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) 184 / <i>Installation Support Modules</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
184: <i>Installation Support Modules</i>	-	0.880	11.859	1.262	-	1.262	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Installation Support Modules (ISM) consists of four standardized, web based, custom-developed enterprise wide applications that integrate essential installation business practices and processes throughout the Army, to meet Army Force Generation (ARFORGEN) Brigade Combat Team readiness and deployment requirements. Three modules support human resources business functions (In/Out-Processing, Transition Processing, and Personnel Locator); the fourth module, Central Issue Facility (CIF) supports management of over \$9 billion combatant Organizational Clothing and Individual Equipment inventory. The web server architecture is fully internet protocol capable and allows soldiers ready access to their records and commanders and logisticians access to information affecting readiness of combat organizations.

U.S. Army Coalition Interoperability Assurance and Validation (CIAV) Research Network provides an enduring and agile capability to execute approved processes and provide and maintain a repeatable and persistent infrastructure within the assurance and validation Coalition partner environment designed to ensure the succinct exchange of critical mission data between Mission Partners throughout all phases of military operations and enable the Army's implementation of Mission Partner Environment (MPE) and Combined-Joint All Domain Command and Control. CIAV uses a mission-based interoperability approach to identify capabilities, limitations and associated operational impacts and provides recommendations to improve or resolve information exchange issues between the U.S. Army and its mission partners. Funding facilitates coalition interoperability information exchange issue in compliance with AR 34-1 Multinational Force Interoperability and DODI 8110.01, Mission Partner Environment (MPE) Information Sharing Capability Implementation for the DOD.

Army Behavioral Health Integrated Data Environment (ABHIDE) will be the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) Suicide Registry. Data relating to suicides and suicide attempts are collected and stored in disparate, non-related databases that cross the domains of medical, personnel and law enforcement. ABHIDE will provide the capability of integrating the non-related and dispersed data from the separate sources into a single comprehensive database to support both retrospective and predictive analysis. The information obtained will be used to conduct epidemiological surveillance, identify trends in behavior patterns and identify potential indicators for suicidal tendencies supporting the mitigation of future suicide attempts across all phases of Army service.

ISM Core funding is essential for supporting demands to research and develop improved systems to provide for soldier safety and inventory reduction without risking readiness. Funding supports research and development to comply with Department of Defense Instruction 8320.4 Serialized Item Management. Applications to use commercial off the shelf wireless bar code equipment to ensure inventory accuracy throughout 154 warehouses in worldwide locations potentially reduces operating costs by \$500.0 million.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Army Behavioral Health Integrated Data Environment	0.880	1.359	1.262	-	1.262

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 184 / <i>Installation Support Modules</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
---	----------------	----------------	---------------------	--------------------	----------------------

Description: Army Behavioral Health Integrated Data Environment (ABHIDE) will be the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) Suicide Registry.

FY 2021 Plans:
Army Behavioral Health Integrated Data Environment (ABHIDE) will be the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) Suicide Registry. Data relating to suicides and suicides attempts are collected and stored in a in disparate, non-related databases that cross the domains of medical, personnel and law enforcement. ABHIDE will provide the capability of integrating the non-related and dispersed data from the separate sources into a single comprehensive database to support both retrospective and predictive analysis. The information obtained will be used to conduct epidemiological surveillance, identify trends in behavior patterns and identify potential indicators for suicidal tendencies supporting the mitigation of future suicide attempts across all phases of Army service.

FY 2022 Base Plans:
Army Behavioral Health Integrated Data Environment (ABHIDE) will be the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) Suicide Registry. Data relating to suicides and suicides attempts are collected and stored in a in disparate, non-related databases that cross the domains of medical, personnel and law enforcement. ABHIDE will provide the capability of integrating the non-related and dispersed data from the separate sources into a single comprehensive database to support both retrospective and predictive analysis. The information obtained will be used to conduct epidemiological surveillance, identify trends in behavior patterns and identify potential indicators for suicidal tendencies supporting the mitigation of future suicide attempts across all phases of Army service.

FY 2021 to FY 2022 Increase/Decrease Statement:
Change is economic assumption.

Accomplishments/Planned Programs Subtotals	0.880	1.359	1.262	-	1.262
---	-------	-------	-------	---	-------

	FY 2020	FY 2021
Congressional Add: Program increase - installation access control technology	-	10.500
FY 2021 Plans: Funding will support the CIAV capability in support of DoD, Joint Staff, and one of the CSA's top priorities in alignment with the National Defense and Army Strategies (Strengthen Access, Presence, & Influence w/ Allies & Partners). The CIAV capability assesses and evaluates Mission Partner and Multi-lateral exercises; new solutions to inform modernization enabling the Mission Partner Environment (MPE) framework		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 184 / <i>Installation Support Modules</i>

	FY 2020	FY 2021
and postures the Army for C-JADC2 while combining Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities or Policy-based (DOTMLPF-P) gaps within a coalition or a MPE.		
Congressional Adds Subtotals	-	10.500

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• BE4162: MACOM AUTOMATION SYSTEMS	92.588	58.281	49.794	-	49.794	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Installation Support Modules is in Post Deployment Software Support (PDSS). The present concept calls for the use of full and open competition to implement enhancements as defined by the Functional Proponent, Army Chief Information Officer (CIO). Current emphasis is to bring the ISM systems to functional readiness for transfer to an Army Data Center and virtualize the ISM systems.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development	Project (Number/Name) 184 / Installation Support Modules
--	--	--

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Army Behavioral Health Integrated Data Environment	C/FFP	various : various	9.713	0.880		1.359	Feb 2021	1.262	Feb 2021	-		1.262	Continuing	Continuing	-
Post-Deployment Software Support (PDSS)	C/FFP	various : various	6.061	-		-		-		-		-	0.000	6.061	-
Coalition Warfighter Interoperability Demonstration (CWID)	C/TBD	various : various	0.091	-		-		-		-		-	0.000	0.091	-
Subtotal			15.865	0.880		1.359		1.262		-		1.262	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Independent Verification and Validation (IVV) Testing	C/T&M	GDIT Corp : various	2.111	-		10.500		-		-		-	0.000	12.611	-
Subtotal			2.111	-		10.500		-		-		-	0.000	12.611	N/A

Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract			
Project Cost Totals			17.976	0.880	11.859	1.262	-	1.262	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 184 / <i>Installation Support Modules</i>	

FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ISM Post Deployment Software Support	
--------------------------------------	--

FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ISM Post Deployment Software Support	
--------------------------------------	--

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 184 / <i>Installation Support Modules</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ISM Post Deployment Software Support	4	2003	4	2017

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) 193 / <i>Medical Communications For Combat Casualty</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
193: <i>Medical Communications For Combat Casualty</i>	-	0.050	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

RDTE effort on current requirements in this project completed in FY 2020. Future requirements are being evaluated.

A. Mission Description and Budget Item Justification

The Medical Communications for Combat Casualty Care (MC4) System interfaces Force Health Protection and medical surveillance information with Army Mission Command information technology systems. The MC4 System fulfills the requirements highlighted in United States Code: Title 10, Subtitle A, Part II, Chapter 55, Section 1074f, mandating the proper documentation of deployed Service members' medical treatment to include its associated medical surveillance. The MC4 System supports other Soldier protection initiatives by providing data for analyses which can be used for identification and development of critical soldier support systems such as body armor, improved helmets, traumatic brain injury protection and trauma reduction. Current MC4 Program efforts are focused on system engineering, testing, integration, and fielding automation infrastructure for Army users of the Theater Medical Information Program-Joint (TMIP-J) suite of software. Effort has also been initiated to integrate MC4 with the Army Chief Information Office (CIO) Network 2020 and Common Operating Environment (COE) and as a program of record in the Mobile/ Handheld Computing Environment Working Group. Funding provides engineering, developmental testing, and integration of information management/information technology to support Force Health Protection in accordance with the Army Equipment Modernization Plan.

RDTE effort on current requirements in this project completed in FY 2020. Future requirements are being evaluated.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Engineering and Technical Support	0.050	-	-	-	-
Description: Engineering and Technical Support for Preplanned Program Improvements and System Upgrades, Systems Integration, Software Support and other new initiatives to improve system performance and effectiveness. Effort includes rapid integration of new IT technologies as they become available at Technology Readiness Levels (TRL) 6 or beyond, and engineering effort to modify system parameters due to cybersecurity or other pressing need.					
Accomplishments/Planned Programs Subtotals	0.050	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 193 / <i>Medical Communications For Combat Casualty</i>

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

Line Item	FY 2020	FY 2021	FY 2022	FY 2022	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Cost To	
			Base	OCO	Total					Complete	Total Cost
• MA8000: <i>Family of Med Comm for Combat Casualty Care</i>	19.221	19.570	15.957	-	15.957	-	-	-	-	-	-
• OMA - 432612000: <i>Information Management-Automation Spt</i>	-	0.440	1.720	2.040	3.760	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The MC4 Program supports a number of Army Medical Information Technology/Communications initiatives. The near and mid-term focus of the MC4 program is to engineer, design, integrate, test, acquire and field the Army automation infrastructure capabilities supporting fielding of the Defense Healthcare Management Systems Electronic Health Record integrated software application suite, future modernized capability, and other Army requirements. The MC4 hardware is procured as Commercial-off-the-Shelf (COTS) components. Since Electronic Health Record software is a major component of the MC4 System and being developed in increments by the Joint Program, the MC4 Program will deliver capabilities in increments, recognizing the need for future system updates and planned upgrades. The MC4 Program works with the user community to continually define and refine additional requirements and match them with available technologies to provide the user enhanced capabilities. These enhanced capabilities will be provided to the user at the earliest possible date. This approach yields the most operationally useful and supportable capability in the shortest time possible with Cost As an Independent Variable. Moreover, this approach provides an initial capability with the explicit intent of delivering improved and updated capability in subsequent updates and planned upgrades. This evolutionary development approach will be accomplished through a rapid prototyping process that will progress the system from its current functional capabilities to fully integrated objective capabilities, and forward into the future with a fully modernized system. Appropriate commercial technology enhancements (e.g. advances in operating systems, voice activated technology, cloud computing capability environment, etc.) will be incorporated into MC4 products and systems as they become available. Each MC4 System component will undergo a full range of developmental testing to include software unit testing, integration testing, interoperability testing and software qualification testing. The MC4 system updates and planned upgrades will continue to undergo follow-on testing.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 193 / <i>Medical Communications For Combat Casualty</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prog Mgmt Operations	Various	PMO : various	8.405	-		-		-		-		-	0.000	8.405	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	0.002		-		-		-		-	0.000	0.002	-
Subtotal			8.405	0.002		-		-		-		-	0.000	8.407	N/A

Remarks
Funding (Prior Years) in Program Management Operations includes direct pay of PMO government employees, TDY, training, supplies, etc. in direct support of RDTE effort. At Milestone C, Program Management Operations efforts were moved to another appropriation.

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2019 SBIR / STTR Transfer	TBD	TBD : TBD	0.141	-		-		-		-		-	0.000	0.141	-
Subtotal			0.141	-		-		-		-		-	0.000	0.141	N/A

Remarks
MC4 is a COTS (Commercial-Off-the-Shelf) hardware, GFE (Government Furnished Equipment) software system. MC4 provides the integration of the hardware and software and also fields to and supports the system to Army units. No product development is performed. Hardware is bought commercially off the shelf through commercial contracts and software is developed and provided by the Defense Health Medical Systems Joint Operational Medical Information Systems (DHMS/JOMIS).

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering & Tech Spt/ Information Assurance (old contract)	Various	L-3 (was Titan) : various	9.390	-		-		-		-		-	0.000	9.390	-
Engineering & Tech Spt (new contract)	Various	CACI (formerly L-3) : Various	8.614	0.048	Jan 2020	-		-		-		-	0.000	8.662	-
Information Assurance	Various	ISEC Support : AZ	1.783	-		-		-		-		-	0.000	1.783	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 193 / <i>Medical Communications For Combat Casualty</i>
--	---	---

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			19.787	0.048	-	-	-	-	-	-	-	-	0.000	19.835	N/A

Remarks
 Information Assurance (IA) activities moved from ISEC to L3 in FY 2012, IA activities moved to another appropriation FY 2013; FY 2015 new competitive contract award, base year with 4 option years (option year awards in January). Final objective Theater Medical Information Program-Joint (TMIP-J) software is expected to be complete and ready for fielding 2nd Quarter FY 2018. Modernization of TMIP-J software by Joint program (Joint Operational Medical Information System [J1]) is currently in process, requiring continued engineering and technical support to ensure an operational system for Army use.

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMO Testing Spt	MIPR	ATEC/AMEDD Board/JITC : various	6.961	-		-		-		-		-	0.000	6.961	-
MC4/TMIP System Engineering	C/T&M	L-3 Communications : Frederick MD	7.889	-		-		-		-		-	0.000	7.889	-
MC4/TMIP System Engineering	Various	John Hopkins University (JHU) Applied Physics Lab : MD	32.124	-		-		-		-		-	0.000	32.124	-
MC4/TMIP System Engineering (new contract)	C/T&M	CACI (was L-3 Communications) : Frederick MD	3.639	-		-		-		-		-	0.000	3.639	-
Subtotal			50.613	-		-		-		-		-	0.000	50.613	N/A

Remarks
 PMO Testing Support is provided by other Government agencies (AMEDD Board, ATEC and others).

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	78.946	0.050	0.000	-	-	-	0.000	78.996	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army							Date: May 2021			
Appropriation/Budget Activity 2040 / 5			R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development			Project (Number/Name) 193 / Medical Communications For Combat Casualty				
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>		Project (Number/Name) 193 / <i>Medical Communications For Combat Casualty</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Updates #4 for TMIP-J I2R3	System updates approximately 1Q and 3Q each FY																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) 193 / <i>Medical Communications For Combat Casualty</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC4/TMIP-J I2R3 Fielding Decision	2	2018	2	2018
System Updates #1 for TMIP-J I2R3	3	2018	3	2018
System Updates #2 for TMIP-J I2R3	4	2018	1	2019
System Updates #3 for TMIP-J I2R3	3	2019	3	2019
System Updates #4 for TMIP-J I2R3	4	2019	1	2020

Note

System Updates correspond to projected software change packages, to include security enhancements, throughout this time period. Updates require integration and testing prior to acceptance and release. Engineering and Technical support continues throughout this time period and is focused on hardware architecture development and cybersecurity and technology insertions for the modernized electronic health record system. .

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FL9: <i>Army Accessioning IT Development</i>	-	29.992	36.986	5.436	-	5.436	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2022, this funding was realigned from OSDPE 0605013A, Project 738.

A. Mission Description and Budget Item Justification

Accessions Information Environment (AIE): In FY22, PE 0605233A is a new setup. Previous year, AIE was established within PE0605013A (FL9). AIE supports the Army's Accessions Enterprise (AE). AIE aligns authorities, responsibilities, and resources, for Total Army accessions. It provides the Army's strength through its four missions: (1) Enlist Soldiers, (2) Commission Officers, (3) Fulfill In-Service requirements, and (4) Support and sustain. AIE will replace 11 legacy systems with 33 modules of the current legacy Accessions IT systems which have experienced frequent outages and unstable performance, directly impairing the Army's ability to make its recruiting mission. Successful implementation is of utmost priority for the enterprise. AIE is a critical Army modernization effort to re-engineer the business processes for Army Accessions and to ensure the Army can acquire the best qualified talent, meet manning requirements and readiness objectives. Ultimately, the delivery of AIE will provide an enterprise level capability for recruiting Army Soldiers across all components, enabling transparent and efficient workforce accessions. AIE is a COTS-based information technology (IT) software system that will modernize the AE. Key AIE functions / core capabilities include: lead generation & management, prospecting, interviewing, processing, pay & incentives, intelligence, marketing, training / leader development. This effort will ultimately ensure the accessions workforce has the information needed to engender commitments, lead future Soldiers, and engage communities in direct contact with young Americans. April 2019 the Program awarded an Other Transaction Authority (OTA) Firm Fixed Price agreement with defined milestone payments based on technical performance achievements. Configuration of core capabilities expand over 36 months ultimately being deployed to 24,000+ end users. Through fact of life changes and performance of the solution provider, in September 2020 the configuration of the OTA was extended over 51 months keeping the funding requirements the same but adding schedule. The foundational and Wave 1 capabilities, cloud networking capabilities, lead generation and management, prospecting, interviewing, and processing, will be delivered 4QFY21.

HRC Accessioning IT: Additionally, this program supports the development requirements for the US Army Human Resources Command (USAHRC) which provides the IT solutions and automation support necessary to accomplish the Army's Accessioning mission. The AIE acquisition program utilizes the DoD 500.75 business Capability Acquisition Cycle (BCAC) currently in the Requirements and Acquisition Planning Phase.

Army Suicide Prevention: This Program Element (PE) develops a pre-entry or entry assessment package that enhances the Soldier Lifecycle (e.g., selection, assignment, training, leader development). This PE enhances the Army's ability to identify individuals with a higher likelihood of having already experienced, or of potentially experiencing, sub-clinical behavioral issues, as well as to identify character strengths (e.g., resilience, grit), to ensure that the Army can meet mission requirements in the current and future operating environments. Research in this PE will result in more precise determinations of individual potential for future successful service, and more targeted identification of need for individual assistance (e.g., intervention, training, behavioral health) to increase likelihood of future success.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Title: Accessions Information Environment (AIE)</p> <p>Description: AIE will provide a fully integrated enterprise level COTS-based capability enabling transparency, efficiency and effectiveness of the accessions workforce to acquire the best-qualified talent to meet Army recruiting and accessions requirements. It will ultimately replace the current legacy Accessions IT systems that have been in existence for over 30 years, and which have experienced frequent outages and unstable performance since FY 2018.</p> <p>FY 2021 Plans: April 2019 the Program awarded an Other Transaction Authority (OTA) Firm Fixed Price agreement with defined milestone payments based on technical performance achievements. Configuration of core capabilities expand over 36 months ultimately being deployed to 24,000+ end users. Through fact of life changes and performance of the solution provider, in September 2020 the configuration of the OTA was extended over 51 months keeping the funding requirements the same but adding schedule. The foundational and Wave 1 capabilities, cloud networking capabilities, lead generation and management, prospecting, interviewing, and processing, will be delivered 4QFY21.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Program RDTE funding for AIE in FY22 and beyond has transitioned to PE 0605233A; Project Number CP8.</p>	28.120	32.410	-	-	-
<p>Title: HRC Accessioning IT</p> <p>Description: Description: Funding supports the development requirements for the US Army Human Resources Command (USAHRC) which provides the IT solution and automation support necessary to accomplish the Army's Accessioning mission.</p> <p>The AIE acquisition program utilizes the DoD 5000.75 Business Capability Acquisition Cycle (BCAC) currently in the Requirements and Acquisition Planning Phase.</p> <p>FY 2021 Plans: The FY 2021 funds support the Army's Accessioning Mission to include the Army Recruiting Information Support System (ARISS). Efforts are ongoing to support Financial Audit Readiness Requirement and technical requirements gathering, analysis and documentation to support TRADOC mission.</p> <p>FY 2022 Base Plans:</p>	-	2.919	3.307	-	3.307

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Program funding for AIE in FY22 and beyond has transitioned to PE 0605233A; Project Number CP8. FY 2022 funds support the Army's accessioning mission to include the legacy cloud system capabilities for Army Recruiting Information Support System (ARISS) and successful implementation of AIE. Efforts are ongoing for Cloud migration/modernization and AIE technical analysis and documentation to support the accessioning mission. \$3,802M projected award to the contract for Jan 2022.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Program funding for AIE in FY22 and beyond has transitioned to PE 0605233A; Project Number CP8.</p>					
<p>Title: Army Suicide Prevention</p> <p>Description: This Program Element (PE) develops a pre-entry or entry assessment package that enhances the Soldier Lifecycle (e.g., selection, assignment, training, leader development). This PE enhances the Army's ability to identify individuals with a higher likelihood of having already experienced, or of potentially experiencing, sub-clinical behavioral issues, as well as to identify character strengths (e.g., resilience, grit), to ensure that the Army can meet mission requirements in the current and future operating environments. Research in this PE will result in more precise determinations of individual potential for future successful service, and more targeted identification of need for individual assistance (e.g., intervention, training, behavioral health) to increase likelihood of future success.</p> <p>Work in this PE is performed by the U.S. Army Resiliency Directorate in Arlington, VA.</p> <p>FY 2021 Plans: This effort develops a pre-entry or entry assessment package, identifying risk of sub-clinical behavioral issues and identifying character strengths, to enhance the Soldier Lifecycle (e.g., selection, assignment, training, leader development). FY 2021 funding will support validation assessment of the instruments.</p> <p>FY 2022 Base Plans: This effort develops a pre-entry or entry assessment package, identifying risk of sub-clinical behavioral issues and identifying character strengths, to enhance the Soldier Lifecycle (e.g., selection, assignment, training, leader development). FY 2022 funding will support validation assessment of the instruments.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>	1.872	1.657	2.129	-	2.129

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
The decrease from FY21 to FY22 is based on the projected costs for continued specific studies on the effects of targeted training with a goal of mitigating behaviors and risk contributing to suicide.					
Accomplishments/Planned Programs Subtotals	29.992	36.986	5.436	-	5.436

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• BE4164: PERSONNEL	55.650	69.290	43.229	-	43.229	-	-	-	-	-	-
AUTOMATION SYSTEMS											
• OMA - AIE - OMA/331715000: Sustainment Support & CivPay	4.700	5.443	-	-	-	-	-	-	-	-	-

Remarks
 Note, the (OPA) (BD3000/BE4164) line listed above includes AIE specific [FY20: \$19,878K, FY21: \$29,791K] to fund support fielding efforts, Commercial off the Shelf (COTS) Software Licenses, and Training. In more detail, FY22 and beyond rests within the new (OPA) (B45000/B45015).

D. Acquisition Strategy
 Accessions Information Environment (AIE):
 AIE is following the tailored Acquisition process for Defense Business Systems (DBS) in accordance with DoD 5000.75 and is currently designated as a Business System Category (BCAT) I program. AIE is acquiring a COTS solution (application hosting) to support the Army's Accessions Enterprise requirements. A competitive prototype contract was awarded on 30 April 2019 to execute the pilot phase. The prototyping efforts will result in capability to be delivered in waves:
 Infrastructure & Application Pilot (Wave 1): (FY2020-FY2021) Includes foundational operational capabilities (commercial cloud & network capabilities, initial data migration from legacy systems, critical interfaces, and defined data models) and provides initial functional capability (Lead Generation/Management, Prospecting, Interviewing, and Processing) to up to 344 Early Adopters as well as 717 operational users at 4 sites
 Wave 2: (FY2022) Provides additional capability (Pay & Incentives and Intelligence) to an additional 1942 users at 15 additional locations
 Wave 3: (FY2022) Provides additional capability (Marketing) to an additional 6466 users at 35 additional locations
 Wave 4: (FY2023) Provides additional capability (Training/Leader Development) to an additional 8238 users at 43 additional locations
 Wave 5: (FY2023) Provides full capability to all remaining users (7373) at all remaining locations (47)
 At the completion of each Wave, new capabilities will be made available to all previously fielded users through the use of Delta training packages sent to the commands. At the conclusion of all Waves, AIE will deliver the Lead Generation & Management, Prospecting, Interviewing, Processing, Pay & Incentives, Intelligence, Marketing, and Training /Leader Development capabilities to support the Army's Accessions mission. Capabilities will be delivered using an agile methodology.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>
<p>Army Suicide Prevention: The Army Suicide Prevention Pilot is an ongoing study on the efficacy of Resilience and Mindfulness training throughout the Army from Accessioning through IET to home station across an initial six Brigade Combat Teams, US Army Reserve units in the Joint Base San Antonio Area, and the South Carolina National Guard by using the BH Pulse tool, the Global Assessment Tool (GAT), and the efficacy of Resilience and Mindfulness training to baseline the Resilience of the unit. Data from the surveys will be used to tailor specific Resilience training on mitigating strategies to combat behaviors and risk contributing to Suicide.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AIE - Management Services	C/FFP	Chenega Decision Services : Lorton, VA	-	7.319	Jun 2020	3.223	Jun 2021	-		-		-	0.000	10.542	7.288
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	0.089		-		-		-		-	0.000	0.089	-
Subtotal			-	7.408		3.223		-		-		-	0.000	10.631	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AIE - COTS Based Solution Configuration and Development	C/FFP	Booz Allen Hamilton : Herdon, VA	-	19.878	Apr 2020	18.059	Apr 2021	-		-		-	0.000	37.937	69.826
AIE - System Partner Interface Development	TBD	TBD : TBD	-	0.572	Apr 2020	8.784	Apr 2021	-		-		-	0.000	9.356	25.604
ARISS	C/CPFF	SAIC : Reston, VA	-	-		2.919	Jan 2021	3.307	Jan 2022	-		3.307	0.000	6.226	3.861
Army Suicide Prevention	TBD	TBD : TBD	-	1.783		1.657		2.129	Feb 2022	-		2.129	Continuing	Continuing	Continuing
Subtotal			-	22.233		31.419		5.436		-		5.436	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AIE - Cybersecurity - RMF, FedRAMP, ATO (IA/RMF Support)	TBD	TBD : TBD	-	0.050		1.744	Oct 2020	-		-		-	0.000	1.794	5.307
Subtotal			-	0.050		1.744		-		-		-	0.000	1.794	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AIE - Requirments & Acq Planning/AIE Infrastructure & Application	Pilot Wave 1				[Redacted]																							
AIE - Acquisition, Testing and Deployment	[Redacted]				[Redacted]				Acq. Testing and Deployment																			
AIE - Limited Deployment ATP (LD ATP)	[Redacted]				1 LD ATP																							
AIE - Full Deployment (FD)	[Redacted]				[Redacted]				2 FD																			
AIE - Capability Support ATP (CS ATP)	[Redacted]				[Redacted]				[Redacted]				3 Capability Support ATP															
AIE - Capability Support & Enhancements	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
HRC Accessioning IT	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Army Suicide Prevention	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FL9 / <i>Army Accessioning IT Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AIE - Requirments & Acq Planning/AIE Infrastructure & Application Pilot (Wave 1)	3	2019	4	2021
AIE - Acquisition, Testing and Deployment	4	2021	3	2023
AIE - Limited Deployment ATP (LD ATP)	2	2021	2	2021
AIE - Full Deployment (FD)	2	2022	2	2022
AIE ? Capability Support ATP (CS ATP)	3	2023	3	2023
AIE - Capability Support & Enhancements	3	2023	3	2033
HRC Accessioning IT	2	2021	4	2026
Army Suicide Prevention	3	2020	4	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FM7: <i>Human Resources Information Technology</i>	-	6.740	10.184	12.971	-	12.971	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The efforts under this project support the Army's Human Resources Information Technology needs.

SOLDIER FOR LIFE - TRANSITION ASSISTANCE PROGRAM XXI (SFL-TAP XXI): The Transition Assistance Program XXI (TAP-XXI) application provides an interactive, multimedia approach to pre-separation counseling and job assistance training. This application uses full motion video, graphics, and sound to train clients; and schedules clients for classroom-type instruction. It integrates a complete range of transition services and benefits for service members, Department of Defense civilian employees, and their family members as they transition from the military. TAP-XXI is a web-based, three-tiered application with a centralized database for all Transition sites. The user interface is browser-based, the application is based on a storefront intranet model to provide access from within Transition centers. The user interface is browser-based, the application is based on a storefront intranet model to provide access from within Transition centers. The application also allows for access outside of Transition centers to support mobilizing and de-mobilizing during Yellow Ribbon Program events or delivery of services at home station. There is no application processing on the desktops located at Transition Centers. TAP-XXI application suite consists of the following subsystems: Transition Assistance Program - Support (TAP-Support), Transition Assistance Program -Online (TAP-Online) and TAP Virtual (Immersive Terf). The infrastructure modernization will provide system stability, support expansion requirements, and ensure reliable customer support.

Human Resource Command (HRC) Core IT: This program supports efforts to plan, design, develop, and test Information Technology (IT) solutions to fulfill the Army's Warfighter Support Mission, accommodate emerging Army requirements, and fulfill Future Army needs. Ongoing development efforts support multiple functional areas including logistics, personnel, transportation, training, medical/health protection, and the sustaining base. The focus of the rationalization effort is to identify value-added applications capable of serving a broader Army enterprise audience and garnering efficiencies through the elimination of outdated, legacy, and duplicative applications. Applications are upgraded or enhanced to meet compliance with Army Common Operating Environment standards in accordance with Army Application Management Business Office (AAMBO). Additionally, program supports enhancements and modifications to the Interactive Personnel Electronic Records Management System (iPERMS) and iPERMS-Secure (iPERMS-S), as well as development of interfaces based upon emerging requirements, Cybersecurity, functionality and compliance with Army standards.

R-Builder is a living application database system that allows the Manning Program Evaluation Group (MM PEG) to update the database to include various cost drivers and factors used for programming, budgeting for all Army Service members pay, allowances, and benefits for the all-volunteer Army. R-Builder is used to develop the annual Program Objective Memorandum -Budget Estimate Submission (POM-BES), and to develop and manage the Army's military and civilian personnel in order to execute the President's National Security Strategy.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>
--	---	---

The Army Review Board Agency (ARBA) operates under the delegated authority of the Secretary of the Army as the final level of appeal for service members in uniform, veterans, and their family members, adjudicating tens of thousands of claimed errors or injustices annually. ARBA is staffed with 128 military personnel, civilians, and contractors, and additional 350 external Advisors and Boards Members. ARBA struggles with the substantial process and system-related inefficiencies. The Agency currently uses the ARBA Case Tracking System (ACTS) to facilitate case adjudication and the routing of corresponding hard copy case files (a.k.a. "redwelds"). This system was custom built in 1999, strictly for tracking the hand offs of redwelds. At its inception, ACTS was a huge leap forward; however, as the organization and technology evolved, the system has not been able to meet new Agency mission objectives and streamlining initiatives. This antiquated system costs the Agency multi-millions in annual sustainment fees and lacks the agility to address changing business requirements and organizational roles.

Army SHARP Data Management System (DMS) Integrated Case Reporting System (ICRS) enhancements will provide stabilization for sexual harassment (SH) data collection, reporting requirements, and analytic processes; ICRS maintains Army sexual assault (SA) legacy data collected prior to 2014 in the Sexual Assault Data Management System (SADMS) IAW public law.

ARIMS is the Army's policy and enterprise system deployed to meet statutory (36 CFR) and regulatory (AR 25-1, AR 25-400-2) requirements to manage records that document the policies, decisions, and actions of the Army both as a military department and federal institution. ARIMS provides approximately 64,000 (FY 2018) users with tools and capabilities to collect and preserve Army records, serves as the records management component of Army Knowledge On-Line, and the Secretary of the Army has mandated its use to collect and preserve Army records. ARIMS is replicated on the SIPRNet with ARIMS-Classified (ARIMS-C) to provide similar capabilities for the collection and preservation of the Army's classified records. ARIMS is an integrated system that supports the SecArmy objective to integrate management systems for the Army's records management programs and business operations. This line item funds for system, network, and application management for the ARIMS and ARIMS-C infrastructure. Technology changes, integration, and systems migration require contractor support to ensure Army Electronic Archives continues to preserve essential electronic records. These activities support the ARIMS applications and comply with the SecArmy and senior Army leadership to integrate and standardize management systems for business operations. Failure to fund will result in the loss of expertise and in extensive down time in the event of any hardware or software failure in the ARIMS infrastructure. ARIMS downtime precludes the collection and preservation of the Army long-term important records (such as CONOPS records). As a web-based GOTS system, ARIMS is dependent on private industry expertise to conduct troubleshooting and correction of any application or operating system component that is the foundation of the ARIMS and ARIMS-C systems. These skill sets are not maintained by government staff and must, by DoD directive (C31), be acquired from the private sector.

Family Advocacy System of Records (FASOR) is the information system used by the Army to manage child and adult based abuse incidents referred by the Family Advocacy Program (FAP). FASOR is used to capture/perform incident case management and allows for standardization of reviews and incident determinations. FASOR is a key system used in FAP Army Central Registry (ACR) background checks when determining suitability of individuals to be placed into "positions of trust". Finally, FASOR facilitates reporting and data analysis in support of internal, Army, DoD, FOIA and Congressional requirements.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: ARBA	0.356	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Description: The Army Review Board Agency (ARBA) operates under the delegated authority of the Secretary of the Army as the final level of appeal for service members in uniform, veterans, and their family members, adjudicating tens of thousands of claimed errors or injustices annually. ARBA is staffed with 128 military personnel, civilians, and contractors, and additional 350 external Advisors and Boards Members.</p> <p>ARBA struggles with the substantial process and system-related inefficiencies. The Agency currently uses the ARBA Case Tracking System (ACTS) to facilitate case adjudication and the routing of corresponding hard copy case files (a.k.a. ?redwelds?). This system was custom built in 1999, strictly for tracking the hand offs of redwelds. At its inception, ACTS was a huge leap forward; however, as the organization and technology evolved, the system has not been able to meet new Agency mission objectives and streamlining initiatives. This antiquated system costs the Agency multi-millions in annual sustainment fees and lacks the agility to address changing business requirements and organizational roles.</p>					
<p>Title: G-1 Requirement Builder (R-Builder)</p> <p>Description: R-Builder is a living application database system that allows the Manning Program Evaluation Group (MM PEG) to update the database to include various cost drivers and factors used for programming, budgeting for all Army Service members pay, allowances, and benefits for the all-volunteer Army. R-Builder is used to develop the annual Program Objective Memorandum and Budget Estimate Submission, and develop and manage the Army's military and civilian personnel in order to execute the President's National Security Strategy.</p>	0.137	-	-	-	-
<p>Title: ARIMS</p> <p>Description: ARIMS is the Army's policy and enterprise system deployed to meet statutory (36 CFR) and regulatory (AR 25-1, AR 25-400-2) requirements to manage records that document the policies, decisions, and actions of the Army both as a military department and federal institution. ARIMS provides approximately 64,000 (FY 2018) users with tools and capabilities to collect and preserve Army records, serves as the records management component of Army Knowledge On-Line, and the Secretary of the Army has mandated its use to collect and preserve Army records. ARIMS is replicated on the SIPRNet with ARIMS-Classified (ARIMS-C) to provide similar capabilities for the collection and preservation of the Army's classified records. ARIMS is an integrated system that supports the SecArmy objective to integrate management systems for the Army's records management programs and business operations. This line item funds for system, network, and application management for the ARIMS and ARIMS-C infrastructure. Technology changes, integration, and</p>	0.853	0.969	1.064	-	1.064

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>systems migration require contractor support to ensure Army Electronic Archives continues to preserve essential electronic records. These activities support the ARIMS applications and comply with the SecArmy and senior Army leadership to integrate and standardize management systems for business operations. Failure to fund will result in the loss of expertise and in extensive down time in the event of any hardware or software failure in the ARIMS infrastructure. ARIMS downtime precludes the collection and preservation of the Army long-term important records (such as CONOPS records). As a web-based GOTS system, ARIMS is dependent on private industry expertise to conduct troubleshooting and correction of any application or operating system component that is the foundation of the ARIMS and ARIMS-C systems. These skill sets are not maintained by government staff and must, by DoD directive (C3I), be acquired from the private sector.</p> <p>This funds contractor man-years for technical and analytical expertise in the integration and validation of operational databases used to store and research combat records from combat operations in Korea, Vietnam, Somalia, Panama, Persian Gulf, Afghanistan, Iraq, and other contingency operations. The effort supports over 30 distinct and unique operational databases that directly support research into Veteran claims for Post-Traumatic Stress Disorder, Agent Orange, and other medical conditions developed by Soldiers during combat and non-combat operations. Supports the Army's Data Center Consolidation by turning data base structure to be more efficient and reduce maintenance support costs.</p> <p>Increased Congressional inquiries and litigation have raised leadership awareness of the need to improve records management compliance Army-wide. SecArmy directed workgroup, led by the AASA, with participation by the CIO/G-6, NETCOM, OGC, and OCLL is to provide a comprehensive solution for the Army and integrate and standardize management systems for the Army's business operations. Enhancing and modernizing of existing ARIMS functionality and capability to support the SecArmy initiative includes updating ARIMS to support current technology such as Microsoft SharePoint environment, expanding storage capability, including network storage , and commensurate expansion of backup, security and communications capabilities over CONUS and OCONUS networks. This effort supports the ADCCP program.</p> <p>FY 2021 Plans: This line item funds contractor man-year for Middleware Software Engineering for the programming and integration of linkages between ARIMS, Army Information Systems and NARA's Gateway, that generate or store long-term important records as part of functional business processes. Failure to fund at the requested level will preclude the efficient, effective, and transparent capture and preservation of important Army records generated by Army Information Systems. Without this capability, Army Information System managers will be</p>					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>			
B. Accomplishments/Planned Programs (\$ in Millions)					
required to manually extract and index records for submission and preservation in the ARIMS system. This effort supports the ADCCP program to ensure efficient use of Army resources and fulfill RMDA's mission.					
FY 2022 Base Plans: This line item funds contractor man-year for Middleware Software Engineering for the programming and integration of linkages between ARIMS, Army Information Systems and NARA's Gateway, that generate or store long-term important records as part of functional business processes. Failure to fund at the requested level will preclude the efficient, effective, and transparent capture and preservation of important Army records generated by Army Information Systems. Without this capability, Army Information System managers will be required to manually extract and index records for submission and preservation in the ARIMS system. This effort supports the ADCCP program to ensure efficient use of Army resources and fulfill RMDA's mission.					
FY 2021 to FY 2022 Increase/Decrease Statement: Inflation adjustment.					
Title: Army SHARP Data Management					
Description: Army SHARP Data Management System (DMS) Integrated Case Reporting System (ICRS) enhancements will provide stabilization for sexual harassment (SH) data collection, reporting requirements, and analytic processes; ICRS maintains Army sexual assault (SA) legacy data collected prior to 2014 in the Sexual Assault Data Management System (SADMS) IAW public law.					
FY 2021 Plans: Enable Army leaders at all levels to manage ICRS data through E-Document Format and documents upload capabilities within ICRS. Increase data element in ICRS and complete the Sexual Assault Data Management (SADMS) integration of data into ICRS. Support Advanced Analytics capabilities, increase business intelligence capabilities, and support predictive analysis for SHARP Data. Automate SHARP ICRS Reporting capabilities and facility integration of EORS system in to ICRS.					
FY 2022 Base Plans: Enable Army leaders at all levels to manage ICRS data through E-Document Format and documents upload capabilities within ICRS. Increase data element in ICRS and complete the Sexual Assault Data Management (SADMS) integration of data into ICRS. Support Advanced Analytics capabilities, increase business intelligence					
	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	-	1.047	1.034	-	1.034

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>			
B. Accomplishments/Planned Programs (\$ in Millions)					
capabilities, and support predictive analysis for SHARP Data. Automate SHARP ICRS Reporting capabilities and facility integration of EORS system in to ICRS.					
FY 2021 to FY 2022 Increase/Decrease Statement: FY 2021 to FY2022 Decrease of \$9K based on expected reduction of contract costs for SHARP efforts.					
Title: Family Advocacy System of Records (FASOR)					
Description: Family Advocacy System of Records (FASOR) is the information system used by the US Army FAP to support adult and child abuse incident management, central registry of victims and offenders to authorized agencies, and to provide input for required Congressional and public reporting. FASOR is the authoritative source (registry) for all incidents of adult and child abuse in the Army. It is on the Army Human Resource Command's High Value Asset list.					
FY 2021 Plans: Continued modernization of legacy systems.					
FY 2022 Base Plans: Continue efforts to translate and modernize FASOR, as well as rehost it in a .MIL Cloud environment. Continue sustainment of legacy system until FASOR is accredited and implemented in the Cloud.					
FY 2021 to FY 2022 Increase/Decrease Statement: None					
Title: HRC Core IT					
Description: HRC Core IT: This program supports efforts to plan, design, develop, and test Information Technology (IT) solutions to fulfill the Army's Warfighter Support Mission, accommodate emerging Army requirements, and fulfill Future Army needs. Ongoing development efforts support multiple functional areas including logistics, personnel, transportation, training, medical/health protection, and the sustaining base.					
FY 2021 Plans: FY 2021 funding continues to support iPERMS application efforts to replace the functionality of Store and Forward (SnF) servers and implement the Reduction Manual Indexing capability, and ASBS 2.0 development which also supports DA G1 Talent Management Task Force Battalion Command Assessment Program (BCAP). Additionally, USAHRC will utilize FY 2021 funding to rationalize data and databases to achieve the Army Data Strategy, modernizing applications to leverage authoritative data sources to reduce duplicate					
	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	1.738	1.428	1.463	-	1.463
	3.656	5.547	8.321	-	8.321

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021							
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>								
B. Accomplishments/Planned Programs (\$ in Millions)										
<p>application capabilities, resulting in data and applications requiring fewer infrastructure services. This data and application rationalization allows USAHRC to operate a standard infrastructure, reducing hardware and software complexities and meets compliance with Army Common Operating Environment standards in accordance with Army Application Management Business Office (AAMBO).</p> <p>FY 2022 Base Plans: FY 2022 funding continues to support iPERMS application efforts to replace the functionality of Store and Forward (SnF) servers and implement the Reduction Manual Indexing capability, and ASBS 2.0 development which also supports DA G1 Talent Management Task Force Battalion Command Assessment Program (BCAP). Additionally, USAHRC will utilize FY 2022 to funding to complete rationalize data and databases to achieve the Army Data Strategy, modernizing applications to leverage authoritative data sources to reduce duplicate application capabilities, resulting in data and applications requiring fewer infrastructure services. This data and application rationalization allows USAHRC to operate a standard infrastructure, reducing hardware and software complexities and meets compliance with Army Common Operating Environment standards in accordance with Army Application Management Business Office (AAMBO).</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: This addresses three areas for iPERMS modernization to expand compliance with DoDI 1336.08: Military Human Resource Records Life Cycle Management; manual indexing reduction; and archival storage cost mitigation. Additionally, HRC Core IT supports the Army Human Resources (HR) community and the Army accessioning IT mission which includes the automation support for the Army personnel systems, recruiting, accessioning, and Reserve Officers' Training Corps commissioning missions.</p>						FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Title: SFL-TAP XXI Modernization</p> <p>Description: SFL-TAP Transition Assistance Program (TAP) XXI Modernization - Modernize outdated application in order to create efficiencies and incorporate industry standards.</p> <p>FY 2021 Plans: Continued support of cyber security program requirements.</p> <p>FY 2022 Base Plans: Unable to obligate FY 20 funds due to the delay in receiving approval of the Capability Requirements Document (CRD) from DASA-CE until March 2020 . Specific work for FY21 includes development / addition of: 1. Produce Intake Form Integration, 2. Case Synopsis Module; 3. New Data Elements; 4. Reporting Module; 5. Cybersecurity Requirements. Specific work for FY22 includes development / addition of: 1. Forms Upload</p>						-	1.193	1.089	-	1.089

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Enhancements (MFR & DA Form 7746) 2. Data Warehouse Install 3. Ad Hoc Reporting & Predictive Analytics 4. User Management Module 5. Cybersecurity Requirements.					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Unable to obligate FY 20 funds due to the delay in receiving approval of the Capability Requirements Document (CRD) from DASA-CE until March 2020 . Specific work for FY21 includes development / addition of: 1. Produce Intake Form Integration, 2. Case Synopsis Module; 3. New Data Elements; 4. Reporting Module; 5. Cybersecurity Requirements. Specific work for FY22 includes development / addition of: 1. Forms Upload Enhancements (MFR & DA Form 7746) 2. Data Warehouse Install 3. Ad Hoc Reporting & Predictive Analytics 4. User Management Module 5. Cybersecurity Requirements.					
Accomplishments/Planned Programs Subtotals	6.740	10.184	12.971	-	12.971

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605013A / Information Technology Development				FM7 / Human Resources Information Technology							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SFL--TAP	TBD	To Be Determined : To Be Determined	-	-		0.615		0.652		-		0.652	0.000	1.267	-
Subtotal			-	-		0.615		0.652		-		0.652	0.000	1.267	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ARIMS	TBD	TBD : TBD	-	-		0.969		1.064		-		1.064	Continuing	Continuing	Continuing
Army SHARP Data Management	TBD	Data Management : TBD	-	-		1.047		1.034		-		1.034	Continuing	Continuing	Continuing
SFL-TAP	TBD	To Be Determined : To Be Determined	-	-		0.578		0.437		-		0.437	0.000	1.015	-
HRC Core IT	TBD	To Be Determined : To Be Determined	-	3.656	Aug 2020	5.547		8.321		-		8.321	0.000	17.524	-
Subtotal			-	3.656		8.141		10.856		-		10.856	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
G-1 Requirements Builder (RBuilder)	TBD	TBD : TBD	-	1.346		-		-		-		-	0.150	1.496	-
Family Advocacy System of Records (FASOR)	TBD	TBD : TBD	-	1.738		1.428		1.463		-		1.463	Continuing	Continuing	Continuing
Subtotal			-	3.084		1.428		1.463		-		1.463	Continuing	Continuing	N/A
Project Cost Totals			-	6.740		10.184		12.971		-		12.971	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army							Date: May 2021			
Appropriation/Budget Activity 2040 / 5			R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>			Project (Number/Name) FM7 / <i>Human Resouces Information Technology</i>				
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
SFL-TAP has no additional changes from FY19-20

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resources Information Technology</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
HRC Core IT																												
SFL-TAP XXI Modernization																												
ARIMS																												
Army SHARP Data Management																												
ARBA																												
G-1 Requirements Builder																												
FASOR																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM7 / <i>Human Resouces Information Technology</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
HRC Core IT	4	2020	4	2026
SFL-TAP XXI Modernization	1	2020	4	2026
ARIMS	1	2020	4	2024
Army SHARP Data Management	1	2020	4	2026
ARBA	2	2020	4	2022
G-1 Requirements Builder	1	2020	4	2022
FASOR	1	2020	4	2024

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FM8: <i>Information Technology for Training Systems</i>	-	15.860	37.011	62.969	-	62.969	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds information technology systems that support Army Training. The five systems under FM8 are described below. Of those, the Army Training Information System (ATIS) is the Army's priority and the focus of the major investment in FM8. ATIS directly supports two of the four Army Unit Readiness Priorities - Training and Leader Development and serves as an enabler for Manning and Equipping.

1. Army Training Information System (ATIS). The Army currently lacks an enterprise level Common Operational Picture (COP) of the training environment. The ATIS is designated a Defense Business System (DBS) that will develop, integrate, test, deliver, operate, and maintain an enterprise capability for the Army training and education communities. Existing training information systems do not provide Commanders, leaders, Soldiers, and civilians a centralized COP of the training environment that enables persistent, consistent access to the Training and Education information and products necessary to support readiness to meet emerging threats. Annual costs to maintain current legacy systems is ~\$75 million. Without ATIS, Army organizations will continue to develop and maintain a multitude of training information systems that are not part of an enterprise, thus inhibiting efficient use of training resources, (people, time, money, material) that directly impacts the ability for units to meet readiness objectives.

ATIS will replace the functionality in 28 primary and 70 supporting information training systems with a single, integrated, user-friendly and technologically current system that will support management of the following training functions for 1.8 million users:

- Training Development. Provides ability to develop and coordinate information, including training packages, training events, courses, and exercises.
- Training Management. Provides centralized ability to access and manage information, including individual and collective/unit training that supports mission tasks and individual training records.
- Enterprise Scheduling. Provides a single integrated set of applications to schedule training resources, including transportation, classrooms, ranges, supplies, and mandated legal/social individual and unit training.
- Content Management. Provides centralized access to training information anytime, anywhere, including educational and professional instruction.
- Resource Management. Provides ability to manage availability/sustainability of training enablers and resources.

ATIS is a Category II Defense Business System and will follow the Business Capability Acquisition Cycle (BCAC) in accordance with DoD 5000.75. ATIS Acquisition, Testing and Development phase is being executed as a single-vendor logical follow-on to the competitively awarded prototyping effort under Other Transaction Authority (OTA), as specifically authorized by 10 U.S.C Section 2371b, in accordance with the Acquisition Strategy. OTA is a streamlined method for transitioning successful prototype projects into follow-on production. Contract was awarded to Perspecta Enterprise Solutions LLC. in FY20, Q3.

Following are the Release capabilities:

- First Release (R1) - Operational, Training and Readiness Support. R1 shall provide, as a minimum, Training Management capability with elements from Training Development, Enterprise Scheduling with readiness reporting capability. Training Management includes access to individual and collective/unit training records aligned

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>
--	---	--

to mission tasks. The Training Development encompasses assembling training information to include training plans, training events, courses, and exercises. The Enterprise Scheduling enables users to schedule training classrooms or ranges for unit training. The authorized released system shall be scaled to support, as a minimum, 500 sustained, concurrent users. The Release shall ensure coverage of organizations across the spectrum of all six Warfighting Functions (Intelligence, Movement and Maneuver, Fire Support, Command and Control, Protection and Sustainment). The Release shall support users that are geographically dispersed.

- Second Release (R2) - Operational Force Support. R2 shall provide, as a minimum, three capabilities in support of the Operational Force: Training Management, Enterprise Scheduling, and Resource Management. The Release shall support the expanded capabilities over a larger, more diverse and geographically dispersed section of the force with focus on FORSCOM and Brigades. The Release shall support 12,000 sustained, concurrent users. The Release shall support 1.02M unique active users annually.
- Third Release (R3) - Full Capability Support. The final release shall deliver the remaining ATIS capability: Training Development and Learning Content Management, as well as completion of remaining requirements across all five capability areas. The Learning Content Management hosts the learning content and makes it available for Soldiers to take training anytime, anywhere. The Release shall support 50,000 Sustained, concurrent users. The Release shall support 1.8 million unique active users annually. The final Release will subsume all remaining legacy systems by FY 2024 which signifies the ATIS objective system.

NOTE: The next four systems are not part of the ATIS Development program.

2. DLPT5 Content Analysis, Categorization & Modeling Development of DLPT5 Content Analysis, Categorization and Modeling (CACM) capabilities. For integration within the DLIFLC MIT LL TIDWA Domino system. These capabilities are in direct response to DLIFLC's DoDI assigned responsibilities for DLPT item bank maintenance, psychometric analysis and informed pool management, and closely support the DLPT Validity Framework. MIT LL Networked Pronunciation Feedback Program (NETProf) expansion will allow for further expansion and further utilization of the existing NetProF products for DLIFLC faculty and students. To reach higher levels of proficiency in foreign languages the planned dialog system would give an advantage to DLIFLC teachers to help students gain advances through practicing speaking using this new dialog system, and the connected NetProF improvement system for pronunciation for longer utterances. This feasibility study will help set new parameters for developing very advanced language teaching systems that otherwise could not be supported. This is in support of the 2+/2+/2 plan.
3. Universal Course Authoring Tool / The UCAT (Universal Curriculum and Assessment Tool) will serve as the primary curriculum and assessment development tool for curriculum development projects in meeting the directives from higher headquarters to transition into a new, digital learning environment. UCAT will support the delivery of curriculum and assessment products on a variety of different platforms in support of both resident and non-resident programs. UCAT consists of server-side applications and associated web services, databases, and client-side components which are currently under development.
4. The Army Career Tracker is leader development tool that leverages Army's prior investments to integrate education, training, assignment, self-development and other systems by linking these valuable technologies and resources into a common user-friendly portal across 1.35 million users consisting of enlisted, officers, and civilians. Users can search multiple education and training resources, monitor career development, and receive advice from their leadership. ACT provides single-site, easy access, and offers a complete and personalized career picture not available until now. ACT allows users to manage career objectives and monitor progress towards career requirements and goals. ACT provides an integrated approach to supporting military and civilian personnel's personal and professional development which capitalizes on the mutual (personnel and Army) need for life-long learning. The unique inter-relationship between the user's personal growth and development, and the Army's need for Soldiers to be continuously developing, building and cultivating a culture of life-long learning is critical for the Soldier's and Army's success. Users manage their lifelong learning career objectives, monitor progress towards career development and goals, search multiple Army education and training resources, and receive personalized advice from their supervisor and Army leadership. Completed development will modernize the Army Career Tracker (ACT) system to render web

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>
--	---	--

pages correctly base on the size of the screen. Responsive Web Design (RWD) is an approach to web design that renders web pages based on the size of the device's display screen (e.g., computer, tablet, and phone). This allows the site to load quickly and ensures the display appears as if it were made expressly for the device being used. RWD improves user experience by displaying messages, links, and controls in a logical manner regardless of the device. The actual presentation may not look the same across different devices; rather the rendering will depend on the Operating System (OS), screen size, screen resolution, and other factors. Implementing RWD on ACT would be a step forward toward allowing ACT to render better on tablets and other mobile devices (e.g., mobile phones).

5. Enhancement of Army Training Models (ATM) will provide the resources to build and sustain readiness requirements in a standardized process for automated methodology development and resource allocation in support of the Army's training needs.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Title: Army Training Information System (ATIS)</p> <p>Description: Army Training Information System (ATIS) is an enterprise system that will provide a common operational picture (COP) of the training environment in five integrated and interoperable capability areas: Training Development; Training Management; Training Enterprise Scheduling; Learning Content Management and Training Resource Management. These capabilities will enable Commanders, leaders, Soldiers, and civilians to better understand, visualize, describe, direct, lead, and assess training requirements so that they can more effectively plan, prepare, execute, and assess training. End result is an ATIS that enables Soldiers to train as they will fight, so they can effectively fight as they have trained.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - FY 2021 Congressionally adjusted funding level will continue to fund the design, build, and test of Release 1 in support of the training management capability to limited portions of the end user community using the Scaled Agile Framework (SAFe) to achieve a successful release - System integrator costs to conduct Interim Authority To Test (IATT) and to support cybersecurity vulnerability scanning, system hardening, Risk Management Framework costs to get the Authority to Operate (ATO). <p>FY 2022 Base Plans:</p> <ul style="list-style-type: none"> - Funds design, build, and test of Release 2. This release will provide, as a minimum, three capabilities in support of the Operational Force: Training Management, Enterprise Scheduling, and Resource Management. - Release 2 shall support the expanded capabilities of the system over a larger, more diverse and geographically dispersed section of the force which will support 12,000 sustained, concurrent users and 1.02 million unique active users annually. <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p> <p>The additional funding of \$26.6M from FY 2021 Congressional adjusted funding to FY 2022 of \$26.6 Million is driven by a significant increase in FY 2022 developmental efforts in support of Release 2 (R2). R2 activities</p>	15.168	34.943	61.316	-	61.316

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
comprise the most critical elements of the program in support of the Operational Force: Training Management, Enterprise Scheduling, and Resource Management. Successful deployment of R2 will provide the Force with an initial operational capability (IOC) which serves as the critical path for the next release. The development, testing, training and global deployment of those capabilities in FY 2022 greatly bolsters the Release 1 (R1) as the funding increase will support scaling up the system to support significantly expanded concurrent users (from 500 (R1) to 12,000 (R2)users), and 1.02 million user- base.					
<p>Title: DLPT5 Content Analysis, Categorization & Modeling</p> <p>Description: Development of DLPT5 Content Analysis, Categorization and Modeling (CACM) capabilities. For integration within the DLIFLC MIT LL TIDWA Domino system. These capabilities are in direct response to DLIFLC?s DoDI assigned responsibilities for DLPT item bank maintenance, psychometric analysis and informed pool management, and closely support the DLPT Validity Framework.</p> <p>FY 2021 Plans: Continued development of the DLPT5 content analysis, categorization, and modeling capabilities.</p> <p>FY 2022 Base Plans: Create Automatic Comment & Content Coding and add Psychometric Analytic Tools.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY21 funds increased to support Psychometric Analytic Tools.</p>	-	1.151	1.461	-	1.461
<p>Title: Universal Course Authoring Tool (UCAT)</p> <p>Description: The UCAT (Universal Curriculum and Assessment Tool) will serve as the primary curriculum and assessment development tool for curriculum development projects in meeting the directives from higher headquarters to transition into a new, digital learning environment. UCAT will support the delivery of curriculum and assessment products on a variety of different platforms in support of both resident and non-resident programs. UCAT consists of server-side applications and associated web services, databases, and client-side components which are currently under development.</p> <p>FY 2021 Plans: Last year of funding for this effort to finalize last modernization efforts.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>	-	0.240	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
FY21 was the final year of funding for this effort.					
<p>Title: Army Career Tracker</p> <p>Description: The Army Career Tracker is leader development tool that leverages Army's prior investments to integrate education, training, assignment, self-development and other systems by linking these valuable technologies and resources into a common user-friendly portal across 1.35 million users consisting of enlisted, officers, and civilians. Modify the existing Individual Development Plan (IDP) feature in the Army Career Tracking system.</p> <p>FY 2021 Plans: Continued modernization of developmental requirements.</p> <p>FY 2022 Base Plans: Continued modernization and enhancements of the Army Training Models</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in funding due to value change regarding option on Contract.</p>	0.692	0.195	0.192	-	0.192
<p>Title: Enhancement of Army Training Models (ATM)</p> <p>Description: Enhancement of Army Training Models (ATM) will provide the resources to build and sustain readiness requirements in a standardized process for automated methodology development and resource allocation in support of the Army's training needs.</p> <p>FY 2021 Plans: Continued modernization and enhancements of the Army Training Models.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY21 was the final year of funding for this effort.</p>	-	0.482	-	-	-
Accomplishments/Planned Programs Subtotals	15.860	37.011	62.969	-	62.969

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks C. Other Program Funding Summary (\$ in Thousands) is listed below as a memo since ATIS is a child from the parent line, OPA2/BD3000.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>
--	---	--

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

	FY2022	FY2023	FY2024	FY2025	FY2026
Army BE4162 - OPA2/BD3000/BE4162/MACOM AUTOMATION SYSTEMS	1,018	0	0	0	0

Legacy systems that will be subsumed by the Army Training Information System (ATIS) are listed below. Annual cost to maintain these systems is ~\$75M.

Acronym System Name

1. ACT - Army Career Tracker (IDP and PDM only).
2. AIRS - Army IMCOM Reservation System.
3. ARM - Army Range Mapper - JMTC/TSAE (EUR).
4. ARTIMS - Army Training Information Management (NIPRnet version Only).
5. ATHD - Army Training Help Desk.
6. ATIA - Army Training Information Architecture.
7. ATLAS - Army Training and Learning Assessment System.
8. ATMS - Army Training Management System.
9. CAMP - Career Acquisition Management Portal.
10. DLRS-T - Distributed Learning Reporting and Scheduling Tool.
11. DLS - Distributed Learning System (Army Learning Management System).
12. ECDC - Enterprise Content Development Capability.
13. ESC - Enterprise Scheduling Capability. The Enterprise Scheduling Capability (ESC) (Interim) is used
14. GTIMS - Graduate Training Integration Management System (Aviation Resource Training System - ARTS)
15. IDMS - Inventory and Distribution Management System
16. LLC - Lifelong Learning Center
17. RFMSS - Range Facility Management Support System
18. SCINI - IMCOM Senior Commander Installation Needs and Issues
19. SMS - CGSC -Student Management System- Command and General Staff College
20. SRP GIS TK - Sustainable Range Program (SRP) Geographic Information System (GIS) ToolKit
21. SRPP - SRPWeb Portal
22. SWT - System Training Plan (STRAP) Writing Tool
23. TD2QA - Training and Doctrine Development Quality Assurance Management System
24. TDC - Training Development Capability
25. TMSS-E - Training Management Scheduling System - Enterprise

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>

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

- 26. TSIMS - Training Support Information Management System *identified as a system to feed HQDA Training COP
- 27. TS-MATS - Training Support Materiel Army-wide Tracking System
- 28. WEB TED - Web Based Total Employee Development System

D. Acquisition Strategy

The Army Training Information System (ATIS) is a Category II Defense Business System and will follow the Business Capability Acquisition Cycle (BCAC) in accordance with DoD 5000.75. ATIS will be comprised of Commercial-of-the-Shelf (COTS) and/or Government-off-the-Shelf (GOTS) that will provide a Common Operational Picture (COP) of the training environment. ATIS will provide Army Commanders, leaders, Soldiers and civilians with a Common Operating Picture (COP) of the Training Environment (TE) that enables situational awareness, effective planning, preparation, execution, and assessments of training readiness. ATIS will reduce the lifecycle costs of training by retiring 28 duplicative, stove-piped systems and improve performance with a net centric, standards-based, architecturally compliant system for the entire Army Training Environment.

The overarching acquisition strategy is divided into three distinct phases.

- Phase I (Prototyping) - Program Risk Mitigation. Characterized by the selection of three vendors to develop, demonstrate and deliver to the Government three ATIS Prototype systems and technical approach documentation. The prototype project was awarded to the C5 Consortium Group to three vendors: Wyle Laboratories, Inc. (KBR), Perspecta Enterprises Solutions, LLC, and CGI Federal Inc. (Completed)
- Phase II (Development) - Each Prototype was evaluated at the end of the Phase I and one vendor, Perspecta Enterprise Solutions LLC. has been selected for Acquisition, Testing and Deployment (AT&D) of the ATIS production system. This phase is being executed as a logical follow-on to the competitively awarded prototyping effort under Other Transaction Authority (OTA), as specifically authorized by 10 U.S.C Section 2371b. It represents a streamlined method for transitioning successful prototype projects into follow-on production. ATIS will be developed over three releases in order to achieve Full Deployment. Each specific release will provide the users with a mature and tested sub-element of the overall capability. The Government/contractor team will employ Agile developmental cycles for each release, with the goal of potentially deploying specific capabilities beginning with Release 1. The Agile (SAFe) development cycle for each release will include, development, testing, training deployment and interim capability support provided by Perspecta LLC.
- Phase III - (Capability Support) - Upon full deployment of the system, a Capability Support Contract will be awarded for life-cycle sustainment and potential disposal of the system at the end of its useful life.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>
--	---	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	0.692		-		-		-		-	0.000	0.692	-
ATIS Interface Agreements	MIPR	Various : Various	-	-		-		0.126		-		0.126	0.000	0.126	-
ATIS Program Management Office	C/FFP	ATIS Program Management Office : Newport News, VA	-	0.332	Jan 2020	0.367	Jan 2021	0.446		-		0.446	0.000	1.145	-
Subtotal			-	1.024		0.367		0.572		-		0.572	0.000	1.963	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DLPT5 Content Analysis, Categorization & Modeling	TBD	TBD : TBD	-	-		1.151		1.461		-		1.461	Continuing	Continuing	Continuing
ATIS Product Development Contract	C/FPIF	Perspecta Enterprise Solutions LLC : Herndon, VA	-	14.836	May 2020	34.461	Feb 2021	60.263		-		60.263	Continuing	Continuing	Continuing
Universal Curriculum and Assessment Tool	TBD	TBD : TBD	-	-		0.240		-		-		-	Continuing	Continuing	Continuing
Army Career Tracker	TBD	TBD : TBD	-	-		0.195		0.192		-		0.192	Continuing	Continuing	Continuing
Enhancement Army Training Models (ATM)	TBD	To Be Determined : To Be Determined	-	-		0.482		-		-		-	Continuing	Continuing	Continuing
Subtotal			-	14.836		36.529		61.916		-		61.916	Continuing	Continuing	N/A

Remarks
 The additional funding of \$26.6M from FY 2021 Congressional adjusted funding to FY 2022 of \$26.6 Million is driven by a significant increase in FY 2022 developmental efforts in support of Release 2 (R2). R2 activities comprise the most critical elements of the program in support of the Operational Force: Training Management, Enterprise Scheduling, and Resource Management. Successful deployment of R2 will provide the Force with an initial operational capability (IOC) which serves as the critical path for the next release. The development, testing, training and global deployment of those capabilities in FY 2022 greatly bolsters the Release 1 (R1) as the funding increase will support scaling up the system to support significantly expanded concurrent users (from 500 (R1) to 12,000 (R2)users), and 1.02 million user- base.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>
--	---	--

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ATIS - System Test and Evaluation	MIPR	Army Test and Evaluation Center : Aberdeen Proving Grounds, Maryland	-	-		0.115	Dec 2020	0.481		-		0.481	0.000	0.596	-
Subtotal			-	-		0.115		0.481		-		0.481	0.000	0.596	N/A
Project Cost Totals			-	15.860		37.011		62.969		-		62.969	Continuing	Continuing	N/A

Remarks
Cost category that has "ATIS" supports the ATIS Product Development.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ATIS: Acquisition Authority to Proceed (ATP)	▲ 1 A ATP																											
ATIS: Contract Award	▲ 2 ATIS Contract Award (OTA)																											
ATIS Critical Design Review Release 1				■ CDR for Release 1																								
ATIS: Release1 Build, Test, Deploy			■ R1																									
ATIS: Critical Design Review 2									■ CDR for Release 2																			
ATIS: Release 2 Build, Test, Deploy									■ R2																			
ATIS Development and Operational (Unit Experience) Testing										■ DT/OT																		
ATIS Critical Design Review Release 3													■ CDR for Release 3															
ATIS: Release 3 Build, Test, Deploy													■ R3															
ATIS: Interim Operational Capability (IOC)													▲ 3 IOC															
ATIS: Full Deployment Authority to Proceed																▲ 4 FD ATP												
ATIS: Capability Support Authority to Proceed																								▲ 5 CS ATP				
ATIS Full Deployment																												▲ 6 FD

Note
 - Acquisition Authority-to-Proceed occurred on 24 Mar 2020
 - Contract Award occurred on 14 May 2020

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM8 / <i>Information Technology for Training Systems</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ATIS: Functional Requirements Authority to Proceed (ATP)	2	2017	2	2017
ATIS: Acquisition Authority to Proceed (ATP)	2	2020	2	2020
ATIS: Contract Award	3	2020	3	2020
ATIS Critical Design Review Release 1	4	2020	4	2020
ATIS: Release1 Build, Test, Deploy	3	2020	1	2022
ATIS: Critical Design Review 2	2	2022	2	2022
ATIS: Release 2 Build, Test, Deploy	1	2022	1	2023
ATIS Development and Operational (Unit Experience) Testing	4	2022	4	2022
ATIS Critical Design Review Release 3	1	2023	1	2023
ATIS: Release 3 Build, Test, Deploy	1	2023	4	2024
ATIS: Interim Operational Capablility (IOC)	1	2023	1	2023
ATIS: Full Deployment Authority to Proceed	4	2023	4	2023
ATIS: Capability Support Authority to Proceed	3	2024	3	2024
ATIS Full Deployment	3	2024	3	2024

Note

ATIS - The ATIS program will be officially baselined at the Limited Deployment - Acquisition Authority to Proceed (LD ATP) at the end of Release 1. The objective system is reached upon reaching full deployment in FY24.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development				Project (Number/Name) FM9 / Information Technology for Criminal Investigations			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FM9: Information Technology for Criminal Investigations	-	0.865	1.190	1.226	-	1.226	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project Criminal Investigation Management System (CIMS) is to develop, maintain, and operate a secure, unified comprehensive system of applications to support the Army's law enforcement mission.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Criminal Investigative Management System (CIMS)	0.865	1.190	1.226	-	1.226
Description: Criminal Investigative Management System (CIMS). CIMS, formerly known as the Law Enforcement Advisory Program (LEAP), is a collection of mission essential information technology (IT) systems within the United States Army Criminal Investigation Command (USACIDC) and the Office of the Provost Marshal General (OPMG). Through CIMS, the USACIDC and the OPMG developed an integrated and unified, comprehensive enterprise program / system that houses both classified and unclassified Law Enforcement Sensitive (LES) data. CIMS leverages existing and future Army Law Enforcement (LE) enterprise information technology (IT) assets and other external data sources providing a full range of law enforcement functions to support business objective and mission. The primary component is a comprehensive enterprise system known as the Army Law Enforcement Reporting and Tracking System (ALERTS) providing Army LE stakeholders the enhanced capability to rapidly and efficiently manage a variety of LE and criminal intelligence functions as well as a broader range of senior executive reporting requirements. The Consolidated Operation Police Suite (COPS) was previously comprised of five separate applications: two of these applications have been rationalized under ALERTS: two of these applications have been consolidated into one and modernized under CIMS: the remaining application requires modernization to ensure continued function and security compliance. The Deserter Verification Information System (DVIS) is being modernized and rationalized under CIMS. RDT&E dollars are required to further enhance and enable CIMS consolidation/rationalization of LE applications thereby providing the LE community the tools to more quickly, investigate, solve, and prevent Army crime while also facilitating the management of those placed in correction facilities. At present, all requested CID RDT&E funding in program element 0606013A will be applied to CIMS initiatives.					
FY 2021 Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM9 / <i>Information Technology for Criminal Investigations</i>

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>The FY 2021 funds will be utilized to incorporate the Defense Forensics Management Exchange (DFME) system consisting of three applications ? Evidence Management Portal (EMP), Evidence Collection Management Extended (ECMx) and Next Generation Identification (Livescan/Fingerprints) into the CIMS environment. The three applications provide evidence collection and management to the different branches of the military as well as the transmission of fingerprint data to the Federal Bureau Investigation's (FBI) National Crime Information Center (NCIC) for the prevention of the legal purchase of firearms by individuals convicted of a criminal offense</p> <p>FY 2022 Base Plans: The FY2022 funds will be utilized to continue the modernization and rationalization of the final Consolidated Operation Police Suite (COPS) application (Detainee Reporting System (DRS)) into CIMS; continue the incorporation of the Defense Forensics Management Exchange (DFME) system consisting of three applications ? Evidence Management Portal (EMP), Evidence Collection Management Extended (ECMX), and Next Generation Identification (Livescan/Fingerprints) into the CIMS environment. The three applications provide evidence collection and management to different branches of the military as well as the transmission of fingerprint data to the FBI's National Crime Information Center (NCIC) for the prevention of firearms by individuals convicted of a criminal offense. The funds will also be utilized to begin the application modernization of the Army Law Enforcement Reporting and Tracking System (ALERTS), case management system.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Change is due to inflation</p>					
Accomplishments/Planned Programs Subtotals	0.865	1.190	1.226	-	1.226

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

N/A

Remarks

D. Acquisition Strategy

USACIDC utilized Agile Development which is a process where development is broken up into several stages. It involves constant collaboration with the stakeholders for continuous improvement and changes in each stage. Development is delivered in Releases to the customer for testing and acceptance ensuring that the project stays on track. The CIMS contract ends 30 June 2022 and a new contract will be negotiated to continue the RDT&E development of the CIMS applications.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM9 / <i>Information Technology for Criminal Investigations</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	0.052		-		-		-		-	0.000	0.052	-
Subtotal			-	0.052		-		-		-		-	0.000	0.052	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Criminal Investigative Management System (CIMS)	C/CPFF	ACC-New Jersey : New Jersey	-	0.813	Jul 2020	1.190	Jul 2021	1.226	Jul 2021	-		1.226	0.000	3.229	-
Subtotal			-	0.813		1.190		1.226		-		1.226	0.000	3.229	N/A

Remarks
will continue to establish new congressional mandated law enforcement data transfer initiatives between multiple DoD internal and external law enforcement agencies

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	0.865	1.190	1.226	-	1.226	0.000	3.281	N/A

Remarks
Base contract started in 2017. Contract # W15QKN17F0046
2017: \$2,167K/ Award Date 7/2017
2018: \$3,579K Award date 6/2018
2019: \$1,500K (T05) Award date 5/2019

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development		Project (Number/Name) FM9 / Information Technology for Criminal Investigations	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Criminal Investigative Management System (CIMS)_OY2	[Redacted] contract award																											
Criminal Investigative Management System (CIMS)_OY3									[Redacted] contract award																			
Criminal Investigative Management System (CIMS)_OY4													[Redacted] contract award															
Criminal Investigative Management System (CIMS)_New Base																	[Redacted] Contract award											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) FM9 / <i>Information Technology for Criminal Investigations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Criminal Investigative Management System (CIMS)_Base	4	2017	3	2018
Criminal Investigative Management System (CIMS)_OY1	4	2018	3	2019
Criminal Investigative Management System (CIMS)_OY2	4	2019	3	2020
Criminal Investigative Management System (CIMS)_OY3	4	2020	3	2021
Criminal Investigative Management System (CIMS)_OY4	4	2021	3	2022
Criminal Investigative Management System (CIMS)_New Base	4	2022	4	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) T04 / <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
T04: <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>	-	14.609	8.997	10.892	-	10.892	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The US Military Entrance Processing Command Integrated Resource System (MIRS) provides automation and communications capabilities to support the peacetime, mobilization and wartime military manpower accession mission for the Armed Services. USMEPCOM conducts its work through 65 Military Entrance Processing Station (MEPS) across the country and 189 Military Entrance Test Sites (METS). MIRS provides automated support for conducting aptitude tests and medical examinations and administratively processing, enlisting and shipping applicants for the Armed Forces, Reserves, and Coast Guard. This includes support for automated versions of the Armed Services Vocational Aptitude Battery (ASVAB) tests. MIRS initiates Social Security Administration (SSA) checks for identity verification; interfaces with US Citizenship & Immigration Services (USCIS) to verify citizenship status for military service applicants to screen out individuals that may be security threats; and interfaces with the Federal Bureau of Investigation (FBI) for background screening, using digital fingerprints to identify/eliminate individuals with criminal records from entering military service.

USMEPCOM reports operationally to the Office of the Under Secretary for Personnel and Readiness and has an executive agency (EA) agreement with the Army. USMEPCOM serves all five uniformed services, but only receives funding from the Army to perform its mission.

MIRS supports recruiting capabilities through electronic interfaces and data sharing, using standard Department of Defense (DoD) data elements with Recruiting Service systems. In the event a military draft is required, MIRS supports mobilization through electronic links with the Selective Service System (SSS) as well as automated support for conducting aptitude tests and medical examinations and administratively processing, inducting and shipping SSS registrants.

Customers/beneficiaries of this investment: the Accessions Community of Interest (ACOI), including components of the Army, Navy, Air Force, Marines, Coast Guard, USMEPCOM, and Office of the Secretary of Defense (OSD) Personnel & Readiness (P&R)

Requested funding underpins system sustainability and scalability and improves cybersecurity to include protection of Personally Identifiable Information (PII). Funding covers costs to redesign/develop existing MIRS capabilities to operate efficiently in a cloud environment and to integrate with MHS-Genesis. This will allow for the closure of 65 Army data centers, in support of the Army Data Center Consolidation Plan (Army Directive 2016-38) and movement towards the Force of the Future mandate of all digital processing.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: USMIRS Modernization/Digitization	14.609	8.997	10.892	-	10.892

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T04 / <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Description: FY20 funding supports the USMIRS 1.1 modernization efforts as well as the Force of the Future texting modernization.</p> <p>FY 2021 Plans: Starting in October of 2020 a contract will be awarded with these funds that will begin developing the USMIRS 1.1 non-core applications. Examples of these applications include our testing application as well as our order writing application. Modernized non-core applications will replace functionality of legacy applications, but will be built from scratch using modern coding, programming, and architecture.</p> <p>A portion of the funding in FY 2021 also supports the Force of the Future efforts mentioned in the description.</p> <p>FY 2022 Base Plans: FY22 funding supports the expansion of the USMIRS 1.1. This expansion includes legacy application migration (non-core applications), and medical processing enhancements.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY21 to 22 increase represents the cost to further develop the non-core USMIRS 1.1 system of systems.</p>					
Accomplishments/Planned Programs Subtotals	14.609	8.997	10.892	-	10.892

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

N/A

Remarks

D. Acquisition Strategy

The overall effort of the USMEPCOM IT transformation is to modernize and fully digitize the US Military Entrance Processing Command Integrated Resource System (MIRS). The modernization of the system will minimize vulnerabilities and fully digitize 65 military entrance processing stations resulting in efficiencies to all five uniformed services.

The modernization of the USMIRS system is being accomplished using the agile method of software development in short time-boxed "sprints". Program management functions were being performed by the Defense Digital Service (DDS). DDS managed an prototype development contract with a local consulting firm called Tandem (previously known as Devmynd. Based in Chicago IL). The DDS/Tandem effort ended in December of CY2019 and produced a prototype. An in-house program management element of USMEPCOM will manage a follow-on contract to turn the prototype USMIRS 1.1 into a deployable system in FY21.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T04 / <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>
--	---	--

The efforts in FY21 and beyond will be to develop the non-core applications of USMIRS 1.1 (plug in items to the main system that communicate with other systems across all five uniformed services to include Army Accession Information Environment (AIE)). The contracting for this is being done through GSA Chicago as the owning contract agency. This will most likely be awarded in October of FY2021 with work beginning in October.

- Milestones:
- 1 - Core USMIRS 1.1 prototype delivered in December of Calendar 2019.
 - 2 - Award contract to develop core USMIRS 1.1 prototype into a Minimum Viable Product that can be deployed to the field in 2Q FY2021.
 - 3 - Award contract to develop the USMIRS 1.1 non-core applications (plug ins) in 1Q FY2021 with work to begin 2Q FY2021.
 - 4 - FY22 and beyond will be to primarily establish the link between various systems (AIE, MHS Genesis Etc).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / Information Technology Dev elopment	Project (Number/Name) T04 / USMEPCOM TRANSFORMTION - IT MODERNIZATION
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Defense Digital Services/ Tandem (Previously DEVMYND) USMIRS Prototype Development	MIPR	Defense Digital Services (DDS) Managing the Tandem contract (formerly DEVMYND) : Chicago, IL	9.600	-		-		-		-		-	0.000	9.600	-
Subtotal			9.600	-		-		-		-		-	0.000	9.600	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Develop CORE USMIRS Prototype into Minimum Viable Product (MVP)	C/TBD	TBD : TBD	9.402	6.209		-		-		-		-	0.000	15.611	-
Develop NON-CORE USMIRS 1.1 Applications	C/TBD	TBD : TBD	-	-		8.997	Jul 2021	10.892	Jul 2021	-		10.892	Continuing	Continuing	Continuing
Subtotal			9.402	6.209		8.997		10.892		-		10.892	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Force of the Future Testing Modernization	Various	Various services performing testing modernization : Multiple	21.331	8.400		-		-		-		-	0.000	29.731	-
Subtotal			21.331	8.400		-		-		-		-	0.000	29.731	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army							Date: May 2021				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>			Project (Number/Name) T04 / <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>				
	Prior Years	FY 2020		FY 2021		FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	40.333	14.609		8.997		10.892	-	10.892	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T04 / <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Core USMIRS 1.1 Prototype is Delivered	▲ 1																											
Award Contract and Develop Prototype into MVP		■																										
Award Contract to Develop USMIRS 1.1 Non-Core Applications							▲ 2																					
Receive Finished MVP								▲ 3																				
Rollout Production MVP to the Field								■																				
Core USMIRS 1.1 FOC								▲ 4																				
Development of the non-core USMIRS 1.1 Applications and MHS Genesis Link									■																			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T04 / <i>USMEPCOM TRANSFORMTION - IT MODERNIZATION</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Core USMIRS 1.1 Prototype is Delivered	1	2020	1	2020
Award Contract and Develop Prototype into MVP	1	2020	1	2021
Award Contract to Develop USMIRS 1.1 Non-Core Applications	1	2021	1	2021
Receive Finished MVP	1	2021	1	2021
Rollout Production MVP to the Field	1	2021	2	2021
Core USMIRS 1.1 FOC	2	2021	2	2021
Development of the non-core USMIRS 1.1 Applications and MHS Genesis Link	1	2021	4	2025

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
T05: <i>Army Business System Modernization Initiatives</i>	-	6.398	16.286	24.035	-	24.035	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Global Force Information Management (GFIM): GFIM is a Global Force Management Data Initiative (GFM DI) compliant, integrated, and interoperable digital environment that enables, thru automation, the Deploy to Redeploy/Retrograde (D2RR) end-to-end business processes in support of Dynamic Force Employment (DFE). Today, over 85% of this core Army Business Process is done manually and the tools that are available are on outdated technology platforms. GFIM will provide the tools necessary to dynamically develop, design, and document the Army's force structure at rest and in motion. GFIM will evolve both long-term and immediate bridging solutions that integrate and automate Army operational business processes, using an interoperable, collaborative environment, to enable the seamless exchange of authoritative data across the operational community of practice to provide rapid, accurate, and auditable outcomes to support risk informed senior leader decisions. GFIM will provide the core data necessary for Enterprise Resource Planning (ERP) systems, other Business Mission Area (BMA) systems and Warfighting Mission Area (WMA) systems to efficiently and effectively execute business processes in support of Army Title 10 responsibilities and war fighting operations.

The Student Information Repository (SIR) Application will replace several independent applications and business processes used to track student data including, but not limited to, personal information, grades, attendance, official records, transcripts, teaching teams, student assignments, and surveys. It is a customized information system that is comprised of separate modules that are tied in together as one system.

Army Business System Modernization Initiatives (subline). The Program Planning Budget (PPB)- Business Operating System (BOS) will standardize and better integrate the transactional automated information systems used in the HQDA level programming and budgeting processes. These systems are core to the PPBE business processes of the HQ for gathering programmatic requirements, balancing resources and delivering the Army's program budget to OSD. This project is streamlining programming and budgeting processes and significantly improving strategic analysis capabilities. The project is architecting, reengineering, streamlining and consolidating HQDA systems, feeder data base systems, and streamlining the associated processes. These improvements will improve capability, eliminate redundancies and reduce overall cost of operations. The PPB BOS project is complementary to the Army's General Fund Enterprise Business System (GFEB) program. It includes a new effort in FY 2014, the Army Contract Writing System, a replacement for the DoD Standard Procurement System (SPS). This Project undertakes necessary efforts to integrate, implement, and build the next generation of Enterprise Business Systems capabilities. This effort is required to develop a converged, modernized Enterprise Resource Planning system that streamlines and integrates the Army's core business functions.

Additive Manufacturing (AM) is a SEC Army priority. AM will fully integrate AM capabilities and enable the Digital Thread within the Army ERPs. It will provide a common collaboration portal to enable sharing of AM 3D print data across the Army and with other DoD entities to address Army readiness driver requirements. Capability will communicate and track user requests for AM 3D print data, and allow users to search for relevant 3D print data with feedback to Engineering Support Activities, Army industrial base and Army tactical units.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>

The Enterprise Sustainment Management System (ESMS) Web Application is a cloud-based solution, bringing all real property infrastructure domains under the umbrella of a single SMS application. Performing long-range work requirements projections across all SMS domains allows for a comprehensive analysis of various courses of action and the related effects and tradeoffs of each decision. In addition to the incorporation of all SMS domains in a single application. The ESMS application provides increased control of user permission definition, teaming, and how permissions are applied; updated business intelligence reporting capabilities; and improved user experience, leveraging state of the art web development techniques for more efficient use from beginning to end. ESMS helps all real property asset management stakeholders - from civil engineers, technicians and managers to headquarters - decide when, where and how to best maintain existing infrastructure. Because assets are so vast and diverse, a "knowledge-based" philosophy drives the SMS process.

Army Energy and Water Reporting System (AEWRS) is used to collect rollups of energy and water usage at Army installations. AEWRS is the Army's official database of record for all energy and water usage data, and energy program management information. It provides the basis for documenting Army progress in meeting statutory and mandated performance metrics. Data is passed to DOD to be joined by similar energy and water data from the other services. AEWRS incorporated as a module the Solid Waste Annual Reporting for the Web (SWARWeb) which is a web-enabled system used to collect solid waste management data. SWARWeb provides a tool for tracking solid waste handling information at the Installation, Subordinate Command, Major Command, Region and Headquarters levels. Data is collected for disposal sites, disposal and recycling transactions, recycling revenues and recycling program management. Solid waste data collected throughout the fiscal year is submitted to higher command levels to fulfill reporting requirements and to track compliance with DoD waste reduction and recycling goals. Data collected in SWARWeb is maintained in a centralized database. Component and DoD requirements and goals for Solid Waste tracking and reporting are reflected in the SWARWeb system.

The Enterprise Architecture Business Systems Consolidation effort provides direct execution support for the following Major Objectives of ACP - Army Campaign Plan Strategy Map. The objective is a reduced number of systems and reduced IT costs. Current systems include Headquarters Installation Information System (HQIIS), Installation Decision Support (IDS), Real Property Planning and Analysis System (RPLANS), Army Stationing and Installation Plan, Installation Geospatial Information & Services (IGI&S), and Installations Status Report (ISR).

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Global Force Information Management	3.269	11.725	15.377	-	15.377
Description: Global Force Information Management (GFIM): GFIM will provide the Army an enterprise, integrated transactional authoritative global force management capability for lifecycle management of force/organizational structure data for the entire Army. This is in support of dynamic force structure and dynamic force employment as directed in National Defense Strategy. GFIM will establish a common standard for force structure data by implementing OSD's Global Force Management Data Initiative (GFM-DI) directive and Army Data Standard. This effort will decrease/consolidate 13 legacy applications/ systems per USA Investment Decision Memorandum.					
FY 2021 Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Funding will be used to deliver a rapid prototype for Phase I of GFIM (Dynamic Force Structure) under the Adaptive Acquisition framework. This capability will be the authoritative transactional capability that creates and develops the requisite authoritative force structure needed to man, equip, train, ready, and resource the Army at rest.</p> <p>FY 2022 Base Plans: Funding will be used to deliver a rapid prototype for Phase II of GFIM (Dynamic Force Employment). This capability will be the authoritative transactional capability that creates and develops the requisite force structure, deployment, and readiness data needed to man, equip, train, ready, and resource an Army in Motion</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Less than 1% difference.</p>					
<p>Title: Army Business System Modernization Initiatives</p> <p>Description: Modernization requirements will add new capabilities to legacy IT systems that support human resource functions such as organization and position management, training, and employment. The PPB BOS system standardize and integrate the transactional information systems used in the Headquarters Department of Army (HQDA) Programming and Budgeting processes. The program is streamlining programming and budgeting business processes and significantly improving strategic analysis capabilities. The PPB BOS architecture reengineers, streamlines, and consolidates HQDA systems and financial feeder systems; aligns to the DoD Business Enterprise Architecture (BEA); implements powerful business intelligence analytical tools to support strategic planning, programming, and budgeting within HQDA; and provides access to GFEBS funds management and execution data through system interfaces with required SFIS compliancy integral to the PPB BOS data model. The LEAP program will provide criminal intelligence querying and reporting capabilities in compliance with regulatory and policy standards for Army Law Enforcement regarding investigation of felony crimes. LEAP captures criminal case investigative information regarding incidents, location descriptors, entities (name, social security number, rank, title, physical characteristics, sex, birth place, and date), agent assignment, crime description and identifiers, statements, property data, laboratory tests; verifies and stores this data for criminal intelligence purposes: and reports this information to the proper authorities from the Division Commanding Officer to the United States Grand Jury. The system will extract necessary data for consolidation and input to Defense Incident-Based Reporting System (DIBRS) monthly reports, National Incident-Based Reporting System (NIBRS) monthly reports and the Defense Clearance and Investigations Index (DCII) daily updates. The LIMS system will automate business processes that support the forensic examiners. These processes include, but are not limited to, analytics, materials management, management reporting, Freedom of</p>	3.129	2.836	0.976	-	0.976

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Information Act requests (FOIA), legal discovery request, court preparation and outsource processing.</p> <p>Civilian Personnel Online - Portal (CPOL-Portal) is a one stop secure site which provides Army civilian employees and HR specialists access to a private portal with a complete set of employment related resources, links and web based applications that require single sign-on access - Army Regional Tools (ART). CPOL-Portal will provide an Integrated Management System (IMS) in support of Civilian Workforce Transformation (CWT). It will support Civilian human capital decision making and allow leaders and employees to perform their roles more efficiently in support of Army goals and missions. CPOL Portal will provide the full spectrum of IT application support and access to Acquire, Develop, Distribute and Sustain components of the Army Civilian HCM Life-Cycle and link to G3 'Structure' IT Enterprise Applications.</p> <p>The Fully Automated System for Classification (FASCLASS) is a centralized, web-based system that maintains civilian position descriptions and position related information across Department of the Army. It provides classifiers and managers capability to create, edit, and verify position descriptions. Also it offers robust search, report generation, and lookup & support capabilities.</p> <p>The Overseas Entitlement Tracker (OET) provides the capability to accurately track Living Quarters Allowance (LQA). LQA is provided to reimburse employees for suitable, adequate living quarters at posts where the U.S. Government does not provide quarters. OET also tracks these other overseas entitlements for employees: Advance Pay, Danger Pay, Imminent Danger Pay, Foreign Differential, Home Leave, Post Allowance, Separation Maintenance Allowance, and Temporary Quarters Subsistence Allowance.</p> <p>FY 2021 Plans: Continue to fund Army Business System Modernization Initiatives.</p> <p>FY 2022 Base Plans: Continue to fund Army Business System Modernization Initiatives.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Increased requirements for installations business systems.</p>					
<p>Title: Corp of Engineers Installation IT Support</p> <p>Description: Funding is used to modernize Army installation IT systems.</p>	-	1.725	0.986	-	0.986

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>FY 2021 Plans: Funding is used to modernize Army installation IT systems.</p> <p>FY 2022 Base Plans: Funding is used to modernize Army installation IT systems.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding reduction reflects planned life cycle for this effort.</p>					
<p>Title: Additive Manufacturing</p> <p>Description: Additive Manufacturing (AM) is a SEC Army priority. AM will fully integrate AM capabilities and enable the Digital Thread within the Army ERPs. It will provide a common collaboration portal to enable sharing of AM 3D print data across the Army and with other DoD entities to address Army readiness driver requirements. Capability will communicate and track user requests for AM 3D print data, and allow users to search for relevant 3D print data with feedback to Engineering Support Activities, Army industrial base and Army tactical units.</p> <p>FY 2022 Base Plans: \$4.915M to conduct User Acceptance testing, training delivery, and finalize the Additive Manufacturing digital thread solution for Package 1 and 2. The solution will be deployed in 2nd quarter FY22.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Commenced research on additive manufacturing database</p>	-	-	4.915	-	4.915
<p>Title: Installation Systems Modernization</p> <p>Description: Consolidation of installation systems and upgrades of applications</p> <p>FY 2022 Base Plans: Upgrade software</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Task was imbedded under other tasks within this Project in FY21.</p>	-	-	1.781	-	1.781
Accomplishments/Planned Programs Subtotals	6.398	16.286	24.035	-	24.035

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>

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

N/A

Remarks

D. Acquisition Strategy

GFIM will leverage existing Force Management System Cost Plus Award Fee contract to execute development efforts. The acquisition approach will lead to contract actions supporting a lab environment, a SETA support contract and a Systems Integrator (SI) contract. Each acquisition activity will be supported by an acquisition plan and package consisting of market research, an independent government cost estimate and an independent government estimate of an execution schedule.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development	Project (Number/Name) T05 / Army Business System Modernization Initiatives
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SFL-TAP XXI Modernization	TBD	To Be Determined : To Be Determined	0.639	-		-		-		-		-	0.000	0.639	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	0.324		-		-		-		-	0.000	0.324	-
OA22 - G-8 Funding	TBD	TBD : TBD	-	-		-		1.781		-		1.781	0.000	1.781	-
Subtotal			0.639	0.324		-		1.781		-		1.781	0.000	2.744	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PRODUCT DEVELOPMENT FOR KEYSTONE RETAIN SYSTEM, i-PERMS PRODUCT DEVELOPMENT	MIPR	M&RA/G-1 : ARLINGTON, VA	16.570	-		-		-		-		-	0.000	16.570	-
PPBOS PRODUCT DEVELOPMENT	MIPR	OAA : FORT BELVOIR, VA	25.986	0.846		-		-		-		-	0.000	26.832	-
Product Development for ACWS	C/IDIQ	PEO EIS : Alexandria, VA	45.741	-		-		-		-		-	0.000	45.741	-
ATIS	C/IDIQ	PEO EIS : FT Eustice VA	50.720	-		-		-		-		-	0.000	50.720	-
Army Career Tracker	C/FFP	TBD : Reston, VA	2.538	-		-		-		-		-	0.000	2.538	-
Army Business System Modernization Initiatives	TBD	To Be Determined : To Be Determined	29.139	2.460		2.836		0.976		-		0.976	Continuing	Continuing	-
Defense Language Software Upgrade	C/FFP	TBD : TBD	5.286	-		-		-		-		-	0.000	5.286	-
Global Force Information Management	Option/CPAF	CACI : Chantilly, VA	1.151	2.768		11.725		15.377		-		15.377	Continuing	Continuing	Continuing
Army SHARP	TBD	Various : Various	1.453	-		-		-		-		-	0.000	1.453	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>
--	---	---

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SFL-TAP XXI Modernization	TBD	To Be Determined : To Be Determined	0.333	-		-		-		-		-	0.000	0.333	-
HRC Core IT	C/CPFF	Digital Management, LLC / SAIC : Bethesda, MD / Reston, VA	5.163	-		-		-		-		-	Continuing	Continuing	Continuing
ARIMS	TBD	TBD : TBD	2.283	-		-		-		-		-	0.000	2.283	-
FASOR	MIPR	CECOM : CECOM	1.914	-		-		-		-		-	0.000	1.914	-
Corp of Engineers Installation IT Support	TBD	TBD : TBD	-	-		1.725		0.986		-		0.986	0.000	2.711	-
Additive Manufacturing	TBD	TBD : TBD	4.958	-		-		4.915		-		4.915	0.000	9.873	-
Subtotal			193.235	6.074		16.286		22.254		-		22.254	Continuing	Continuing	N/A

Remarks

Global Force Information Management (GFIM): GFIM will provide the Army an enterprise, integrated authoritative force management capability for lifecycle management of force/organizational structure data for the entire Army. In addition, it will establish a common data standard for force structure data by implementing the Global Force Management - Data Initiative (GFM-DI).

Army Training Information System (ATIS) is an enterprise system that will provide a common operational picture of the training environment through integrated, interoperable training development, management, scheduling, and delivery capabilities. These capabilities will enable commanders, leaders, soldiers, and civilians to better understand, visualize, describe, direct, lead and assess training requirements so they can more effectively plan, prepare, execute, and assess training. End result is an ATIS that enables soldiers to train as they fight so they can effectively fight as they have trained.

The Army Human Resources Command (HRC) has several efforts for which RDT&E will be applied. One is to prepare those systems for subsumption into the Integrated Personnel and Pay System (IPPS-A). The other is to disconnect and upgrade those systems not being subsumed by IPPS-A. Systems that will be targeted by HRC to prepare for IPPS-A subsumption or upgrade are the Automated Orders and resources System (AORS), Army Selection Board System (ASBS), Data Base Administration Suite of System (DBA), Enlisted Distribution and Assignment system (EDAS), Enlisted Promotion Model (EPM), Enterprise Service Bus (ESB), Human Resource Command Identity Management System (HIMS), Integrated Total Army Personnel Database (ITAPDB), Officer Selection Support System (OSSS), Reserve Statistics Accounting System/ Reserve Component Common Personnel Data System (RSAS/RCCPDS), Senior Enlisted Promotions Model (SEPM), Single Evaluation Processing System (SEPS), Soldier Management System Webified Suite of System (SMSWEB), Total Army Personnel Data Base - Active Enlisted (TAPDB-AE), Total Army Personnel Data Base - Active Officer (TAPDB-AO), Total Army Personnel Data Base - Active Reserve (TAPDB-AR), Total Officer Personnel Management Information System (TOPMIS), Total Officer Personnel Management Information System II (TOPMIS II), Keystone Request/Retain System, and the Interactive Personnel Electronic Records Management System (iPERMS).

HRC Core IT: Award date shown reflects iPERMS IT Integration Contract. SMS-WEB and ASBS 2.0 are on the Digital Application Support Task Order (DASTO) with an award date of 6 Feb 2018.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army								Date: May 2021			
Appropriation/Budget Activity 2040 / 5			R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>				Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>				
	Prior Years	FY 2020	FY 2021		FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	193.874	6.398	16.286		24.035	-	24.035	Continuing	Continuing	N/A	

Remarks
 GFIM - In FY 2019 RCAS/FMS received \$1 million for upgrading standard schema based on OSD mandate for joint interoperability and Force Structure modernization. Prototype design is planned for FY 2020.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ATIS Product Development	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Global Force Information Management	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
SFL-TAP XXI Modernization	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
HRC Core IT	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Capabilities Requirement Document	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) T05 / <i>Army Business System Modernization Initiatives</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ATIS Product Development	1	2016	1	2023
Global Force Information Management	2	2019	4	2025
SFL-TAP XXI Modernization	1	2019	4	2024
HRC Core IT	4	2018	4	2020
Capabilities Requirement Document	1	2020	1	2021

Note

Army Contract Writing System moved to 0605047 in FY 2017. The Commanders Risk Reduction Dashboard (CRRD) requirements moved to and are now maintained within PE 0605013A, Project 099 in FY2019.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development	Project (Number/Name) VR3 / ASMIS-R (REPORTIT)
--	--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
VR3: ASMIS-R (REPORTIT)	-	2.720	3.041	3.180	-	3.180	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army Safety and Health Management System (ASHMS) initiative provides a framework of people, processes and technology to synchronize, integrate and optimize Army Safety and Occupational Health (SOH) capabilities to reserve war fighting capabilities and enhance the force by providing a safe and healthy environment for Soldiers, Families, Civilians, and contractors. An analysis of Army SOH Doctrine, Organization, Training, Materiel, Leadership and education, Personnel, Facilities and Policies (DOTMLPF-P) determined that the Army Safety Management Information System - Revised (ASMIS-R), a Defense Business System, is currently not able to satisfy current and emerging ASHMS capability requirements without modernization to resolve these capability gaps. Changes in requirements for the Army Safety and Health Management System (Programmatic) related to Department of Defense Instruction (DoDI) 6055.01, Army Regulation (AR) 385-10, Information Assurance requirements and direct feedback from the Safety professionals within the Department of Defense (DoD) and the Army have resulted in the need for changes in associated business processes. Additionally, a business gap analysis performed by the Office of the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health (DASA(ESOH)) revealed a deficiency in the system's requirements that would support Army Commands in identifying hazards in the work place, determining hazard mitigation strategies and controls, employing these strategies and controls, and measuring their potential for reducing mishaps. Addressing these problems will have an immediate and direct impact on meeting regulatory requirements, improving data integrity, improving information assurance posture (compliance), increasing the Army's ability to reduce mishaps across the force structure, and promoting Army Force Generation (ARFORGEN) capabilities.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: ASMIS-R Development	2.720	3.041	3.180	-	3.180
Description: The ASHMS initiative provides a framework of people, processes and technology to synchronize, integrate and optimize Army SOH capabilities to preserve war fighting capabilities and enhance the force by providing a safe and healthy environment for Soldiers, Families, Civilians, and contractors. An analysis of Army SOH DOTMLPF-P determined that the ASMIS-R, a Defense Business System, is currently not able to satisfy current and emerging ASHMS capability requirements without modernization to resolve these capability gaps. Changes in requirements for the Army Safety and Health Management System (Programmatic) related to DoDI 6055.01, AR 385-10, Information Assurance requirements and direct feedback from the Safety professionals within the DoD and the Army have resulted in the need for changes in associated business processes. Additionally, a business gap analysis performed by the ASA(ESOH) revealed a deficiency in the system's requirements that would support Army Commands in identifying hazards in the work place, determining hazard mitigation strategies and controls, employing these strategies and controls, and measuring their potential for reducing mishaps. Addressing these problems will have an immediate and direct impact on meeting regulatory					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) VR3 / <i>ASMIS-R (REPORTIT)</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
requirements, improving data integrity, improving information assurance posture (compliance), increasing the Army's ability to reduce mishaps across the force structure, and promoting ARFORGEN capabilities.					
<i>FY 2021 Plans:</i> Continue work with Army Analytics Group and contract for the development of the fourth activity.					
<i>FY 2022 Base Plans:</i> Continue work with Army Analytics Group and contract for the development of the fourth and fifth activity.					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Increase - Continue development of ASMIS 2.0 products and tools.					
Accomplishments/Planned Programs Subtotals	2.720	3.041	3.180	-	3.180

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

N/A

Remarks

D. Acquisition Strategy

ASMIS-R is comprised of legacy modules (applications) that require modernization to maintain their relevancy to the Army in support of mishap reduction. As stated above, these are primarily related to meeting minimum DoD regulatory requirements related to the collection of mishap information, safety information storage, and resolving inefficiencies in data quality control and information flow.

Additionally, advances in technology allow for improvements in performance and data integrity that currently are deficiencies in the system. ASMIS-R, in its current state, does not provide any IT (material solution) to the business requirements identified above. The Command has utilized a firm-fixed-price (FFP) contract to execute specific Task Orders to develop the tools and products through mid-year Fiscal Year 2015 (FY15). The CRC will be competing a new contract vehicle to support the development of products and tools from midyear FY15 through FY24.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / Information Technology Development	Project (Number/Name) VR3 / ASMIS-R (REPORTIT)
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FY 2020 SBIR/STTR Transfer	TBD	TBD : TBD	-	0.180		-		-		-		-	0.000	0.180	-
Subtotal			-	0.180		-		-		-		-	0.000	0.180	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASMIS-R	MIPR	AAG : Monterrey, CA	0.860	0.093		0.156		0.180		-		0.180	Continuing	Continuing	Continuing
Subtotal			0.860	0.093		0.156		0.180		-		0.180	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASMIS-R	TBD	Army Contracting Command : Natick	3.964	2.447		2.885		3.000		-		3.000	Continuing	Continuing	Continuing
Subtotal			3.964	2.447		2.885		3.000		-		3.000	Continuing	Continuing	N/A

Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	4.824	2.720	3.041	3.180	-	3.180	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) VR3 / <i>ASMIS-R (REPORTIT)</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Product Development																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605013A / <i>Information Technology Development</i>	Project (Number/Name) VR3 / <i>ASMIS-R (REPORTIT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Product Development	3	2018	4	2025

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	97.873	111.078	76.936	-	76.936	-	-	-	-	-	-
ED9: <i>Integrated Personnel and Pay System - Army Inc 2</i>	-	97.873	111.078	76.936	-	76.936	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Integrated Personnel and Pay System-Army Increment II (IPPS-A Inc II) provides an integrated, multi-Component, personnel and pay system that streamlines existing Human Resources (HR) systems and processes by enhancing efficiency and accuracy of personnel and pay procedures in support of 1.1 million Soldiers and their families. The Army will deploy IPPS-A Inc II to all Components in three software releases. In March 2020, the Army completed deployment of Release 2 to all Army National Guard (ARNG) units in the 54 states and territories. Release 2 replaced the ARNG's Standard Installation/Division Personnel System and consolidated many disparate state/territory systems into one. Release 3 will provide accountability and essential personnel services to all three Army Components when deployed in December 2021. Release 4 will provide a fully-integrated personnel and pay system to all three Army Components and is planned for deployment to the Total Force no later than May 2025. IPPS-A Inc II will subsume approximately 52 legacy systems (full and partial) across the Active, ARNG, and Reserve Components into a single, integrated system. IPPS-A Inc II is a web-based tool, available 24-hours a day, accessible to HR professionals, Combatant Commanders, pay managers, and other authorized users throughout the Army. IPPS-A Inc II addresses major deficiencies in the execution of military personnel and pay services by providing the necessary internal control and audit procedures, as well as preventing erroneous payments and loss of funds. This program is an essential building block to reform the Department of the Army towards achieving greater performance and affordability in support of the National Defense Strategy and the Congressional audit mandate.

IPPS-A Inc II is the number one HR modernization effort in the Army and will deliver fully integrated personnel and pay services for all Army Components building on the trusted database delivered by IPPS-A Inc I. The program is a critical enabler for The Army People Strategy and its transition to a Talent Management System and an HR data-rich environment. IPPS-A Inc II will link the personnel and pay functions for all Army personnel, eliminating duplicate data entry, reducing complex system maintenance, and minimizing pay discrepancies. IPPS-A Inc II will account for status changes between Active, National Guard, and Reserve Components to ensure accurate credit for service and individual pay and will enable disciplined human resource management.

The Fiscal Year 2022 (FY22) requested budget supports the program's Acquisition Strategy approved by the Army Acquisition Executive (AAE) on 24 July 2019, and provides funding to complete the Release 3 Limited User Test to all three Army Components at the end of 1QFY22. The FY22 budget request also funds the first year of activities following the completion of the Release 3 deployment. These follow-on activities include the requirements analysis of Release 4 (integrated pay), and the design of the first of four Additional Capabilities approved by Army Senior Leaders for development and deployment between FY22 and FY25.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	102.073	115.286	1.465	-	1.465
Current President's Budget	97.873	111.078	76.936	-	76.936
Total Adjustments	-4.200	-4.208	75.471	-	75.471
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.200	-4.208			
• Adjustments to Budget Years	-	-	75.471	-	75.471

Change Summary Explanation

The Fiscal Year 2022 (FY22) Research, Development, Test and Evaluation (RDTE) increase of \$76.423 million supports the revision of the Integrated Personnel and Pay System-Army Increment II (IPPS-A Inc II) schedule providing for testing of Release 3 (Personnel System for Active, National Guard, and Reserve Components); requirements analysis of Release 4 (Integrated Pay for Active, National Guard, and Reserve Components); and design of the first of four Additional Capabilities approved by Army Senior Leaders for development in FY22 through FY25.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>				Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
ED9: <i>Integrated Personnel and Pay System - Army Inc 2</i>	-	97.873	111.078	76.936	-	76.936	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Integrated Personnel and Pay System-Army Increment II (IPPS-A Inc II) provides an integrated, multi-Component, personnel and pay system that streamlines existing Human Resources (HR) systems and processes by enhancing efficiency and accuracy of personnel and pay procedures in support of 1.1 million Soldiers and their families. The Army will deploy IPPS-A Inc II to all Components in three software releases. In March 2020, the Army completed deployment of Release 2 to all Army National Guard (ARNG) units in the 54 states and territories. Release 2 replaced the ARNG's Standard Installation/Division Personnel System and consolidated many disparate state/territory systems into one. Release 3 will provide accountability and essential personnel services to all three Army Components when deployed in December 2021. Release 4 will provide a fully-integrated personnel and pay system to all three Army Components and is planned for deployment to the Total Force no later than May 2025. IPPS-A Inc II will subsume approximately 52 legacy systems (full and partial) across the Active, ARNG, and Reserve Components into a single, integrated system. IPPS-A Inc II is a web-based tool, available 24-hours a day, accessible to HR professionals, Combatant Commanders, pay managers, and other authorized users throughout the Army. IPPS-A Inc II addresses major deficiencies in the execution of military personnel and pay services by providing the necessary internal control and audit procedures, as well as preventing erroneous payments and loss of funds. This program is an essential building block to reform the Department of the Army towards achieving greater performance and affordability in support of the National Defense Strategy and the Congressional audit mandate.

IPPS-A Inc II is the number one HR modernization effort in the Army and will deliver fully integrated personnel and pay services for all Army Components building on the trusted database delivered by IPPS-A Inc I. The program is a critical enabler for The Army People Strategy and its transition to a Talent Management System and an HR data-rich environment. IPPS-A Inc II will link the personnel and pay functions for all Army personnel, eliminating duplicate data entry, reducing complex system maintenance, and minimizing pay discrepancies. IPPS-A Inc II will account for status changes between Active, National Guard, and Reserve Components to ensure accurate credit for service and individual pay and will enable disciplined human resource management.

The Fiscal Year 2022 (FY22) requested budget supports the program's Acquisition Strategy approved by the Army Acquisition Executive (AAE) on 24 July 2019, and provides funding to complete the Release 3 Limited User Test to all three Army Components at the end of 1QFY22. The FY22 budget request also funds the first year of activities following the completion of the Release 3 deployment. These follow-on activities include the requirements analysis of Release 4 (integrated pay), and the design of the first of four Additional Capabilities approved by Army Senior Leaders for development and deployment between FY22 and FY25.

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

	FY 2020	FY 2021	FY 2022
Title: Analysis and Design, Development, and Integration of IPPS-A Increment II	97.873	111.078	76.936

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>	Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: Requested funding provides for the procurement and renewal of software licenses, engineering support for the product development and system integration, data center hosting, testing and evaluation, and program management services.</p> <p>FY 2021 Plans: Under the revised schedule, IPPS-A will complete Release 3 HR development for the Total Force encompassing Active, Reserve and Nation Guard Components. IPPS-A will complete all critical activities concerned with final Testing and Validation in support of Developmental Integration Testing, Government Acceptance Testing and leading to Operational Testing.</p> <p>FY 2022 Plans: In FY22, IPPS-A Inc II will complete the Limited User Testing leading to the deployment of Release 3 to all three Army Components. IPPS-A Inc II will also start the requirements analysis of Release 4 (integrated pay), and the design of the first of four Additional Capabilities approved by Army Senior Leaders for development and deployment between FY22 and FY25.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The FY22 activities include test activities for Release 3, the start of requirements analysis of Release 4, and start the design of the first of four Additional Capabilities approved by Army Senior Leaders, for development between FY22 and FY25.</p>			
Accomplishments/Planned Programs Subtotals	97.873	111.078	76.936

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• B66706: <i>IPPS-A INC 2</i>	14.100	9.071	16.077	-	16.077	-	-	-	-	-	-
• OMA - Sustainment and Support OMA: <i>OMA - 432612000 / 435107000</i>	63.429	92.796	107.056	-	107.056	-	-	-	-	-	-

Remarks

B66706000 (Other Procurement, Army) funding supports continued system implementation and deployment, including new equipment training, of the Integrated Personnel and Pay System-Army Increment II (IPPS-A Inc II), Release 3 that began in Fiscal Year 2019 (FY19). Training delivery methods include Instructor-led Training, Distance Learning, and Computer Based Training of 48,700 Human Resource transactional users for Release 3. Training products will be developed using the Oracle Usability Productivity Kit to include instructor manuals and lessons plans, as well as Electronic Performance Support System and job aids. The Release 3 pre-deployment activities (i.e. soldier training, command visits and briefings, etc.) that took place in FY21 will culminate in 1QFY22. Following the "big-bang" deployment of Release 3 at the end of 1QFY22, many significant post-deployment activities will occur through the end of FY22 including on-site data verification, workflow verification, and "over-the-shoulder" support to a large number of Active, National Guard, and Reserve organizations.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>	Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
432612000 (Operations and Maintenance, Army (OMA)) and 435107000 (civilian pay, OMA) funding supports overall software system sustainment including Help Desk support (Tier I through Tier II), system maintenance break/fixes, minor enhancements, software licenses, cyber compliance, program office contractor support, civilian salaries, and program office operations. Beginning in 2QFY22, total system users will equal 1.1 million.											

D. Acquisition Strategy

In accordance with Title 10 United States Code 2222 and the Department of Defense Instruction (DODI) 5000.75, the Integrated Personnel and Pay System-Army Increment II (IPPS-A Inc II) (Project ED9) is a Priority Defense Business System Category I (BCAT 1) program that achieved a Milestone B on 14 December 2014 while under DODI 5000.02 oversight. IPPS-A Inc II will deliver fully integrated personnel and pay services to all Army Components, building on the trusted database delivered by the IPPS-A Inc I program. In Fiscal Year 2019 (FY19), the program transitioned to DODI 5000.75 oversight, and at the direction of Army Senior Leaders, completed a restructure and re-baseline. On 24 July 2019, the Army Acquisition Executive (AAE) signed the new IPPS-A Inc II Acquisition Strategy. On 7 January 2020, the AAE signed the new IPPS-A Inc II Army Program Baseline. On 18 February 2020, the Assistant Secretary of the Army (Financial Management and Comptroller) approved the program's updated Army Cost Position that aligns the program's costs to the new Acquisition Strategy. The new Acquisition Strategy reduces risk by minimizing concurrent software release development and focuses on deployment of a Minimum Viable Solution (MVS) for the remaining IPPS-A Inc II releases and defers the majority of Release 3 and all of Release 4 Additional Capabilities to the Capability Support Phase in FY26 and beyond. The re-baselined IPPS-A Inc II schedule consists of three software releases (2, 3, and 4) that build upon one another, culminating in a personnel and pay solution for the Total Force.

Release 2 Full Release: The Release 2 deployment was completed on 24 March 2020. Release 2 replaced the Standard Installation/Division Personnel System within Army National Guard units in all 54 states and territories with approximately 343,000 users.

Release 3 MVS: Release 3 MVS will provide all accountability and essential personnel services necessary to subsume numerous legacy field systems including Electronic Military Personnel Office and Total Army Personnel Database-Reserve. It will allow Commanders in the field to access timely, accurate, and standardized personnel data for Soldiers in all three Army Components. In addition to delivering most of the functions required to establish an Army-wide personnel system, Release 3 MVS will bring Human Resource payroll drivers on board to enhance accuracy of pay, credit for service, and benefits. IPPS-A Inc II will serve as the authoritative data source for all personnel within the system. Design work began in FY17, but was not completed due to the program's need to focus on completing Release 2. The final critical design effort was completed in November 2019, and the program awarded a contract modification for Release 3 MVS build and testing on 22 November 2019. Release 3 MVS is on scheduled for deployment to the Total Force in December 2021.

Release 4 MVS: Release 4 MVS will provide a fully-integrated personnel and pay system to the Total Force. The program began work on Release 4 in FY18, but executed a stop-work order in January 2019 as a result of the program's need to focus on Release 3 and re-baseline IPPS-A Inc II. As part of the new program strategy, the program will conduct a competitive follow-on contract for Release 4 MVS, and all other activities to occur following the deployment of Release 3 MVS. These follow-on activities include system design, development, testing and deployment of four Additional Capabilities approved by Army Senior Leaders for deployment beginning in FY22 and ending in FY25. Follow-on activities also include Capability Support for the deployed baseline and training and deployment. The program's goal is to award

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>	Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>
--	--	---

a competitive follow-on contract in 2QFY22 to support the delivery of Release 4 MVS to the Total Force by 3QFY25. Release 4 MVS will incorporate pay functionality to include, but not limited to, base pay, taxes, allowances, bonuses, allotments and leave. At deployment, Release 4 MVS will serve as the authoritative data source for all personnel and pay transactions and will satisfy Army audit goals.

Capability Support Phase (CSP): The CSP is anticipated to begin in FY26. After Release 4 MVS is deployed and the program achieves Full Deployment, the program will conduct a CSP Authority to Proceed (ATP) decision. During this ATP, the Functional Sponsor will approve entry of the IPPS-A Inc II capability into the CSP. The IPPS-A Inc II program will continue to sustain, modernize, and enhance the IPPS-A capability during this phase. Depending on available funding in FY26 through FY30, the program may develop the Release 3 and Release 4 Additional Capabilities ahead of the planned schedule. These Additional Capabilities were deferred earlier in the program to focus on development and deployment of the Release 3 and Release 4 MVS. In accordance with Army Senior Leader direction, the program is poised to begin development of the four Release 3 Additional Capabilities (Internal Controls, Archiving, Talent Management, and Strength Management) as early as FY22, in parallel with Release 4 MVS development. This is necessary to ensure evolving Talent Management, Strength Management, Archiving, and Internal Control requirements can be addressed to support Army objectives and audit requirements in a timely manner.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>	Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	Program oversight, resource justification, budget and programming, milestone and schedule tracking : Various	23.596	4.366	Jun 2020	4.246	Jun 2021	2.810	Jun 2022	-		2.810	Continuing	Continuing	Continuing
In-House Government Management Support	Allot	Program oversight, resource justification, budget and programming, milestone and schedule tracking : NCR	16.017	-		0.082	Apr 2021	0.021	Apr 2022	-		0.021	Continuing	Continuing	Continuing
Subtotal			39.613	4.366		4.328		2.831		-		2.831	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software License -All Others	C/FFP	Various : Various	12.396	0.072	Jan 2020	0.365		-		-		-	Continuing	Continuing	Continuing
Software Licenses - IBM	C/FFP	Immixtechnology INC : McLean, Va	2.776	-		-		-		-		-	0.000	2.776	-
Software Licenses - GRC	C/FFP	Mythics : Virginia Beach, VA	3.974	-		-		-		-		-	0.000	3.974	-
Software Ab Initio	C/FFP	Various : Various	5.997	-		-		-		-		-	Continuing	Continuing	Continuing
Oracle Bundle - Software	SS/FFP	Oracle America INC : Reston, VA	20.112	-		-		-		-		-	0.000	20.112	-
Oracle - ULA	C/FFP	Myhtics : Virginia Beach, VA	7.145	-		-		-		-		-	Continuing	Continuing	Continuing
Software Licenses- CA	SS/FFP	Immix Tech : McLean, VA	0.859	-		-		-		-		-	0.000	0.859	-

UNCLASSIFIED

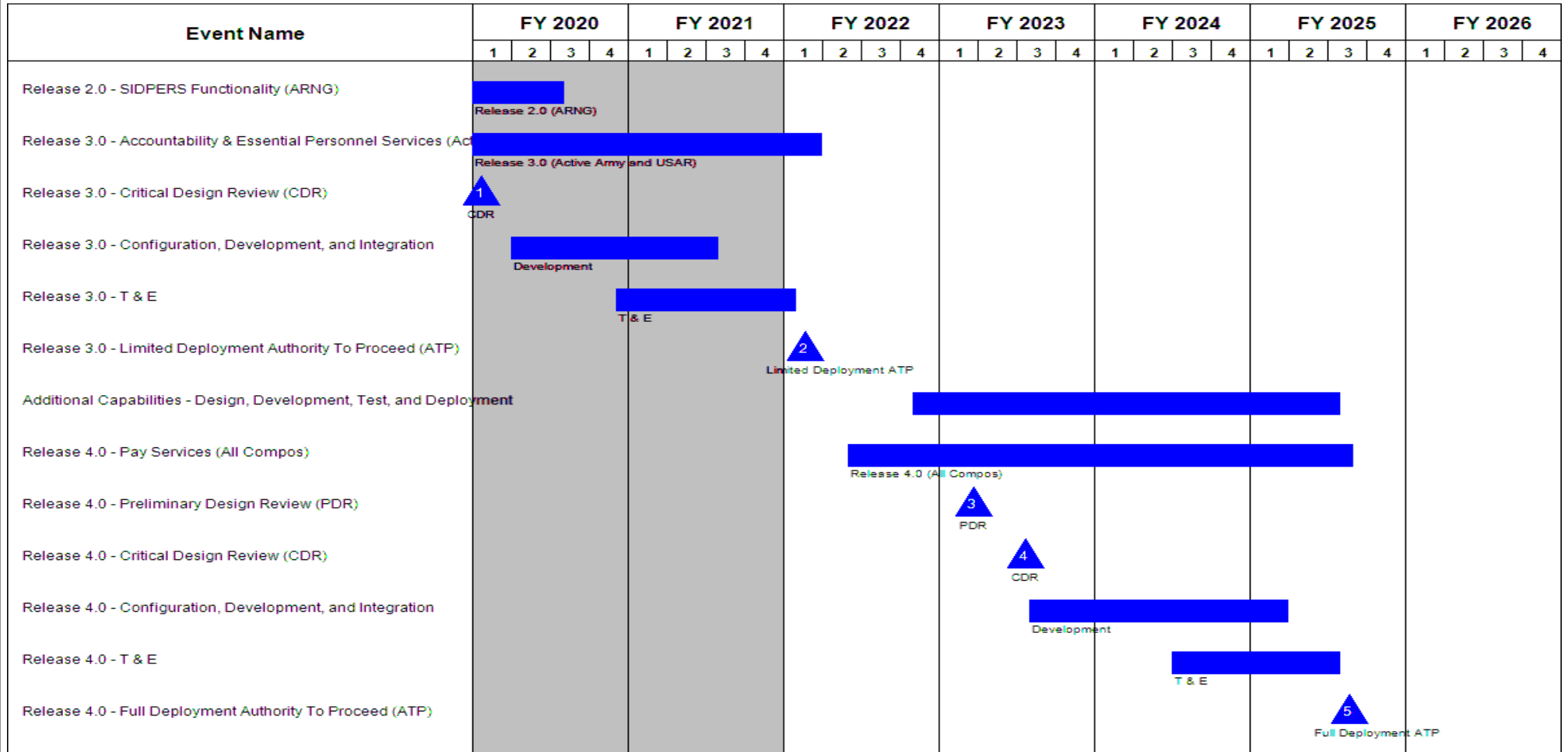
Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605018A / Integrated Personnel and Pay System-Army (IPPS-A)				Project (Number/Name) ED9 / Integrated Personnel and Pay System - Army Inc 2							
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Licenses -ESB	SS/FFP	Actuate Corp : San Mateo, CA	3.750	-		-		-		-		-	Continuing	Continuing	Continuing
Software Product Level SME Consulting Support	SS/FFP	Various : Various	13.397	3.414	May 2020	1.009		0.735	May 2022	-		0.735	Continuing	Continuing	Continuing
in House contract support of system development	C/CPFF	Various : Various	78.066	22.103	May 2020	25.758	May 2021	15.430	Jul 2022	-		15.430	Continuing	Continuing	Continuing
Functional in house contract support of system development-Army National Guard/Army Reserve/FMD	C/FFP	BAH : NCR	11.383	-		-		-		-		-	0.000	11.383	-
Design, Development and Integration - Increment II	C/CPIF	CACI : Chantilly, VA	267.886	37.531	May 2020	49.409	Jan 2021	-		-		-	Continuing	Continuing	Continuing
Network Support/ Production Hosting Services/Hardware Leasing	MIPR	Defense Information Systems Agency (DISA) Defense Enterprise Computing Center (DECC) : various	129.148	24.476	May 2020	24.810	May 2021	7.879	Jan 2022	-		7.879	Continuing	Continuing	Continuing
Software Licenses -m Factory C	C/FP	ACC -NJ : New Jersey	1.806	-		-		-		-		-	Continuing	Continuing	Continuing
Software Licenses- PeopleSoft Enterprise Licenses	C/FFP	PeopleSoft : Pleasanton, CA	4.892	-		-		-		-		-	0.000	4.892	-
Systems Interfaces	C/FFPLOE	FMS, DMDC, GFEB, HRC : Various Locations	16.815	5.553	Jul 2020	1.762	Mar 2021	2.766	Jul 2022	-		2.766	Continuing	Continuing	Continuing
Follow-on Design, Development and Integration - Increment II	C/Various	To Be Determined : To Be Determined	-	-		-		44.835	Mar 2022	-		44.835	Continuing	Continuing	Continuing
Subtotal			580.402	93.149		103.113		71.645		-		71.645	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605018A / Integrated Personnel and Pay System-Army (IPPS-A)				ED9 / Integrated Personnel and Pay System - Army Inc 2							
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Facilities/Lease/Rents	MIPR	Facilities/Leases/Rents : Various	18.012	-		-		-		-		-	Continuing	Continuing	Continuing
Equipment and Supplies MISC	Various	Various : Various	5.279	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			23.291	-		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Increment II - Product Level Test (PLT) / Developer Integration Test (DIT)	MIPR	Government & Support Contractors : Various	16.905	0.108	Mar 2020	0.260	Oct 2020	-		-		-	Continuing	Continuing	Continuing
Increment II-Government Acceptance Testing (GAT): System Integration Test / System Acceptance Test	MIPR	Various Government Agencies : Various	15.969	-		0.190	Jun 2021	-		-		-	Continuing	Continuing	Continuing
Increment II-Operational Test - Limited User Test (LUT)	MIPR	Various Government Agencies : Various	-	0.250	Aug 2020	3.187	Aug 2021	2.460	Oct 2021	-		2.460	0.000	5.897	-
Subtotal			32.874	0.358		3.637		2.460		-		2.460	Continuing	Continuing	N/A
Project Cost Totals			676.180	97.873		111.078		76.936		-		76.936	Continuing	Continuing	N/A
Remarks															



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>	Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>		Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Increment II Capability Support Authority to Proceed (CS ATP)																									 CS ATP			
Increment II Additional Capabilities Integration																									 Additional Capabilities Int			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605018A / <i>Integrated Personnel and Pay System-Army (IPPS-A)</i>	Project (Number/Name) ED9 / <i>Integrated Personnel and Pay System - Army Inc 2</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B (MS B) - Increment II	1	2015	1	2015
Release 2.0 - SIDPERS Functionality (ARNG)	4	2015	3	2020
Release 2.0 - Configuration, Development, and Integration	3	2017	3	2018
Release 2.0 - T & E	4	2018	2	2019
Release 2.0 - Limited Deployment Authority To Proceed (ATP)	3	2019	3	2019
Release 3.0 - Accountability & Essential Personnel Services (Active & AR)	4	2017	1	2022
Release 3.0 - Integrated Baseline Review (IBR)	3	2018	3	2018
Release 3.0 - Preliminary Design Review (PDR)	4	2019	4	2019
Release 3.0 - Critical Design Review (CDR)	1	2020	1	2020
Release 3.0 - Configuration, Development, and Integration	1	2020	3	2021
Release 3.0 - T & E	4	2020	1	2022
Release 3.0 - Limited Deployment Authority To Proceed (ATP)	1	2022	1	2022
Additional Capabilities - Design, Development, Test, and Deployment	4	2022	3	2025
Release 4.0 - Pay Services (All Compos)	2	2022	3	2025
Release 4.0 - Preliminary Design Review (PDR)	1	2023	1	2023
Release 4.0 - Critical Design Review (CDR)	3	2023	3	2023
Release 4.0 - Configuration, Development, and Integration	3	2023	1	2025
Release 4.0 - T & E	3	2024	3	2025
Release 4.0 - Full Deployment Authority To Proceed (ATP)	3	2025	3	2025
Increment II Capability Support Authority to Proceed (CS ATP)	3	2026	3	2026
Increment II Additional Capabilities Integration	1	2026	4	2030

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605028A / <i>Armored Multi-Purpose Vehicle (AMPV)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	80.381	76.140	35.560	-	35.560	-	-	-	-	-	-
EB5: <i>Armored Multi-Purpose Vehicle</i>	-	80.381	76.140	35.560	-	35.560	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Armored Multi-Purpose Vehicle (AMPV) is the materiel solution for replacement of the Army's Armored Personnel Carrier (M113) Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT). It will mitigate current and future capability gaps in force protection, mobility, reliability, and interoperability across the Spectrum of Conflict. The AMPV will replace five mission roles currently performed by the M113 FoV by transferring the current M113 mission equipment packages to a new Military Vehicle Derivative platform. In total, the AMPV FoV will account for approximately 30% of the ABCT's tracked fleet and consists of the following five variants:

1. Mission Command Vehicle (MCcmd): This platform enables effective mission command planning and execution for both the Tactical Operations Center and Tactical Command Vehicle versions of the MCcmd. It will host current Battle Command Systems, future replacements, and upgrades of hardware and software.
2. Medical Treatment (MT) Vehicle: This platform will provide a protected surgical environment, with adequate lighting and accessible medical equipment. It will provide a capability for immediate medical care for one patient by a medical crew of four.
3. Medical Evacuation (ME) Vehicle: This platform will conduct ambulance type activities and provide casualty evacuation for up to four litters or six ambulatory patients, with a crew of three medical attendants.
4. General Purpose (GP) Vehicle: This platform will operate throughout the battle space by conducting re-supply, maintenance, casualty evacuation, and other tasks within the formation.
5. Mortar Carrier (MC) Vehicle: This platform will provide immediate responsive fire support to conduct fast-paced offensive operations.

The AMPV program was initiated as an Acquisition Category (ACAT) ID program at Milestone B (MS B). The Defense Acquisition Executive signed the Acquisition Decision Memorandum (ADM) on 22 December 2014, authorizing entry into the Engineering and Development phase and approving contract award to BAE Systems Land & Armaments, L.P. The vehicle was developed to the Capability Development Document, which was approved 21 June 2013 and revised 24 October 2016. The DAE issued an ADM 26 September 2017 that approved revising the acquisition documentation tailoring plan, revising Milestone C entrance criteria, and increasing the Low Rate Initial Production (LRIP) quantity to 551 vehicles (to recognize the Army's desire for early fielding of AMPVs for the European Deterrence Initiative). AMPV was re-designated as an ACAT IC program on 1 November 2017, with the Army Acquisition Executive (AAE) and as the Milestone Decision Authority. The Army convened an Army Systems Acquisition Review Council (ASARC) for Milestone C on December 20, 2018, and the AAE signed the ADM on January 25, 2019. As a result of vehicle delivery delays, the AAE approved a revised Acquisition Program Baseline to adjust the program schedule on January 7, 2021.

The Fiscal Year (FY) 2022 planned program primarily consists of continued efforts associated with Production Qualification Testing (PQT), Initial Operational Test & Evaluation (IOT&E), Live Fire Test and Evaluation (LFT&E) and corrective action implementation resulting from test results. Prime contractor support will be required for testing and engineering to ensure adequate system support packages will be available during the tests. Government test locations will be used for the tests and

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605028A / <i>Armored Multi-Purpose Vehicle (AMPV)</i>
--	---

government personnel will be responsible for the overall management of the efforts. This program supports the Next Generation Combat Vehicle (NGCV) Cross Functional Team (CFT).

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	83.830	96.594	0.000	-	0.000
Current President's Budget	80.381	76.140	35.560	-	35.560
Total Adjustments	-3.449	-20.454	35.560	-	35.560
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-16.928			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.449	-3.526			
• Adjustments to Budget Years	-	-	35.560	-	35.560

Change Summary Explanation

Delayed vehicle delivery in FY21 resulted in a delay to start of test. All LRIP testing to support the Full Rate Production decision ends in FY22.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605028A / <i>Armored Multi-Purpose Vehicle (AMPV)</i>				Project (Number/Name) EB5 / <i>Armored Multi-Purpose Vehicle</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EB5: <i>Armored Multi-Purpose Vehicle</i>	-	80.381	76.140	35.560	-	35.560	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Armored Multi-Purpose Vehicle (AMPV) is the materiel solution for replacement of the Army's Armored Personnel Carrier (M113) Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT). It will mitigate current and future capability gaps in force protection, mobility, reliability, and interoperability across the Spectrum of Conflict. The AMPV will replace five mission roles currently performed by the M113 FoV by transferring the current M113 mission equipment packages to a new Military Vehicle Derivative platform. In total, the AMPV FoV will account for approximately 30% of the ABCT's tracked fleet and consists of the following five variants:

1. Mission Command Vehicle (MCcmd): This platform enables effective mission command planning and execution for both the Tactical Operations Center and Tactical Command Vehicle versions of the MCcmd. It will host current Battle Command Systems, future replacements, and upgrades of hardware and software.
2. Medical Treatment (MT) Vehicle: This platform will provide a protected surgical environment, with adequate lighting and accessible medical equipment. It will provide a capability for immediate medical care for one patient by a medical crew of four.
3. Medical Evacuation (ME) Vehicle: This platform will conduct ambulance type activities and provide casualty evacuation for up to four litters or six ambulatory patients, with a crew of three medical attendants.
4. General Purpose (GP) Vehicle: This platform will operate throughout the battle space by conducting re-supply, maintenance, casualty evacuation, and other tasks within the formation.
5. Mortar Carrier (MC) Vehicle: This platform will provide immediate responsive fire support to conduct fast-paced offensive operations.

The AMPV program was initiated as an Acquisition Category (ACAT) ID program at Milestone B (MS B). The Defense Acquisition Executive signed the Acquisition Decision Memorandum (ADM) on 22 December 2014, authorizing entry into the Engineering and Development phase and approving contract award to BAE Systems Land & Armaments, L.P. The vehicle was developed to the Capability Development Document, which was approved 21 June 2013 and revised 24 October 2016. The DAE issued an ADM 26 September 2017 that approved revising the acquisition documentation tailoring plan, revising Milestone C entrance criteria, and increasing the Low Rate Initial Production (LRIP) quantity to 551 vehicles (to recognize the Army's desire for early fielding of AMPVs for the European Deterrence Initiative). AMPV was re-designated as an ACAT IC program on 1 November 2017, with the Army Acquisition Executive (AAE) and as the Milestone Decision Authority. The Army convened an Army Systems Acquisition Review Council (ASARC) for Milestone C on December 20, 2018, and the AAE signed the ADM on January 25, 2019. As a result of vehicle delivery delays, the AAE approved a revised Acquisition Program Baseline to adjust the program schedule on January 7, 2021.

The Fiscal Year (FY) 2022 planned program primarily consists of finalizing efforts associated with Production Qualification Testing (PQT), Initial Operational Test & Evaluation (IOT&E), Live Fire Test and Evaluation (LFT&E) and corrective action implementation resulting from test results. Prime contractor support will be required for testing and engineering to ensure adequate system support packages will be available during the tests. Government test locations will be used for the tests and

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / <i>Armored Multi-Purpose Vehicle (AMPV)</i>	Project (Number/Name) EB5 / <i>Armored Multi-Purpose Vehicle</i>
--	---	--

government personnel will be responsible for the overall management of the efforts. This program supports the Next Generation Combat Vehicle (NGCV) Cross Functional Team (CFT).

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

	FY 2020	FY 2021	FY 2022
<p>Title: Armored Multi-Purpose Vehicle (AMPV) Product Development</p> <p>Description: AMPV Product Development costs include all efforts provided under the AMPV Engineering and Manufacturing Development (EMD) prime contract along with Government Furnished Material (GFM). Significant examples of prime contract effort include: development engineering, system engineering/program management, prototype hardware procurement, prototype system level fabrication and integration, software development, support to the government test program, and oversight of subcontractors/suppliers. Also included are all efforts performed by subcontractors / suppliers who are under contract to the AMPV EMD prime contractor. This element also includes the recurring manufacturing cost to procure the vehicles that will support Full-Up System Level (FUSL) live fire testing.</p> <p>FY 2021 Plans: Prime contractor activities in FY2021 consist of efforts that support PQT, LFT&E, IOT&E planning and preparation, and potential design efforts to address changes stemming from said tests and/or to satisfy other emerging Army requirements. They also include contractor program management efforts necessary to oversee contractor personnel efforts. The contractor is de-processing vehicles as they arrive at the test sites, providing field service representatives, inspecting and repairing vehicles in support of testing, developing and providing training to test personnel, developing and providing training to Soldiers for IOT&E, providing test/engineering support and subject matter experts to support troubleshooting any issues that arise during test, and maintaining/replenishing parts in the System Support Packages at multiple USG test locations. The contractor will also analyze test results, as required, and incorporate any necessary design changes into LRIP vehicles along with updating the Technical Data Package. In addition to the described test and engineering activities, the contractor will continue work related to Logistics/Product Support to ensure the AMPV can be organically maintained. The contractor is further responsible for maintaining the Product Support Package (PSP) which contains the integrated product support elements and any sustainment process contracts or agreements used to attain and sustain the maintenance and support concepts needed for materiel readiness. Will continue to evaluate, verify and validate additional AMPV capabilities required to counter evolving threats in multi-domain operations including, but not limited to, the AMPV key performance parameters and system attributes, Army's integrated tactical network, vehicle prognostics/predictive maintenance, producibility and cybersecurity/software.</p> <p>FY 2022 Plans: Prime contractor activities in FY2022 consist of ongoing efforts that support PQT, LFT&E, IOT&E and design efforts to address changes stemming from said tests and/or to satisfy other emerging Army requirements. As required, the contractor will continue to analyze the results of the testing program and incorporate any necessary design changes into LRIP vehicles. Based on all engineering design work, the contractor will also update and deliver a Technical Data Package (TDP) as well as continue work related to Logistics/Product Support to ensure the AMPV can be organically maintained. Will continue to evaluate, verify and</p>	53.734	41.589	18.950

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / Armored Multi-Purpose Vehicle (AMPV)	Project (Number/Name) EB5 / Armored Multi-Purpose Vehicle		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>validate additional AMPV capabilities required to counter evolving threats in multi-domain operations including, but not limited to, the AMPV key performance parameters and system attributes, Army's integrated tactical network, vehicle prognostics/predictive maintenance, producibility and cybersecurity/software.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease is due to completion of LRIP testing and design fixes as the program transitions toward the Full-Rate Production decision.</p>				
<p>Title: AMPV Government Program Management Costs</p> <p>Description: AMPV Government Program Management costs include efforts to provide Government oversight of the AMPV program. This includes Systems Engineering and Program Management. Government and support Contractor salaries are included, as well as travel and other support costs that are required to effectively manage the program. Costs in this category do not include Government Furnished Material or efforts that are specific and unique to end item testing that is performed at Government test locations.</p> <p>FY 2021 Plans: Provide integrated program management for all development activities, to include providing oversight to BAE. The primary area of emphasis for the RDT&E funded Government Project Management team in FY2021 is to provide oversight to those LRIP activities that are traceable to PQT, LFT&E, and IOT&E planning and preparation. All other Government Program Management efforts in support of LRIP is covered by Procurement funding. As required, the AMPV Government Project Management team is supporting Army assessment and experimentation efforts relating to emerging Army requirements impacting the AMPV design.</p> <p>FY 2022 Plans: Provide continued integrated program management for all development activities, to include providing oversight to BAE. The primary area of emphasis for the RDT&E funded Government Project Management team in FY2022 is to provide oversight to those LRIP activities that are traceable to PQT, LFT&E, and IOT&E. All other Government Program Management efforts in support of LRIP will be covered by Procurement funding. As required, the AMPV Government Project Management team will support Army assessment and experimentation efforts relating to emerging Army requirements impacting the AMPV design.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Slight increase in cost for equivalent level of effort in FY 2021.</p>		2.927	2.408	2.736
<p>Title: Government Test Costs</p> <p>Description: Government Test costs are for efforts required to perform and validate system-related tests. This element includes costs of the detailed planning, conduct, support, data reduction, and reports from such testing. Also included are costs necessary</p>		23.720	32.143	13.874

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / <i>Armored Multi-Purpose Vehicle (AMPV)</i>	Project (Number/Name) EB5 / <i>Armored Multi-Purpose Vehicle</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>to acquire data during the conduct of the Government tests. The actual test articles (i.e., functionally configured systems) are excluded from this element. Also excluded are prime contractor costs incurred in support of the Government system level test.</p> <p>FY 2021 Plans: Government Test costs in FY2021 reflect various testing activities to include test data evaluation, PQT efforts, LFT&E efforts and IOT&E planning and preparation efforts. Government costs include all costs incurred at the test sites and costs associated with Government personnel that will be collecting/analyzing test data, as well as personnel associated with providing oversight of the activities. PQT began 1QFY2021 and is planned to conclude in FY2022. PQT includes 28 vehicles, with six of those vehicles supporting RAM and 22 supporting performance testing. Tests will be performed at multiple USG test locations around the country and the world. The PQT objectives include verifying that the production-representative systems meet performance requirements, generating data to support the system evaluation in support of the FRP decision, and determining system readiness to enter IOT. LFT&E will begin in 2QFY2021 and also end in FY2022. LFT&E includes seven vehicles and will be conducted at Aberdeen Test Center. LFT&E will yield information to complement earlier vulnerability tests and modeling and analysis efforts. It will also be used to fill data voids from prior testing and will validate ballistic and blast performance at the system level to completely evaluate vehicle, crew, and occupant survivability. IOT&E will officially begin in FY2022, but will require planning and preparation activities in FY2021. IOT&E will use up to 30 AMPVs, with up to an additional six AMPVs located at the test location to serve as back-up vehicles. The IOT&E events will be conducted under realistic operational conditions using Army units executing decisive action operations. The test events are designed to produce data to satisfy the evaluation requirements in order to assess the operational effectiveness and suitability of the system under test.</p> <p>FY 2022 Plans: Government Test costs in FY2022 reflect ongoing LRIP testing activities, test data evaluation, and final reporting for PQT, LFT&E, and IOT&E. PQT began 1QFY2021 and is planned to conclude in FY2022. LFT&E is scheduled to begin 2QFY2021 and end in FY2022. IOT&E is scheduled to start during the first half of FY2022 and will be conducted under realistic operational conditions using Army units executing decisive action operations IAW U.S. Army doctrine against a representative OPFOR. The test events are designed to produce data to satisfy evaluation requirements in order to assess the operational effectiveness and suitability of the system undergoing test. The location of the IOT will be determined by the Army TSARC based on availability of units and maneuver area (at this time the location is assumed to be Fort Stewart, GA). PdM AMPV will support contractor Instructor and Key Personnel Training (I&KPT), OPNET, and FLMNET. PdM AMPV will also provide a New Material Introductory Briefing (NMIB) to the IOT unit prior to OPNET, and finalize with the unit the target audience for New Equipment Training. PdM AMPV will further plan and coordinate any follow-on developmental and/or operational testing required due to configuration changes during production, or verification that any post-production deficiencies in materiel, training, or concepts have been satisfactorily corrected.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / <i>Armored Multi-Purpose Vehicle (AMPV)</i>	Project (Number/Name) EB5 / <i>Armored Multi-Purpose Vehicle</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Decrease from FY 2021 to FY 2022 is due to the decreased volume of LRIP testing planned for FY 2022 versus FY 2021.			
Accomplishments/Planned Programs Subtotals	80.381	76.140	35.560

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• G80819: <i>Armored Multi Purpose Vehicle (AMPV)</i>	444.797	63.000	104.727	-	104.727	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The AMPV program was initiated at Milestone B (MS B). The 22 December 2014 MS B Acquisition Decision Memorandum (ADM) approved contract award for the Engineering and Manufacturing Development phase plus three Low Rate Initial Production (LRIP) options to BAE Systems Land & Armaments, L.P. on a competitive basis. The Army Acquisition Executive (AAE) approved the Milestone C ADM on January 25, 2019, authorizing Low Rate Initial Production. All three LRIP options have since been exercised. As a result of vehicle delivery delays, the AAE approved a revised Acquisition Program Baseline to adjust the program schedule on January 7, 2021.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / Armored Multi-Purpose Vehicle (AMPV)	Project (Number/Name) EB5 / Armored Multi-Purpose Vehicle
--	--	---

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Development Engineering	C/CPIF	BAE : Sterling Heights, MI	218.632	23.213	Dec 2019	3.277	Dec 2020	3.378	Dec 2021	-		3.378	0.000	248.500	-
Prototype Material Contractor	C/CPIF	BAE : Sterling Heights, MI	119.298	-		-		-		-		-	0.000	119.298	-
Prototype Material Government Furnished	Various	Various : .	27.673	-		-		-		-		-	0.000	27.673	-
Contractor System Engineering, Data, Test and Program Management	C/CPIF	BAE : Sterling Heights, MI	134.136	23.968	Dec 2019	17.427	Dec 2020	7.551	Dec 2021	-		7.551	0.000	183.082	-
Procurement of Live Fire Test Assets	Option/ FPIF	BAE : York, PA	50.108	0.542		-		-		-		-	0.000	50.650	-
Contractor Support to Qualification, Live Fire, & Operational Testing	C/CPIF	BAE : Sterling Heights, MI	43.197	6.011	Dec 2019	20.885	Dec 2020	8.021	Dec 2021	-		8.021	0.000	78.114	-
Subtotal			593.044	53.734		41.589		18.950		-		18.950	0.000	707.317	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	MIPR	PMO : Warren, MI	115.044	2.927	Dec 2019	2.408	Dec 2020	2.736	Dec 2021	-		2.736	0.000	123.115	-
FY 2018 NDAA SEC 825 MDAP Cost Overrun	Allot	OASA(FM&C) : Washington, D.C.	0.170	-		-		-		-		-	0.000	0.170	-
Subtotal			115.214	2.927		2.408		2.736		-		2.736	0.000	123.285	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government System Testing	MIPR	Various : .	89.732	23.720	Dec 2019	32.143	Dec 2020	13.874	Dec 2021	-		13.874	0.000	159.469	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / Armored Multi-Purpose Vehicle (AMPV)	Project (Number/Name) EB5 / Armored Multi-Purpose Vehicle
--	--	---

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			89.732	23.720		32.143		13.874		-		13.874	0.000	159.469	N/A

Remarks
 Testing locations are as follows. Aberdeen Test Center (ATC) = Maryland, Yuma Test Center (YTC) = Arizona, White Sands Missile Range (WSMR) = New Mexico, Electronic Proving Ground (EPG) = Arizona, Cold Regions Test Center (CRTC) = Alaska, Tropic Regions Test Center (TRTC) = Suriname, South America, Dugway Proving Grounds (DPG) = Utah

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	797.990	80.381	76.140	35.560	-	35.560	0.000	990.071	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / Armored Multi-Purpose Vehicle (AMPV)	Project (Number/Name) EB5 / Armored Multi-Purpose Vehicle	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EMD Contract	[Redacted]				[Redacted]				[Redacted]																			
Production Qualification Testing	[Redacted]				[Redacted]				[Redacted]																			
Live Fire Test	[Redacted]				[Redacted]				[Redacted]																			
Initial Operational Test & Evaluation	[Redacted]				[Redacted]				[Redacted]																			
Full Rate Production Decision	[Redacted]				[Redacted]				[Redacted]																			
First Unit Equipped	[Redacted]				[Redacted]				[Redacted]																			
Initial Operational Capability	[Redacted]				[Redacted]				[Redacted]																			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605028A / Armored Multi-Purpose Vehicle (AMPV)	Project (Number/Name) EB5 / Armored Multi-Purpose Vehicle

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B Decision	1	2015	1	2015
EMD Contract	1	2015	4	2022
Preliminary Design Review	3	2015	3	2015
Critical Design Review	3	2016	3	2016
Production Prove Out Test	4	2017	4	2018
Limited User Test	4	2018	1	2019
Milestone C	2	2019	2	2019
Low Rate Initial Production 1	2	2019	2	2019
Production Qualification Testing	1	2021	3	2022
Live Fire Test	2	2021	2	2022
Initial Operational Test & Evaluation	2	2022	3	2022
Full Rate Production Decision	1	2023	1	2023
First Unit Equipped	2	2023	2	2023
Initial Operational Capability	2	2023	2	2023

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605029A / Integrated Ground Security Surveillance Response Capability (IGSSR-C)
---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	6.423	-	-	-	-	-	-	-	-	-	-
EQ2: <i>IntegGrdSecSurvRespC(IGSSR-C)</i>	-	6.423	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Integrated Ground Security, Surveillance and Response Capability (IGSSR-C) is an Automated Information System (AIS) program. IGSSR-C has a requirement to provide a layered approach to integrate sensors, sensor systems and unmanned systems with automated fusion capabilities. The system will provide a Force Protection (FP) Common Operational Picture (COP) capability for CONUS fixed, OCONUS semi-fixed or expeditionary elements in all Operating Environments (OE).

This capability will enable rapid decision analysis, speed the response process as well as increase information dissemination horizontally and vertically along the chain of command and with outside supporting organizations. IGSSR-C is a software centric fusion engine that connects legacy and emerging FP systems, legacy Chemical, Biological, Radiological, and Nuclear (CBRN), unmanned systems, biometric identification and forensic data systems. The desired end state is to achieve interoperability and COP with current and emerging FP systems used by Joint Forces, Department of Defense (DoD) agencies and multi-national forces.

FY 2020 is the last year of funding for this program.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	6.699	0.000	0.000	-	0.000
Current President's Budget	6.423	0.000	0.000	-	0.000
Total Adjustments	-0.276	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.276	-			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605029A / <i>Integrated Ground Security Surveillance Response Capability (IGSSR-C)</i>				Project (Number/Name) EQ2 / <i>IntegGrdSecSurvRespC(IGSSR-C)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EQ2: <i>IntegGrdSecSurvRespC(IGSSR-C)</i>	-	6.423	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Integrated Ground Security, Surveillance and Response Capability (IGSSR-C) is an Automated Information System (AIS) program. IGSSR-C has a requirement to provide a layered approach to integrate sensors, sensor systems and unmanned systems with automated fusion capabilities. The system will provide a Force Protection (FP) Common Operational Picture (COP) capability for CONUS fixed, OCONUS semi-fixed or expeditionary elements in all Operating Environments (OE).

This capability will enable rapid decision analysis, speed the response process as well as increase information dissemination horizontally and vertically along the chain of command including outside supporting organizations. IGSSR-C is a software centric system providing video analytics and common control of force protection systems that will reduce the workload on the system operator. The system will be capable. of ingesting full motion video as well as sensor data from legacy and emerging FP systems, Chemical, Biological, Radiological, and Nuclear (CBRN), unmanned systems, biometric identification and forensic data systems. The desired end state is to achieve interoperability and a COP with current and emerging FP systems used by Joint Forces, Department of Defense (DoD) agencies and multi-national forces.

FY 2020 is the last year of RDTE funding and will transition to Procurement funding (M90106).

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

	FY 2020	FY 2021	FY 2022
Title: IGSSR-C Design and Development	6.423	-	-
Description: Completes Critical Design Review (CDR), procures Fixed Control Station(FCS) hardware to conduct cyber security testing, Developmental Testing (DT), Maintenance Assessment, Operational Assessment (OA) and accomplishes MS C.			
Accomplishments/Planned Programs Subtotals	6.423	-	-

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• M90106: <i>IntegGrdSecSurvRespC (IGSSR-C)</i>	-	7.287	7.412	-	7.412	-	-	-	-	-	-

Remarks

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605029A / <i>Integrated Ground Security Surveillance Response Capability (IGSSR-C)</i>	Project (Number/Name) EQ2 / <i>IntegGrdSecSurvRespC(IGSSR-C)</i>

D. Acquisition Strategy

IGSSR-C provides a layered approach to integrate sensors, sensor systems and unmanned systems. The IGSSR-C Capability Design Document (CDD) was approved September 2013. IGSSR-C is made up of a suite of software that achieves integration, fusion and interoperability in support of the Army Acquisition Executive's Common Operating Environment (COE) Sensor CE efforts.

The IGSSR-C program received an approved Materiel Development Decision (MDD) from the Milestone Decision Authority (MDA) on 4 December 2015, and achieved a Milestone B decision on 29 Sep 2017.

The acquisition strategy for IGSSR-C was approved on 5 December 2016 by the MDA, which approved plans to leverage a contract through the Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, Virginia to develop, integrate and test the software solution to meet the IGSSR-C requirements.

Milestone C is planned for 2nd quarter of FY 2021

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605029A / <i>Integrated Ground Security Surveillance Response Capability (IGSSR-C)</i>	Project (Number/Name) EQ2 / <i>IntegGrdSecSurvRespC(IGSSR-C)</i>
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IGSSR-C Project Management	MIPR	PM FPS : Fort Belvoir, VA	1.620	0.825	May 2020	-		-		-		-	0.000	2.445	-
Subtotal			1.620	0.825		-		-		-		-	0.000	2.445	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IGSSR-C Development / Design	C/CPFF	NVESD/MTEQ : Ft. Belvoir	5.268	3.334		-		-		-		-	0.000	8.602	-
IGSSR-C Hardware / Software	C/CPFF	NVESD/MTEQ : Ft. Belvoir	1.865	0.299	May 2020	-		-		-		-	0.000	2.164	-
IGSSR-C Independent Software Assessment	MIPR	Carnegie Mellon University Software Engineering Institute : Pittsburgh, PA	0.818	-		-		-		-		-	0.000	0.818	-
Subtotal			7.951	3.633		-		-		-		-	0.000	11.584	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IGSSR-C Design Support	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.854	0.249		-		-		-		-	0.000	1.103	-
IGSSR-C Cyber / RAM Support	TBD	MITRE : Fort Belvoir	0.175	0.088		-		-		-		-	0.000	0.263	-
Subtotal			1.029	0.337		-		-		-		-	0.000	1.366	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021		
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0605029A / Integrated Ground Security Surveillance Response Capability (IGSSR-C)						Project (Number/Name) EQ2 / IntegGrdSecSurvRespC(IGSSR-C)		

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IGSSR-C Test and Evaluation	MIPR	A TEC : Aberdeen Proving Ground, MD	1.100	1.404	Sep 2020	-		-		-		-	0.000	2.504	-
IGSSR-C Modeling and Simulation	MIPR	Night Vision and Electronic Sensors Directorate : Ft. Belvoir, VA	0.282	0.066	Mar 2020	-		-		-		-	0.000	0.348	-
IGSSR-C Software Support Planning and Documentation	MIPR	CECOM SEC : Aberdeen, MD	0.152	0.158	Mar 2020	-		-		-		-	0.000	0.310	-
Subtotal			1.534	1.628		-		-		-		-	0.000	3.162	N/A
Project Cost Totals			12.134	6.423		0.000		-		-		-	0.000	18.557	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605029A / <i>Integrated Ground Security Surveillance Response Capability (IGSSR-C)</i>	Project (Number/Name) EQ2 / <i>IntegGrdSecSurvRespC(IGSSR-C)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
IGSSR-C EMD Phase																												
	EMD																											
IGSSR-C DT																												
					DT																							
IGSSR-C Operational Assessment (OA)																												
					OA																							
IGSSR-C Milestone C									<div style="display: inline-block; border: 1px solid black; width: 10px; height: 10px; background-color: #0000FF; margin-bottom: 2px;"></div> 1 MS C																			
IGSSR-C Authority to Operate																												
									ATO																			
IGSSR-C Full Deployment Decision													<div style="display: inline-block; border: 1px solid black; width: 10px; height: 10px; background-color: #0000FF; margin-bottom: 2px;"></div> 2 FDD															
													FDD															
IGSSR-C Full Deployment																												
													Full Deployment															

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605029A / <i>Integrated Ground Security Surveillance Response Capability (IGSSR-C)</i>	Project (Number/Name) EQ2 / <i>IntegGrdSecSurvRespC(IGSSR-C)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IGSSR-C Material Development Decision	1	2016	1	2016
IGSSR-C Risk Reduction	4	2015	4	2017
IGSSR-C Milestone B	4	2017	4	2017
IGSSR-C EMD Phase	4	2017	2	2021
IGSSR-C DT	4	2020	1	2021
IGSSR-C Operational Assessment (OA)	1	2021	1	2021
IGSSR-C Milestone C	3	2021	3	2021
IGSSR-C Authority to Operate	2	2022	3	2022
IGSSR-C Full Deployment Decision	4	2022	4	2022
IGSSR-C Full Deployment	4	2022	3	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	15.228	15.671	16.364	-	16.364	-	-	-	-	-	-
EA8: <i>Joint Tactical Networking Center</i>	-	15.228	15.671	16.364	-	16.364	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This funding line supports the Army Network Modernization Strategy line of effort (LOE) 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

The Joint Tactical Networking Center (JTNC) is chartered to enable the Department of Defense (DoD)'s rapid identification, characterization, procurement, fielding, and sustainment of modular, innovative tactical communications products that ensure secure, interoperable, and resilient Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities. The JTNC provides technical expertise to facilitate tactical communications management, innovation, and standardization. The JTNC: (1) maintains a cyber-hardened DoD Information Repository (IR), (2) provides Technical Analyses/Capability Characterizations on tactical communications products, (3) provides Open Systems Architecture Standards, (4) exportability analysis and licensing reviews, and (5) serves as Technical Advisor to the Communications, Command, and Control Leadership Board (C3LB) and Tactical Communications Senior Steering Group (TCSSG).

JTNC mission is executed in coordination with key government stakeholders to include: C3LB, TCSSG, Communications Technologies and Waveforms Working Group (CTWWG), the Department of Defense (DoD) Chief Information Officer (CIO), Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), Joint Staff J6 (JS J6), The Under Secretary of Defense for Research and Engineering, abbreviated USD(R&E), and the Services. Particular attention is paid to ensuring that interagency work is collaborative and eliminates duplicative capability. The JTNC enables a common software baseline that is hardware agnostic leading to increased competition for Software Defined Radios (SDR).

Through collaboration with DoD matrixed and industry partners, the JTNC is engaged in the analysis of directed software and artifacts, and support of the National Security Agency (NSA) Commercial Communications Security (COMSEC) Evaluation Program (CCEP). Additionally, the JTNC participates in Standards-related activities such as the Interface Control Working Group (ICWG), and continues evolving its Capabilities Characterization and Joint Communications Marketplace (CC & JCM) and Modular Radio Architecture (MRA) processes. Further JTNC directed requirements outlined by the C3LB consist of CTWWG, Joint All-Domain Command and Control (JADC2), continued development/maturation of the DoD IR framework and eventual Cloud migration, and JCM Development to meet DoD/Industry requirements in conjunction with DoD Instruction 4630.09.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>
--	---

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	15.882	16.264	5.830	-	5.830
Current President's Budget	15.228	15.671	16.364	-	16.364
Total Adjustments	-0.654	-0.593	10.534	-	10.534
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.654	-0.593			
• Adjustments to Budget Years	-	-	10.534	-	10.534

Change Summary Explanation

FY22 increase represents the funding from the consolidation of this program from Navy (PE 0605030N) and Air Force, (PE 0605030F) into Army (0605030A) via Resource Management Decision (RMD).

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>				Project (Number/Name) EA8 / <i>Joint Tactical Networking Center</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EA8: <i>Joint Tactical Networking Center</i>	-	15.228	15.671	16.364	-	16.364	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Joint Tactical Networking Center (JTNC) is funded using a Joint budget strategy. Each Military Department (MILDEP) budgets for approximately one-third of the total program RDT&E requirements for joint efforts. Fiscal Year (FY) 2020 to FY 2022 funding reflects the full JTNC requirement with the consolidated funding from the other Services. FY 2023 and beyond reflects the Army one-third portion of total program Research Development Test & Evaluation (RDT&E) funds. Out-year funding is programmed in PE 0605030A by the Army, PE 0605030N by the Navy and PE 0605030F by the Air Force. Prior to submission of the President's Budget, the funding is consolidated in Army PE 0605031A for execution per OSD direction.

A. Mission Description and Budget Item Justification

This funding line supports the Army Network Modernization Strategy line of effort (LOE) 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

The Joint Tactical Networking Center (JTNC) is chartered to enable the Department of Defense (DoD)'s rapid identification, characterization, procurement, fielding, and sustainment of modular, innovative tactical communications products that ensure secure, interoperable, and resilient Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities. The JTNC provides technical expertise to facilitate tactical communications management, innovation, and standardization. The JTNC: (1) maintains a cyber-hardened DoD Information Repository (IR), (2) provides Technical Analyses/Capability Characterizations on tactical communications products, (3) provides Open Systems Architecture Standards, (4) exportability analysis and licensing reviews, and (5) serves as Technical Advisor to the Communications, Command, and Control Leadership Board (C3LB) and Tactical Communications Senior Steering Group (TCSSG).

JTNC mission is executed in coordination with key government stakeholders to include: C3LB, TCSSG, Communications Technologies and Waveforms Working Group (CTWWG), the Department of Defense (DoD) Chief Information Officer (CIO), Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), Joint Staff J6 (JS J6), The Under Secretary of Defense for Research and Engineering, abbreviated USD(R&E), and the Services. Particular attention is paid to ensuring that interagency work is collaborative and eliminates duplicative capability. The JTNC enables a common software baseline that is hardware agnostic leading to increased competition for Software Defined Radios (SDR).

Through collaboration with DoD matrixed and industry partners, the JTNC is engaged in the analysis of directed software and artifacts, and support of the National Security Agency (NSA) Commercial Communications Security (COMSEC) Evaluation Program (CCEP). Additionally, the JTNC participates in Standards-related activities such as the Interface Control Working Group (ICWG), and continues evolving its Capabilities Characterization and Joint Communications Marketplace (CC & JCM) and Modular Radio Architecture (MRA) processes. Further JTNC directed requirements outlined by the C3LB consist of CTWWG, Joint All-Domain Command and

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>	Project (Number/Name) EA8 / <i>Joint Tactical Networking Center</i>
--	---	---

Control (JADC2), continued development/maturation of the DoD IR framework and eventual Cloud migration, JCM Development to meet DoD and Industry requirements in conjunction with DoD Instruction 4630.09.

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

	FY 2020	FY 2021	FY 2022
<p>Title: DoD Waveform IR Support, Waveform Standards Evolution and Compliance & Certification Analysis</p> <p>Description: Joint Tactical Networking Center (JTNC) aligns with the Communications, Command, and Control Leadership Board (C3LB), DoD Chief Information Officer (CIO), Joint Staff, the Services, and other key stakeholders for those JTNC chartered processes that ensure secure, interoperable, and resilient tactical communications. The JTNC: (1) maintains a cyber-hardened DoD Information Repository (IR), (2) provides Technical Analyses/Capability Characterizations on tactical communications products, (3) provides Open Systems Architecture Standards, (4) exportability analysis and licensing reviews, and (5) serves as Technical Advisor to the JTNC Board of Directors (BoD). The Joint Tactical Networking Center supports the Army's Network Modernization Strategy Line of Effort 1A - Unified Network.</p> <p>FY 2021 Plans: Continue analysis of Communications, Command, and Control Leadership Board approved waveforms in accordance with Service priorities and the FY 2021 JTNC Management Plan. Continue collecting relevant software, technical documentation, cataloging and inducting other DoD Communication Waveforms listed in the DoD Communication Waveform Inventory. Continue to enhance DoD IR capability and approved Standards promulgation.</p> <p>JTNC will serve as a technical advisor and source of engineering and analytic resources for the Lead Services in the conduct of Joint enterprise-level systems engineering and analysis and support DoD CIO in oversight of Lead Service activities with engineering expertise and assist in the identification and resolution of cross-service networking disconnects or issues. The JTNC will lead development and promulgation of the Modular Radio Architecture (MRA), a framework containing a collection of DoD standards and a description or architecture of how to use them to compose or control a communications system. The MRA defines how to implement a communications system or radio on select platforms.</p> <p>Continue the development of the tactical communications vendor product capability characterization process for commercial off-the-shelf (COTS) and non-developmental item (NDI) tactical communication products. Continue to evolve DoD Waveform Standards to facilitate common development, interoperability and re-use, reducing product development time and facilitating faster delivery of capabilities to warfighters. Continue to conduct technical waveform and software artifact analyses against published standards. Continue to support export requests and analyses of products for exportability. Continue to certify secure, reusable software waveforms based on Government controlled open architecture to encourage a competitive, cost effective, interoperable networking environment.</p>	15.228	15.671	16.364

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>	Project (Number/Name) EA8 / <i>Joint Tactical Networking Center</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Conduct technical waveform and software artifact analyses against published standards. Support export requests and analyses of products for exportability. Certify secure, reusable software waveforms based on Government controlled open architecture to encourage a competitive, cost effective, interoperable networking environment.</p> <p>FY 2022 Plans: Continue analysis of C3LB approved waveforms in accordance with Service priorities and the FY 2022 JTNC Management Plan. The JTNC will continue to support both the Services and Principal Staff Assistant (DoD CIO) in oversight of Lead Service activities and assist in the identification and resolution of cross-service networking disconnects. JTNC will be engaged in Joint All Domain Command and Control (JADC2) Operational Planning Teams/systems engineering support across the Services. The JTNC will enhance DoD IR capabilities by evolving framework compliance and Cloud migration. Continue Joint Communications Marketplace (JCM) development to meet DoD and Industry requirements in conjunction with DoD Instruction 4630.09. Continue managing Joint warfighter challenges and solutions as assigned by the TCSSG.</p> <p>The JTNC will continue collecting relevant software, technical documentation, cataloging and inducting other DoD and industry Communication Waveforms listed in the DoD Communication Waveform Inventory. Continue to enhance DoD IR capability and approved standards promulgation.</p> <p>The JTNC will continue development of tactical communications vendor product capability characterizations for commercial off-the-shelf (COTS) and non-developmental item (NDI) tactical communication products. Continue to evolve DoD Waveform Standards to facilitate common development, interoperability and re-use, reducing product development time and facilitating faster delivery of capabilities to warfighters. Continue to support export requests and analyses of products for exportability. Continue development of MRA. Conduct technical waveform and software artifact analyses against published standards. Support export requests and analyses of products for exportability. Certify secure, reusable software waveforms based on Government controlled open architecture to encourage a competitive, cost effective, interoperable networking environment.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Delta between FY21 and FY22 is inflation adjustment to budget years.</p>			
Accomplishments/Planned Programs Subtotals	15.228	15.671	16.364

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

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>	Project (Number/Name) EA8 / <i>Joint Tactical Networking Center</i>

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

Remarks

The Joint Tactical Networking Center is funded by all the Services. The Joint Funding Strategy requires each of the three Service Military Departments (MILDEPs) to budget for one-third of the total program approved requirement. Army funding in FY 2023 and beyond reflects only approximately one-third of total funding. Other funding is as follows (PB21 locked positions):

Navy RDTE: 0605030N, 3077. FY 2022 = 0 // FY 2023 = 5,130 // FY 2024 = 5,251 // FY 2025 = 5,366 // FY 2026 = 5,473 // FY 2027 = 5,583
 Air Force RDTE: 0605030F, 655068. FY 2022 = 0 // FY 2023 = 5,969 // FY 2024 = 6,088 // FY 2025 = 6,210 // FY 2026 = 6,334 // FY 2027 = 6,461

Due to Joint Funding Strategy, there is no prior year funding for JTNC in the other Service lines. Prior to the year of execution, the JTNC funding is consolidated in Army PE 0605030A for execution. In accordance with the Joint Tactical Networking Center Charter updated and re-validated on 13 September 2019, the JTNC will remain under a Joint Budget Strategy funded by the three MILDEPs.

D. Acquisition Strategy

The Joint Tactical Networking Center (JTNC) is a Joint support program to the Services, the DoD Chief Information Officer (CIO), the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)), and USD Research and Engineering (USD(R&E)). JTNC core functions as defined in the JTNC Acquisition Decision Memorandum and Charter signed on 20 January 2014 and revalidated on 13 September 2019 include execution in the following areas: Information Repository, Technical Analysis, Open Systems Architecture Standards, Exportability Analysis and Licensing Review, and Technical Advisor to the C3LB. The services derived from these core functions reinforce an acquisition environment which ensures that interoperable, secure, and resilient joint tactical waveforms and wireless communications applications can operate in a variety of hardware transport solutions.

The FY22 Budget supports continued development/maturation of the DoD IR, analysis of directed software and artifacts, support of the National Security Agency (NSA) Commercial Communications Security (COMSEC) Evaluation Program (CCEP), JTNC Standards Interface Control Working Group (ICWG), the Capabilities Characterization and Joint Communications Marketplace (CC & JCM). The FY22 budget supports the Lead Service Initiative where JTNC will serve as a technical advisor and source of engineering and analytic resources in the conduct of Joint enterprise-level systems engineering and analysis and support DoD CIO. The FY22 budget supports the continued management of Joint warfighter challenges and solutions as assigned by the TCSSG. The FY22 budget supports Modular Radio Architecture (MRA) work, where JTNC will lead development and promulgation of a framework containing a collection of DoD standards and a description or architecture of how to use these to compose or control a communications system. The MRA defines how to implement a communications system or radio on select platforms.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605030A / Joint Tactical Network Center (JTNC)				EA8 / Joint Tactical Networking Center							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Multiple Contract Awards : Various	7.131	0.138	Oct 2019	0.183	Oct 2020	0.186	Oct 2021	-		0.186	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	G2 Software Systems : San Diego, CA	3.787	0.407	Nov 2019	0.484	Nov 2020	0.508	Nov 2021	-		0.508	Continuing	Continuing	Continuing
Program Management Support	MIPR	NIWC PACIFIC : San Diego, CA	0.364	0.354	Nov 2019	0.397	Dec 2020	0.406	Dec 2021	-		0.406	Continuing	Continuing	Continuing
Program Management Support	Allot	Aberdeen Proving Grounds : Aberdeen, MD	1.112	-		-		-		-		-	0.000	1.112	1.112
JTNC SBIR/STTR Transfer	TBD	Various : Various	-	0.654		-		-		-		-	0.000	0.654	0.721
Program Management Support	FFRDC	MITRE : McLean, VA	0.058	-		-		-		-		-	0.000	0.058	0.058
Subtotal			12.452	1.553		1.064		1.100		-		1.100	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JTNC Product Development Support	MIPR	NIWC PACIFIC : San Diego, CA	4.601	0.470	Oct 2019	0.512	Oct 2020	0.537	Oct 2021	-		0.537	Continuing	Continuing	Continuing
JTNC Product Development Support	C/CPFF	G2 Software Systems : San Diego, CA	11.206	2.715	Nov 2019	2.965	Nov 2020	3.052	Nov 2021	-		3.052	Continuing	Continuing	Continuing
JTNC Product Development Support	MIPR	NIWC ATLANTIC : Charleston, SC	0.204	2.948	Oct 2019	2.956	Oct 2020	3.072	Oct 2021	-		3.072	Continuing	Continuing	Continuing
JTNC Product Development Support	C/CPFF	NIWC ATLANTIC JCM : Atlanta, GA	-	-		-		0.456	Oct 2021	-		0.456	Continuing	Continuing	Continuing
JTNC Product Development Support	C/CPFF	Various : San Diego, CA	2.246	0.002	Nov 2019	0.049	Nov 2020	-		-		-	0.000	2.297	2.299

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605030A / Joint Tactical Network Center (JTNC)	Project (Number/Name) EA8 / Joint Tactical Networking Center
--	--	--

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JTNC Product Development	C/CPFF	Booz Allen Hamilton : San Diego, CA	1.184	-		-		-		-		-	0.000	1.184	1.184
JTNC Product Development - Other	Allot	Aberdeen Proving Grounds : Aberdeen, MD	0.382	-		-		-		-		-	0.000	0.382	0.382
Joint Tactical Networks (JTN) Legacy Development - MIPR	MIPR	Various : Various	19.868	-		-		-		-		-	0.000	19.868	19.868
Joint Tactical Networks (JTN) Legacy Development - Contracts	C/CPIF	Various : Various	24.890	-		-		-		-		-	0.000	24.890	24.890
Subtotal			64.581	6.135		6.482		7.117		-		7.117	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JTNC Engineering/ Technical Support	C/CPFF	G2 Software Systems : San Diego, CA	6.238	0.673	Nov 2019	0.771	Nov 2020	0.809	Nov 2021	-		0.809	Continuing	Continuing	Continuing
JTNC Engineering/ Technical Support	FFRDC	MITRE Corporation : McLean, VA	0.977	0.102	Oct 2019	0.146	Oct 2020	0.154	Oct 2021	-		0.154	Continuing	Continuing	Continuing
JTNC Engineering/ Technical Support	MIPR	Aberdeen Proving Grounds : Aberdeen, MD	2.783	0.719	Nov 2019	0.757	Nov 2020	0.795	Nov 2021	-		0.795	Continuing	Continuing	Continuing
JTNC Engineering/ Technical Support	MIPR	NIWC PACIFIC : San Diego, CA	2.545	0.847	Oct 2019	0.883	Oct 2020	0.926	Oct 2021	-		0.926	Continuing	Continuing	Continuing
JTNC Engineering/ Technical Support	MIPR	Various : San Diego, CA	1.662	-		-		-		-		-	0.000	1.662	1.662
JTNC Engineering/ Technical Support	C/CPFF	Booz Allen Hamilton : San Diego	14.965	-		-		-		-		-	0.000	14.965	14.965

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605030A / Joint Tactical Network Center (JTNC)				EA8 / Joint Tactical Networking Center							
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			29.170	2.341		2.557		2.684		-		2.684	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development/Test & Evaluation	MIPR	NIWC PACIFIC : San Diego, CA	7.431	1.877	Oct 2019	1.899	Oct 2020	1.982	Oct 2021	-		1.982	Continuing	Continuing	Continuing
Development/Test & Evaluation	C/CPFF	G2 Software Systems : San Diego, CA	9.610	2.794	Nov 2019	3.051	Nov 2020	3.131	Nov 2021	-		3.131	Continuing	Continuing	Continuing
Development/Test & Evaluation	C/CPFF	Multiple Awards : Various	1.511	0.309	Nov 2019	0.353	Nov 2020	0.350	Nov 2021	-		0.350	Continuing	Continuing	Continuing
Development/Test & Evaluation	C/CPFF	Booz Allen Hamilton - NSA : Ft. Meade, MD	0.280	0.219	Nov 2019	0.265	Nov 2020	-		-		-	0.000	0.764	0.774
Development/Test & Evaluation	MIPR	National Security Agency : Ft. Meade, MD	0.775	-		-		-		-		-	0.000	0.775	0.775
Development/Test & Evaluation	C/CPFF	G2 Software Systems 04 : San Diego, CA	5.078	-		-		-		-		-	0.000	5.078	5.078
Development/Test & Evaluation	MIPR	NIWC ATLANTIC : Charleston, SC	0.160	-		-		-		-		-	0.000	0.160	0.160
Development/Test & Evaluation	C/CPFF	Booz Allen Hamilton : San Diego, CA	1.242	-		-		-		-		-	0.000	1.242	1.242
Subtotal			26.087	5.199		5.568		5.463		-		5.463	Continuing	Continuing	N/A
Project Cost Totals			132.290	15.228		15.671		16.364		-		16.364	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army							Date: May 2021			
Appropriation/Budget Activity 2040 / 5			R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>			Project (Number/Name) EA8 / <i>Joint Tactical Networking Center</i>				
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605030A / Joint Tactical Network Center (JTNC)	Project (Number/Name) EA8 / Joint Tactical Networking Center

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Waveform and Wireless Product Compliance and Certification	[Redacted]																											
JTNC Waveform and Wireless Certification	[Redacted]																											
DoD Information Repository	[Redacted]																											
JTNC Information Repository	[Redacted]																											
Evolve Waveform Standards	[Redacted]																											
JTNC Standards	[Redacted]																											
Analyze Waveforms and Associated Artifacts	[Redacted]																											
JTNC Analyses	[Redacted]																											
Joint Communications Marketplace (JCM) and Capabilities Cha	[Redacted]																											
JTNC Innovation	[Redacted]																											
Support to TCSSG and CTWWG activities	[Redacted]																											
JTNC Joint Activities	[Redacted]																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605030A / <i>Joint Tactical Network Center (JTNC)</i>	Project (Number/Name) EA8 / <i>Joint Tactical Networking Center</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Waveform and Wireless Product Compliance and Certification	1	2020	4	2026
DoD Information Repository	1	2020	4	2026
Evolve Waveform Standards	1	2020	4	2026
Analyze Waveforms and Associated Artifacts	1	2020	4	2026
Joint Communications Marketplace (JCM) and Capabilities Characterization (CC)	1	2020	4	2026
Support to TCSSG and CTWWG activities	1	2020	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	39.130	30.540	28.954	-	28.954	-	-	-	-	-	-
EF5: <i>Joint Tactical Network (JTN)</i>	-	14.694	10.327	10.009	-	10.009	-	-	-	-	-	-
EX6: <i>Waveforms</i>	-	24.436	20.213	18.945	-	18.945	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This funding line supports the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

EF5 project: The Joint Enterprise Network Manager (JENM) software provides a single, converged network management tool allowing the Warfighter to plan, configure, load, and manage the Joint Services' Tactical Radios and their networks in the field - a capability not available in legacy planning systems. JENM funding supports several types of tactical radios, such as the Manpack and Rifleman, enabling them to utilize Mobile Ad Hoc Networking (MANET) and other waveforms to include: TrellisWare Scalable Manet (TSM), Warrior Robust Enhanced Network (WREN), Mobile User Objective System (MUOS) waveform, Demand Assigned Multiple Access (DAMA) Satellite Communications (SATCOM), Integrated Waveform (IW), and Single Channel Ground and Airborne Radio System (SINCGARS) waveform. Using its Over-the-Air-Management (OTAM) functionality, JENM provides the Commander the ability to quickly reconfigure critical networks. JENM enhances the S6's ability to conduct Course of Action (COA) Analysis and the Military Decision Making Process (MDMP), providing commanders critical information regarding their ability to communicate.

FY 2022 funding will continue radio planner development efforts to design, engineer, integrate and test of planning and management capabilities for the Tactical Radio network in support of the TSM, and the WREN waveforms. Continued development aligns with the vision to provide further integration of the Integrated Tactical Network (ITN) and Network Management of its emerging systems to enable Soldiers the ability to effectively manage the ITN. Radio planner development efforts will also support MUOS Waveform Planning Continuing System Improvements and rapid provisioning of MUOS end-user terminals, as well as high frequency (HF) Waveform planning in support of HF modernization.

Planning applications are deployed on, and critically tied to the Ruggedized Application Platform - Tactical Radios (RAP-TR) hardware from Division to the Company level.

EX6 project: Product Manager (PdM) Waveforms provides the transport technologies necessary to support the overall connectivity of the Unified Network. PdM Waveforms' technology assessments, integration, and configuration management enable seamless updates and fluid communication between echelons of the Unified Network.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>
--	---

PdM Waveforms delivers, maintains, and upgrades portable, interoperable, MANET waveforms, Advanced Networking Waveforms (ANWf), and network enterprise services in support of the N-CFT capability set approach to achieve the network modernization strategy.

PdM Waveforms will remain agile to accommodate emerging warfighter needs by addressing the following:

- 1) Waveform (WF) analysis and system engineering activities for DoD as Lead Service Activity for Ground/Line of Sight (LoS) Waveforms (currently TSM, WREN, and SINCGARS) in accordance with Deputy Secretary of Defense memo for Enhancing DoD's Joint Tactical Networks and Datalink Modernization, 29 March 2019
- 2) Development and/or integration efforts of Broadcast Waveforms (i.e. SINCGARS, WREN, ANWf) and Radio Services (i.e. Spectrum Aware Tactical Radio-Dynamic Spectrum Access (SATR-DSA), enterprise Over The Air Management (eOTAM)) in support of Army Network modernization, and agile mission support initiatives
- 3) Viability assessments of ANWf in support of the Integrated Tactical Network (ITN) and future capability sets to ensure waveform performance in advance of formal ITN experimentation and fielding activities

FY 2022 Base RDT&E dollars, in the amount of \$17.809 million, will fund next generation Government developed waveforms and Radio Service applications, system and architectural engineering for ANWf radio communications technologies, program management support and logistics in support of N-CFT Capability Set (CS) for the Unified Network LOE, and examine modular and open system architectures to decrease future integration and waveform porting costs.

In FY 2022, funding in the amount of \$0.211 million for manpower was realigned to Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments.

B. Program Change Summary (\$ in Millions)	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	40.808	31.696	25.319	-	25.319
Current President's Budget	39.130	30.540	28.954	-	28.954
Total Adjustments	-1.678	-1.156	3.635	-	3.635
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.678	-1.156			
• Adjustments to Budget Years	-	-	3.635	-	3.635

Change Summary Explanation

Fiscal Year 2022 (FY22) increase of \$3.635 million relates to increases in Project EX6 Waveforms commercial waveforms vetting analysis and characterization efforts and support efforts.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>				Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EF5: <i>Joint Tactical Network (JTN)</i>	-	14.694	10.327	10.009	-	10.009	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

EF5 project: This funding line supports the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

The Joint Enterprise Network Manager (JENM) software provides a single, converged network management tool allowing the Warfighter to plan, configure, load, and manage the Joint Services' Tactical Radios and their networks in the field - a capability not available in legacy planning systems. JENM funding supports several types of tactical radios, such as the Manpack and Rifleman, enabling them to utilize Mobile Ad Hoc Networking (MANET) and other waveforms to include: TrellisWare Scalable Manet (TSM), Warrior Robust Enhanced Network (WREN), Mobile User Objective System (MUOS) waveform, Demand Assigned Multiple Access (DAMA) Satellite Communications (SATCOM), Integrated Waveform (IW), and Single Channel Ground and Airborne Radio System (SINCGARS) waveform. Using its Over-the-Air-Management (OTAM) functionality, JENM provides the Commander the ability to quickly reconfigure critical networks. JENM enhances the S6's ability to conduct Course of Action (COA) Analysis and the Military Decision Making Process (MDMP), providing commanders critical information regarding their ability to communicate.

FY 2022 funding will continue radio planner development efforts to design, engineer, integrate and test of planning and management capabilities for the Tactical Radio network in support of the TSM, and the WREN waveforms. Continued development aligns with the vision to provide further integration of the Integrated Tactical Network (ITN) and Network Management of its emerging systems to enable Soldiers the ability to effectively manage the ITN. Radio planner development efforts will also support MUOS Waveform Planning Continuing System Improvements and rapid provisioning of MUOS end-user terminals, as well as High Frequency (HF) Waveform planning in support of HF modernization.

Planning applications are deployed on, and critically tied to the Ruggedized Application Platform - Tactical Radios (RAP-TR) hardware from Division to the Company level.

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

	FY 2020	FY 2021	FY 2022
Title: JENM Program Office Support	2.950	2.648	2.418
Description: Program Management Office support in the development of the JENM system.			
FY 2021 Plans:			
The JENM program office funding will continue support to JENM design, engineering, integration and test of planning and management capabilities for the Tactical Radio network. The JENM program office supports the vision of integrating lower and mid-tier Network Management capabilities to enable Soldiers to manage their entire consolidated tactical network. Program			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>office funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals.</p> <p>FY 2022 Plans: The JENM program office funding will continue support to JENM design, engineering, integration and test of planning and management capabilities for the Tactical Radio network. The JENM program office supports the vision of integrating lower and mid-tier Network Management capabilities to enable Soldiers to manage their entire consolidated tactical network. Program office funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in JENM Program Office Support is attributed to the completion of JENM V3.5 Requirements and the transition to continuing system improvements and post deployment software support activities.</p>			
<p>Title: JENM Development</p> <p>Description: JENM provides consolidated communications planning, network configuration, network activation, position reporting, fault management, security management, and network health and status reporting needed to establish and maintain a mobile wireless network comprised of SW defined network waveforms. JENM interfaces with other external network managers, mission planning systems, network planning systems, key management systems, and spectrum planning systems. JENM is considered a mission essential system. JENM is also considered a critical element within the Ruggedized Application Platform ? Tactical Radios (RAP-TR) hardware configuration management tool kit.</p> <p>FY 2021 Plans: Development funding will continue design, engineering, integration and test of planning and management application for the Tactical Radio network. Support to align with Army Network Modernization to provide further integration of the lower and mid-tier Network Management with that of PM TN to enable Soldiers the ability to manage the entire, consolidated, tactical network. Development funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals.</p> <p>JENM planning applications are deployed on, and critically tied to the RAP-TR hardware from Division to the Company level.</p> <p>FY 2022 Plans: Development funding will continue design, engineering, integration and test of planning and management application for the Tactical Radio network. Support to align with Army Network Modernization to provide further integration of the lower and mid-tier Network Management with that of PM TN to enable Soldiers the ability to manage the entire, consolidated, tactical network. Development funding will also support completion of MUOS waveform planning simplification and rapid provisioning of MUOS end-user terminals for joint service requirements.</p>	11.744	7.679	7.591

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
JENM planning applications are deployed on, and critically tied to the RAP-TR hardware from Division to the Company level.			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Decrease in JENM Development cost is attributed to the completion of JENM V3.5 Requirements and the transition to continuing system improvements and post deployment software support activities.			
Accomplishments/Planned Programs Subtotals	14.694	10.327	10.009

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 0605031N: 0605031N; JTN, RDTE,N	2.677	2.705	-	-	-	-	-	-	-	-	-
• 0605031F: 0605031F; JTNC, RDTE,F	3.798	3.844	-	-	-	-	-	-	-	-	-
• B99318: Joint Network Management System	-	3.904	0.930	-	0.930	-	-	-	-	-	-

Remarks
PE 0605031A contains only the JTN (PdM Waveforms and PdM TCNO (JENM)) RDTE funding.

Joint Enterprise Network Manager (JENM) is funded using a Joint budget strategy. Each Military Department (MILDEP) budgets for approximately one-third of the total program RDT&E requirements for joint efforts. Fiscal Year (FY) 2020 to FY 2021 funding reflects the full JENM requirement with the consolidated funding from the other Services, while FY 2022 and beyond reflects the Army one-third portion of total program RDT&E funds. Out-year funding is programmed in PE 0605031A by the Army, PE 0605031N by the Navy and PE 0605031F by the Air Force. USMC funding will be provided on an annual basis via Military Interdepartmental Purchase Request (MIPR). Prior to submission of the President's Budget, the funding from Navy PE 0605031N and Air Force PE 0605031F is consolidated with Army PE 0605031A for execution per OSD direction.

JENM and baseline planning applications are deployed on the RAP-TR hardware from Division to the Company level. JENM Logistics & Training capabilities are captured under the Joint Network Management System OPA-2 line (JNMS B99318) FY21 and out.

D. Acquisition Strategy
Joint Tactical Network Center (JTNC) Acquisition Decision Memorandum (ADM) (July 2012) (JENM Supporting Role). Per the December 2014 Joint Tactical Network (JTN) Select Acquisition Report (SAR), JTN was 90% expended and changed to inactive. Defense Acquisition Management Information Retrieval (DAMIR) reflected the inactive status on 3 June 2015 JTN APB (13 October 2015) (JENM Supporting Role).

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army Date: May 2021

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 5	PE 0605031A / <i>Joint Tactical Network (JTN)</i>	EF5 / <i>Joint Tactical Network (JTN)</i>

Product Manager Tactical Cyber & Network Operations (TCNO) manages a Government Owned, Government Operated (GOGO) Software Development & Integration Facility which employs competitive contracting strategies for software development & sustainment of the network manager components to ensure warfighter access to the best technology and innovative capabilities while addressing emerging threats and future requirements via an affordable, operationally effective, and timely framework.

The Army will continue a radio planner effort that will plan, manage, and provision capabilities for simplified workflow based planning solutions to rapidly meet emerging capability requirements stemming from Network Cross Functional Team (CFT) initiatives and directed requirements.

JENM will support the completion of JENM v3.5 development, which include complete MUOS simplification, upgrades to JENM Public Key Infrastructure (PKI) certificate management, and cyber enhancements.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / Joint Tactical Network (JTN)	Project (Number/Name) EF5 / Joint Tactical Network (JTN)
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JENM Program Management Support	MIPR	Various : Various	4.563	3.078	Nov 2019	2.648	Jan 2021	2.418	Jan 2022	-		2.418	0.000	12.707	-
Subtotal			4.563	3.078		2.648		2.418		-		2.418	0.000	12.707	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JENM NMRIL Development	MIPR	SSC PACIFIC : San Diego, CA	15.369	3.712	Nov 2019	3.073	Jan 2021	3.037	Jan 2022	-		3.037	Continuing	Continuing	Continuing
JENM NMRIL Development SSA	C/CPFF	G2 Software Systems : San Diego, CA	3.337	2.199	Dec 2019	2.002	Jan 2021	1.979	Jan 2022	-		1.979	Continuing	Continuing	-
JENM Radio Planning and Management Enhancement	MIPR	Harris, CodeMettle : Aberdeen, MD	5.435	3.710	Feb 2020	-		-		-		-	Continuing	Continuing	-
JENM NMRIL Development CIT	C/CPFF	BOOZ ALLEN HAMILTON INC. : San Diego, CA	1.975	1.995	Feb 2020	2.604	Jan 2021	2.575	Jan 2022	-		2.575	Continuing	Continuing	Continuing
Subtotal			26.116	11.616		7.679		7.591		-		7.591	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	30.679	14.694	10.327	10.009	-	10.009	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>
--	---	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JENM v3.5 Software Development and Release	[Redacted]				[Redacted]																							
JENM v3.5 Continuing System Improvements					[Redacted]				[Redacted]																			
JENM v3.5 FQT	[Redacted]																											
Next Generation Planner v1.1	[Redacted]																											
Next Generation Planner v1.2	[Redacted]																											
JENM v3.3.2 Sunset					[Redacted]																							
Manpack OT					[Redacted]																							
JENM v3.4 Transition to Sustainment					[Redacted]																							
JENM ATO									[Redacted]																			
JENM v3.4 Sunset													[Redacted]															
JENM v3.5 Transition to Sustainment																	[Redacted]											
JENM v3.5 Sunset																									[Redacted]			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EF5 / <i>Joint Tactical Network (JTN)</i>
--	---	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JENM v3.5 Software Development and Release	4	2018	2	2021
JENM v3.5 Continuing System Improvements	2	2021	2	2023
JENM v3.5 FQT	2	2020	2	2020
Next Generation Planner v1.0	4	2018	4	2019
Next Generation Planner v1.1	3	2019	4	2020
MUOS MOT&E 1	4	2019	4	2019
Next Generation Planner v1.2	2	2020	2	2021
JENM v3.3.2 Sunset	4	2020	4	2020
Manpack OT	2	2021	2	2021
JENM v3.4 Transition to Sustainment	2	2021	2	2021
JENM ATO	2	2022	2	2022
JENM v3.4 Sunset	4	2022	4	2022
JENM v3.5 Transition to Sustainment	2	2023	2	2023
JENM v3.5 Sunset	4	2026	4	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605031A / Joint Tactical Network (JTN)				Project (Number/Name) EX6 / Waveforms			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EX6: Waveforms	-	24.436	20.213	18.945	-	18.945	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding line supports the Army Network Modernization Strategy Line Of Effort (LOE) 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team's (N-CFT) capability set approach to achieve the network modernization strategy.

Product Manager (PdM) Waveforms provides the transport technologies necessary to support the overall connectivity of the Unified Network. PdM Waveforms' technology assessments, integration, and configuration management enable seamless updates and fluid communication between echelons of the Unified Network.

PdM Waveforms delivers, maintains, and upgrades portable, interoperable, Mobile Ad-hoc Networking (MANET) waveforms, Advanced Networking Waveforms (ANWf), and network enterprise services in support of the N-CFT capability set approach to achieve the network modernization strategy.

PdM Waveforms will remain agile to accommodate emerging warfighter needs by addressing the following:

- 1) Waveform (WF) analysis and system engineering activities for DoD as Lead Service Activity for Ground/Line of Sight (LoS) Waveforms (currently TSM), Warrior Robust Enhanced Network (WREN), and Single Channel Ground and Airborne Radio System (SINGARS) in accordance with (IAW) Deputy Secretary of Defense memo for Enhancing DoD's Joint Tactical Networks and Datalink Modernization, 29 March 2019
- 2) Development and/or integration efforts of Broadcast Waveforms (i.e. SINGARS, WREN, ANWf) and Radio Services (i.e. Spectrum Aware Tactical Radio-Dynamic Spectrum Access (SATR-DSA), enterprise Over The Air Management (eOTAM)) in support of Army Network modernization, and agile mission support initiatives
- 3) Viability assessments of ANWf in support of the Integrated Tactical Network (ITN) and future capability sets to ensure waveform performance in advance of formal ITN experimentation and fielding activities

FY 2022 Base RDT&E dollars will fund next generation Government developed waveforms and Radio Service applications, system and architectural engineering for ANWf radio communications technologies, program management support and logistics in support of N-CFT Capability Set (CS) for the Unified Network LOE, and examine modular and open system architectures to decrease future integration and waveform porting costs.

In FY 2022, funding in the amount of \$0.211 million for manpower was realigned to Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments.

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

	FY 2020	FY 2021	FY 2022
Title: Program Management Office Support	4.364	2.873	2.662
Description: Waveform matrix and contractor support, including technical, logistics, and business staff oversight			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
--	---	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
---	----------------	----------------	----------------

<i>FY 2021 Plans:</i> Continue Program Management support for PdM Waveforms, including contractors.			
<i>FY 2022 Plans:</i> Funding will provide for matrix and contractor support for Waveforms engineering development, testing, and program oversight			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Decrease due to realignment from reimbursable civilian funding to direct OMA.			

<i>Title:</i> Waveforms Software Development	12.579	10.385	9.261
<i>Description:</i> PdM Waveforms provides software development and waveforms support for tactical radios operational and networking requirements for the following: 1) Single Channel Ground and Airborne Radio System (SINCGARS) - Develop NexGen SINCGARS waveform to combat the adversary's near, mid, and far-term Electronic Attack/Electronic Warfare (EA/EW) capabilities 2) Warrior Robust Enhanced Network (WREN) Waveform will enhance range, scalability, and Electronic Protection (EP) for a unified transport to Army tactical networks. 3) Spectrum Aware Tactical Radio-Dynamic Spectrum Access (SATR-DSA) for tactical waveforms will mature the capability for efficient spectrum use in a congested Electromagnetic Environment (EME)			
<i>FY 2021 Plans:</i> - Mitigate CEMA threats for SINCGARS/WREN, mitigate interference effects & coordinated EW and communications threats, and develop EW enabled cyber capabilities - Work with Industry Partners to assess, analyze, and vet Advanced Networking Waveforms (ANWf) in support of the Integrated Tactical Network (ITN) and future capability set (CS) - Radio Service capability to simplify the unified network - Single Channel Ground and Airborne Radio System (SINCGARS)/ Warrior Robust Enhanced Network (WREN) will be integrated into ITN/CS 21 - Continue to assess and analyze ANWf in a contested and congested environment to fulfill the capability gap identified by the Network-Cross Functional Team (N-CFT)			
<i>FY 2022 Plans:</i> Funding will support the requirement and initial design development of SINCGARS NexGen, WREN problem fixes and hardening the capability in support of the ITN and CS23. Support will include effort to alleviate Cyber Electro-Magnetic Activities (CEMA) threats for SINCGARS and WREN, including Lead Service activities, develop & integrate EW capabilities, and initiate development and release of SATR-DSA 1 for efficient spectrum use			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i>			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Decrease due to a reduction in commercial waveforms support efforts				
<p>Title: Waveforms Test and Evaluation</p> <p>Description: PdM Waveforms performs test and evaluation activities to address interoperability, range, scalability, resiliency, Electronic Warfare (EW)/Cyber Electromagnetic Activities (CEMA), and readiness. Advanced Networking Waveforms (ANWf) assessments support inclusion and/or integration of technologies into Army experimentation and Capability Sets (CS's) Viability and Readiness Assessments including Technology Readiness Level (TRL) assessment, test and evaluation of EW and cyber capabilities in support of Integrated Tactical Network (ITN), performance and behavior analysis of waveforms against topologies, architectures, operational use cases as defined by Network-Cross Functional Team (N-CFT) and fielding activities</p> <p>FY 2021 Plans: Conduct test and evaluation procedures for continued code development and detect fixes of Government-owned waveforms and perform evaluation and characteristics analysis of commercial waveforms for potential Government utilization to meet warfighter requirements.</p> <p>FY 2022 Plans: Funding will validate initial design and system engineering activities of the NexGen of Single Channel Ground and Airborne Radio System (SINCGARS), validate and test the enhancements and problem fixes of the Warrior Robust Enhanced Network (WREN) waveforms, validate implementation of enterprise Over The Air Management (eOTAM) 2.1, performance characterization and analysis of waveforms to meet the warfighter's requirements, and validate and test Spectrum Aware Tactical Radio-Dynamic Spectrum Access (SATR-DSA) Release 1</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Increase due to additional testing support</p>		4.833	5.126	5.221
<p>Title: Waveforms Software Support and System Engineering</p> <p>Description: PdM Waveforms software support and systems engineering for waveforms and network manager applications provides the following: 1) Radio Services applications that enable over-the-air (OTA) NSA cryptographic key, radio and network configuration tools and bandwidth efficient OTA protocols supporting the Unified Network Line of Effort (LOE) for CSs 2) eOTAM will enhance radio health services, Common Management Information Base (MIB) integration, integration with Army network management systems and comply with NSA security standards 3) Evaluate the Technology Readiness Level (TRL) of ANWf in support of the ITN, N-CFT and CS' requirements and architectures 4) Oversight and inform policy for SINCGARS, WREN, TSM, eOTAM, and related products for DoD, including Lead Service activities</p>		2.660	1.829	1.801

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
--	---	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p><i>FY 2021 Plans:</i> Continue software support and systems engineering efforts as described above in support of PdM Waveforms.</p> <p><i>FY 2022 Plans:</i> Funding will support radio services software, product enhancement, and systems engineering & integration (SE&I) as described above in support of PdM Waveforms. Support will include: release of enterprise Over The Air Management (eOTAM) 2.1; Lead Service activities for the integration of existing and emerging waveforms in the DoD; analysis of TSM capabilities for Warrior Robust Enhanced Network (WREN) integration and release to DoD; and NATO and ABCANZ ensuring interoperability between the US and Coalition partners, including Lead Service activities</p> <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Decrease due to a reduction in commercial waveforms vetting analysis and characterization efforts</p>			
Accomplishments/Planned Programs Subtotals	24.436	20.213	18.945

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

Remarks

D. Acquisition Strategy
PdM Waveforms is responsible for core activities, including; developing and updating legacy waveforms and analyzing Advance Networking Waveforms (ANWf) that operate on multiple radio sets and in all operational environments that support network-centric operational warfare. Waveform developments (upgrading, developing, and maintaining) will generally be procured through full and open contract competitions.

While maintaining legacy networking waveforms, PdM Waveforms implemented a strategy which focuses on vetting and analyzing ANWf. The product office continues to establish working relationships with industry partners within the waveform market. The strategy consists of conducting initial analysis of commercial waveforms, documenting vulnerabilities, identifying implementation strategies, and making recommendations to senior leadership on potential Army use cases.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
--	---	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support - Matrix	MIPR	C5ISR Center : APG, MD	2.813	1.486	Jan 2020	1.051	Jan 2021	0.804	Jan 2022	-		0.804	Continuing	Continuing	Continuing
Program Management Support - SETA	C/CPFF	SEV1-Tech : Woodbridge, VA	4.119	2.878	Nov 2019	1.822	Nov 2020	1.858	Nov 2021	-		1.858	Continuing	Continuing	Continuing
Subtotal			6.932	4.364		2.873		2.662		-		2.662	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development - C5ISR Center	MIPR	C5ISR Center : APG, MD	17.386	11.855	Nov 2019	9.135		7.986	Nov 2021	-		7.986	Continuing	Continuing	Continuing
Software Development - Technical/Coding (MA-IDIQ)	C/CPAF	MA - IDIQ : Various Locations	17.658	0.724	Jan 2020	1.250		1.275	Dec 2021	-		1.275	Continuing	Continuing	Continuing
Subtotal			35.044	12.579		10.385		9.261		-		9.261	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering - SSC NIWC	MIPR	SSC LANT/PAC : Charleston, SC; San Diego, CA	1.479	0.209	Dec 2019	0.460		0.560	Dec 2021	-		0.560	Continuing	Continuing	-
Software Support - WREN	MIPR	C5ISR Center : APG, MD	2.173	2.451	Nov 2019	1.369		1.241	Nov 2021	-		1.241	Continuing	Continuing	Continuing
Subtotal			3.652	2.660		1.829		1.801		-		1.801	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
--	---	--

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation - C5ISR Center	MIPR	C5ISR Center : APG, MD	4.205	4.833	Mar 2020	5.126		4.711	Feb 2022	-		4.711	Continuing	Continuing	Continuing
Test and Evaluation - NATO	MIPR	RAND : Arlington, VA	0.490	-		-		0.510	Jun 2022	-		0.510	Continuing	Continuing	Continuing
Subtotal			4.695	4.833		5.126		5.221		-		5.221	Continuing	Continuing	N/A
Project Cost Totals			50.323	24.436		20.213		18.945		-		18.945	Continuing	Continuing	N/A

Remarks
 FY 2021 and out reflect a reduction in reimbursable manpower as a result of a realignment of matrixed business management support from Army Material Command, to direct funded Operations and Maintenance.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date: May 2021**

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
--	---	--

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
SINGGARS 3.1 Waveform					▲ 3 SINC 3.1 Release																								
SINGGARS NexGen Waveform Development									■																				
SINGGARS NexGen Waveform Problem Report (PR) Fixes																	■												
SINGGARS NexGen Waveform																													▲ 13 SINC NexGen Release
Warrior Robust Enhanced Network (WREN) C5ISR Transition					▲ 1 WREN Transition to PdM Waveforms																								
Warrior Robust Enhanced Network (WREN) PR Fixes					■																								
Warrior Robust Enhanced Network (WREN) A													▲ 7 WREN Release A																
Warrior Robust Enhanced Network (WREN) B													■																
Warrior Robust Enhanced Network (WREN) B PR Fixes																					■								
Enterprise Over The Air Management (eOTAM) 2.0					▲ 2 eOTAM 2.0 Release																								
Enterprise Over The Air Management (eOTAM) 2.1													▲ 5 eOTAM 2.1 Release																
Enterprise Over The Air Management (eOTAM) 2.2																													▲ 8 eOTAM 2.2 Release
Enterprise Over The Air Management (eOTAM) 2.3																													▲ 10 eOTAM 2.3 Release

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / Joint Tactical Network (JTN)	Project (Number/Name) EX6 / Waveforms	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Enterprise Over The Air Management (eOTAM) 2.4																																
Enterprise Over The Air Management (eOTAM) 2.5																																
Dynamic Spectrum Access (DSA) SSC NIWC Transition																																
Dynamic Spectrum Access (DSA) Release 1																																
Dynamic Spectrum Access (DSA) Release 2																																
Dynamic Spectrum Access (DSA) Release 3																																
Dynamic Spectrum Access (DSA) Release 4																																
Dynamic Spectrum Access (DSA) Release 5																																
Advanced Networking Waveforms (ANWF) Analysis																																
MAIDIQ - Contract Award																																

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605031A / <i>Joint Tactical Network (JTN)</i>	Project (Number/Name) EX6 / <i>Waveforms</i>
--	---	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SINCGARS 3.1 Waveform	2	2021	2	2021
SINCGARS NexGen Waveform Development	4	2021	3	2024
SINCGARS NexGen Waveform Problem Report (PR) Fixes	4	2024	3	2025
SINCGARS NexGen Waveform	4	2025	4	2025
Warrior Robust Enhanced Network (WREN) C5ISR Transition	4	2020	4	2020
Warrior Robust Enhanced Network (WREN) PR Fixes	1	2021	4	2022
Warrior Robust Enhanced Network (WREN) A	1	2023	1	2023
Warrior Robust Enhanced Network (WREN) B	1	2023	2	2025
Warrior Robust Enhanced Network (WREN) B PR Fixes	3	2025	1	2027
Enterprise Over The Air Management (eOTAM) 2.0	1	2021	1	2021
Enterprise Over The Air Management (eOTAM) 2.1	4	2022	4	2022
Enterprise Over The Air Management (eOTAM) 2.2	4	2023	4	2023
Enterprise Over The Air Management (eOTAM) 2.3	4	2024	4	2024
Enterprise Over The Air Management (eOTAM) 2.4	4	2025	4	2025
Enterprise Over The Air Management (eOTAM) 2.5	4	2026	4	2026
Dynamic Spectrum Access (DSA) SSC NIWC Transition	2	2021	2	2021
Dynamic Spectrum Access (DSA) Release 1	1	2023	1	2023
Dynamic Spectrum Access (DSA) Release 2	1	2024	1	2024
Dynamic Spectrum Access (DSA) Release 3	1	2025	1	2025
Dynamic Spectrum Access (DSA) Release 4	1	2026	1	2026
Dynamic Spectrum Access (DSA) Release 5	1	2027	1	2027
Advanced Networking Waveforms (ANWf) Analysis	1	2021	4	2026
MA/IDIQ - Contract Award	4	2018	4	2028

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	3.689	5.758	-	-	-	-	-	-	-	-	-
EQ3: <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>	-	3.689	5.758	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. G-BOSS(E) will replace obsolete, Quick Reaction Capability (QRC) surveillance and force protections systems utilizing modular configurations: Medium variant (mid sensor height) for small to medium size base camps and Heavy variant (high level sensor height) for large contingency base camps. G-BOSS(E) will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	3.847	5.976	0.000	-	0.000
Current President's Budget	3.689	5.758	0.000	-	0.000
Total Adjustments	-0.158	-0.218	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.158	-0.218			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOS S-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EQ3: <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>	-	3.689	5.758	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. G-BOSS(E) will replace obsolete, Quick Reaction Capability (QRC) surveillance and force protections systems utilizing modular configurations: Medium variant (mid sensor height) for small to medium size base camps and Heavy variant (high level sensor height) for large contingency base camps. G-BOSS(E) will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.

FY21 is the last year of RDT&E funding for this program.

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

	FY 2020	FY 2021	FY 2022
<p>Title: GBOSS-E Design and Build</p> <p>Description: Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)) will replace the interim Persistent Surveillance System-Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities and will provide network integration and better mobility utilizing modular configurations. G-BOSS(E) will replace obsolete, Quick Reaction Capability (QRC) surveillance and force protections systems utilizing modular configurations: Medium variant (mid sensor height) for small to medium size base camps and Heavy variant (high level sensor height) for large contingency base camps. G-BOSS(E) will operate in a stand-alone mode or as part of an integrated network utilizing government owned software, be easily operated and maintained, and be rugged enough to support employment in expeditionary operations worldwide.</p> <p>FY21 Base funding in the amount of \$5.976 million completes design engineering, documentation, and integration activities, builds Low Rate Initial Production (LRIP) systems, conducts Developmental Testing (DT) and Operational Assessment in lieu of an Initial Operational Test (IOT) and Limited User Test (LUT), Logistics Demonstration, Cyber related test events/assessments, and provides Program Management support.</p> <p>FY 2021 Plans:</p>	3.689	5.758	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOS S-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Funding supports completion of the Engineering Development phase leading to a Milestone C decision by the Milestone decision authority. Includes the low rate initial production of test assets and operational testing of the system leading to a full rate production decision. <i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> FY 2022: No RDT&E funding, Engineering Manufacturing Development (EMD) phase complete in FY21.			
Accomplishments/Planned Programs Subtotals	3.689	5.758	-

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

N/A

Remarks

G-BOSS(E) will be funded OPA on line M90212000 beginning in FY22.

D. Acquisition Strategy

Ground-Based Operational Surveillance System (Expeditionary) (G-BOSS(E)) will replace the interim Persistent Surveillance System - Ground (PSS-G) Increment 1 towers with improved persistent surveillance capabilities along with network integration and better mobility utilizing modular configurations. The G-BOSS(E) Capability Development Document (CDD) was Army Requirements Oversight Council (AROC) approved in May 2014. In FY 2013, FY 2014 & FY 2015, the Department of Defense (DoD) Physical Security Enterprise and Analysis Group (PSEAG) provided funds to conduct Pre-Milestone B activities.

G-BOSS(E) received an approved Materiel Development Decision (MDD) from the Milestone Decision Authority (MDA) on 4 December 2015. Milestone B decision accomplished 29 September 2017, the existing United States Marine Corps (USMC) tower's design (Ground-Based Operational Surveillance System) (G-BOSS) will be leveraged and modified to meet the Army's G-BOSS(E) program requirements.

The acquisition strategy for G-BOSS(E) was approved by the MDA on 11 December 2016, which approved plans to leverage the Naval Surface Warfare Center (NSWC) at Crane, Indiana and the Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, Virginia to provide system design, development, and integration support, as well as a Technical Data Package (TDP) to support future procurements.

Milestone C is planned for FY 2021.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOS S-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS-E Project Management	MIPR	PM FPS : Fort Belvoir, VA	2.700	0.688	Jan 2020	0.700	Jan 2021	-		-		-	0.000	4.088	-
CVBIED JUONS 0540 Project Management	MIPR	PM FPS : Fort Belvoir, VA	0.051	-		-		-		-		-	0.000	0.051	-
MDAP Cost Overrun	TBD	OASA(FM&C) : Pentagon DC	0.001	-		-		-		-		-	0.000	0.001	-
Subtotal			2.752	0.688		0.700		-		-		-	0.000	4.140	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS-E Design Engineering	MIPR	NSWC Crane : Crane, IN	6.736	1.716	Jan 2020	0.670	Jan 2021	-		-		-	0.000	9.122	-
GBOSS-E Software Development	TBD	TBD : TBD	0.313	0.179		-		-		-		-	0.000	0.492	-
GBOSS-E Integration Support	MIPR	NSWC Crane : Crane, IN	1.125	0.430	Jan 2020	1.183	Jan 2021	-		-		-	0.000	2.738	-
Tech Data	MIPR	NSWC Crane : Crane, IN	1.100	-		-		-		-		-	0.000	1.100	-
CVBIED JUONS 0540 Wide Area Motion Imagery Sensor Development	MIPR	NAVAIR : Patuxent River, MD	7.208	-		-		-		-		-	0.000	7.208	-
CVBIED JUONS 0540 Wide Area Motion Imagery Sensor Development	MIPR	RDECOM : Fort Belvoir, VA	8.735	-		-		-		-		-	0.000	8.735	-
Hardware Procurement	MIPR	NSWC Crane : Crane Indiana	0.100	-		1.664		-		-		-	0.000	1.764	-
Subtotal			25.317	2.325		3.517		-		-		-	0.000	31.159	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOS S-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>
--	--	--

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NVESD Design Support	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.578	0.288	Jan 2020	0.165	Jan 2021	-		-		-	0.000	1.031	-
ARL Human Systems Integration Support	MIPR	US Army ARL : Adelphi, MD	0.079	0.026	Nov 2019	0.035	Nov 2020	-		-		-	0.000	0.140	-
CECOM FSD - Safety	MIPR	CECOM : APG, MD	0.070	0.034	Nov 2019	0.035	Nov 2020	-		-		-	0.000	0.139	-
CECOM ILSC	MIPR	CECOM : Various	0.040	0.047	Mar 2020	0.225	Mar 2021	-		-		-	0.000	0.312	-
Subtotal			0.767	0.395		0.460		-		-		-	0.000	1.622	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS-E Test and Evaluation	MIPR	A TEC : Aberdeen Proving Ground, MD	0.420	0.281	Jan 2020	1.081	Jan 2021	-		-		-	0.000	1.782	-
JUONS CC-0540 Test and Evaluation Support	MIPR	A TEC : Aberdeen Proving Ground, MD	1.178	-		-		-		-		-	0.000	1.178	-
Subtotal			1.598	0.281		1.081		-		-		-	0.000	2.960	N/A

			Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			30.434	3.689	5.758	-	-	-	0.000	39.881	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOS S-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026									
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4						
G-BOSS(E) Engineering Manufacturing & Development and Manual Development	[Redacted]																																	
G-BOSS(E) Developmental Testing																																		
G-BOSS(E) Operational Assessment																																		
G-BOSS(E) Logistics Demonstration																																		
G-BOSS(E) Milestone C																																		
G-BOSS(E) Low Rate Initial Production (LRIP)																																		
G-BOSS(E) Full Rate Production Decision																																		
G-BOSS(E) Full Rate Production																																		

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605033A / <i>Ground-Based Operational Surveillance System - Expeditionary (GBOS S-E)</i>	Project (Number/Name) EQ3 / <i>Grnd-Based Opnl Surv Sys -Exped (GBOSS-E)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
G-BOSS(E) Engineering Manufacturing & Development and Manual Development	1	2019	1	2022
G-BOSS(E) Developmental Testing	4	2020	1	2021
G-BOSS(E) Operational Assessment	1	2021	2	2021
G-BOSS(E) Logistics Demonstration	3	2021	3	2021
G-BOSS(E) Milestone C	3	2021	3	2021
G-BOSS(E) Low Rate Initial Production (LRIP)	3	2021	2	2022
G-BOSS(E) Full Rate Production Decision	2	2022	2	2022
G-BOSS(E) Full Rate Production	3	2022	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	7.343	-	-	-	-	-	-	-	-	-	-
EQ4: <i>Tactical Security System (TSS)</i>	-	7.343	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Tactical Security System (TSS) is a modular, scalable, lightweight, rapidly deployable, ground based security and surveillance Family of Systems (FoS). The design of TSS allows for hasty emplacement and is tailorable to support short and long term security, surveillance and detection missions. The TSS and its components are designed to be employed as a stand-alone system, in a layered effort or integrated with additional force protection (FP) systems. Integration with additional sensors will be obtained through network communications and software in line with Net-Ready requirements. TSS will address four of the five base camp core protection/security capabilities identified in the Integrated Base Defense (IBD) Concept of Operations (CONOPS) which are perimeter security, entry control, persistent surveillance, warning and alerting. The TSS will be compliant with the Common Operating Environment (COE) Architecture and Implementation Plan. TSS is designed to be employed as a stand-alone system in a layered effort or integrated with additional force protection systems including motion, acoustic, seismic, surface, and detection technologies.

FY2020 is the last year of RDTE funding for this program and transitioned to OPA (M90101).

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	6.928	0.000	0.000	-	0.000
Current President's Budget	7.343	0.000	0.000	-	0.000
Total Adjustments	0.415	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.700	-			
• SBIR/STTR Transfer	-0.285	-			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>				Project (Number/Name) EQ4 / <i>Tactical Security System (TSS)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EQ4: <i>Tactical Security System (TSS)</i>	-	7.343	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The TSS is a modular, scalable, lightweight, rapidly deployable, ground based security and surveillance Family of Systems (FoS). The design of TSS allows for hasty emplacement and is tailorable to support short and long term security, surveillance and detection missions. The TSS and its components are designed to be employed as a stand-alone system, in a layered effort or integrated with additional force protection (FP) systems. Integration with additional sensors will be obtained through network communications and software in line with Net-Ready requirements. TSS will address four of the five base camp core protection/security capabilities identified in the Integrated Base Defense (IBD) Concept of Operations (CONOPS) which are perimeter security, entry control, persistent surveillance, warning and alerting. The TSS will be compliant with the Common Operating Environment (COE) Architecture and Implementation Plan. TSS is designed to be employed as a stand-alone system in a layered effort or integrated with additional force protection systems including motion, acoustic, seismic, surface, and detection technologies. TSS is formally changing its program name to Surveillance Security System (SSS) in FY21.

FY 2020 is the last year of RDTE funding for this program.

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

	FY 2020	FY 2021	FY 2022
Title: TSS Design and Build	7.343	-	-
Description: TSS completes building of Engineering Development Model (EDM), initial integration with Integrated Ground Security Surveillance and Response Capability (IGSSR-C) and Common Operating Environment (COE), and Developmental Testing (DT) of prototype, achieves Milestone C decision, procures Test articles and completes an Operational Assessment.			
Accomplishments/Planned Programs Subtotals	7.343	-	-

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• M90220: <i>TACTICAL SECURITY SYSTEM (TSS)</i>	-	14.189	1.588	-	1.588	-	-	-	-	-	-
Remarks											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>	Project (Number/Name) EQ4 / <i>Tactical Security System (TSS)</i>

D. Acquisition Strategy

TSS will eliminate the Non-Standard Equipment (NSE) currently used in the Force Protection Suite (FPS) under the Base Expeditionary Targeting and Surveillance System - Combined (BETSS-C) Quick Reaction Capability (QRC) with improved surveillance capabilities in modular configurations along with enhanced network integration across the command and control system and Common Operating Environment (COE).

Tactical Security System (TSS) received Materiel Development Decision (MDD) approval on 6 January 2017. The acquisition concept and contracting strategy for TSS was approved on 30 April 2018 by the Milestone Decision Authority (MDA) to leverage an existing task order through Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, Virginia to provide engineering and developmental support for the TSS design, development, and integration of an EDM and to support Operational Assessments (OA). Key efforts include the development of the EDM, testing and evaluation for TSS Key Performance Parameters (KPPs)/Key System Attributes (KSAs)/Additional Performance Parameters (APAs), and Developmental and Operational Test and Evaluation (DOT&E). MS B was achieved on 29 October 2018. In 4Q FY21 PM FPS is positioned to enter Milestone C and execute an OA to support a Full Rate Production Decision and initiate production of TSS. In FY22-26, PM FPS is positioned to complete TSS production up to the APO and sustain fielded systems while managing obsolescence and technology refreshes.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>	Project (Number/Name) EQ4 / <i>Tactical Security System (TSS)</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TSS Project Management	MIPR	PM FPS : Fort Belvoir, VA	1.120	0.723	May 2020	-		-		-		-	0.000	1.843	-
TSS Project Management	TBD	PM TS : Fort Belvoir, VA	0.105	0.525		-		-		-		-	0.000	0.630	-
RAM support	TBD	Alion : Crane, Indiana	0.071	0.070		-		-		-		-	0.000	0.141	-
MDAP Cost Overrun	TBD	OASA(FM&C) : Pentagon, DC	0.003	-		-		-		-		-	0.000	0.003	-
Subtotal			1.299	1.318		-		-		-		-	0.000	2.617	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TSS Design	MIPR	Polaris Alpha : Fredericksburg, VA	2.755	2.434	Jan 2020	-		-		-		-	0.000	5.189	-
TSS Prototypes	MIPR	Polaris Alpha : Fredericksburg, VA	1.359	0.452	Jan 2020	-		-		-		-	0.000	1.811	-
TSS Software Development	TBD	MTEQ : Lorton, VA	0.150	-		-		-		-		-	0.000	0.150	-
TSS Integration	MIPR	Polaris Alpha : Fredericksburg, VA	1.049	1.020	Jan 2020	-		-		-		-	0.000	2.069	-
TSS Embedded SW development	TBD	Alion : Crane, Indiana	0.098	0.400		-		-		-		-	0.000	0.498	-
Subtotal			5.411	4.306		-		-		-		-	0.000	9.717	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605034A / Tactical Security System (TSS)				EQ4 / Tactical Security System (TSS)							
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS Design Support	MIPR	RDECOM CERDEC : Fort Belvoir, VA	0.296	0.070	Jan 2020	-		-		-		-	0.000	0.366	-
ARL Human Systems Integration Support	MIPR	US Army Research Lab : Adelphi, MD	0.051	-		-		-		-		-	0.000	0.051	-
CECOM FSD - Safety	MIPR	CECOM : APG, MD	0.031	0.062	Nov 2019	-		-		-		-	0.000	0.093	-
CECOM SEC	TBD	CECOM : Aberdeen Proving Grounds, MD	0.027	0.054		-		-		-		-	0.000	0.081	-
TSS LORA Support	TBD	C5ISR PRD : Aberdeen Proving Grounds, MD	0.014	-		-		-		-		-	0.000	0.014	-
Contract Support Services	TBD	ACC : Fort Belvoir, VA	0.090	0.090		-		-		-		-	0.000	0.180	-
Cyber Support	TBD	Mitre : Fort Belvoir, VA	0.259	0.124		-		-		-		-	0.000	0.383	-
Subtotal			0.768	0.400		-		-		-		-	0.000	1.168	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS Test and Evaluation	MIPR	Army Evaluation Center : APG, MD	0.297	1.098	Mar 2020	-		-		-		-	0.000	1.395	-
TSS Test Planning and Support	TBD	Redstone Test Center : Redstone, AL	0.549	0.221		-		-		-		-	0.000	0.770	-
Subtotal			0.846	1.319		-		-		-		-	0.000	2.165	N/A
Project Cost Totals			8.324	7.343		0.000		-		-		-	0.000	15.667	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>	Project (Number/Name) EQ4 / <i>Tactical Security System (TSS)</i>
--	---	---

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
--	-------------	---------	---------	--------------	-------------	---------------	------------------	------------	--------------------------

Remarks	
----------------	--

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>	Project (Number/Name) EQ4 / <i>Tactical Security System (TSS)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TSS Engineering & Manufacturing Development	EMD Phase																											
TSS Development Testing	Developmental Testing																											
TSS Operational Assessment (OA)					Operational Assessment																							
TSS Milestone C					1 Milestone C																							
TSS Authority to Operate									ATO																			
TSS Full Rate Production Decision													2 FRPDR															
TSS Full Rate Production													Production															

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605034A / <i>Tactical Security System (TSS)</i>	Project (Number/Name) EQ4 / <i>Tactical Security System (TSS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TSS Material Development Decision	1	2018	1	2018
TSS Pre Milestone B Activities / Risk Reduction	2	2016	4	2017
TSS Milestone B	4	2018	4	2018
TSS Engineering & Manufacturing Development	4	2018	1	2021
TSS Development Testing	2	2020	4	2020
TSS Operational Assessment (OA)	2	2021	2	2021
TSS Milestone C	4	2021	4	2021
TSS Authority to Operate	2	2022	3	2022
TSS Full Rate Production Decision	4	2022	4	2022
TSS Full Rate Production	4	2022	3	2025

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	22.226	29.770	16.630	-	16.630	-	-	-	-	-	-
EB4: <i>CIRCM</i>	-	22.226	29.770	16.630	-	16.630	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Common Infrared Countermeasure (CIRCM) budget line includes funding to support the development and integration of Aircraft Survivability Equipment (ASE) products onto Future Vertical Lift (FVL) Future Attack Reconnaissance Aircraft (FARA), Future Long Range Assault Aircraft (FLRAA) aircraft variants and future platforms.

The CIRCM budget line includes 1) CIRCM, 2) funding to counter emerging technology as identified in Joint Urgent Operational Needs Statement (JUONS) SO-0010 Phase 2a and the Headquarters Department of the Army (HQDA) Directed Requirement for the CIRCM Quick Reaction Capability(QRC), 3) funding to support HQDA Directed Requirement for the Phase 3 Advanced Threat Warner (ATW)/CIRCM QRC.

CIRCM (EB4)

CIRCM is the next generation lightweight, laser-based Infrared Countermeasure (IRCM) component that will interface with both the Army's Common Missile Warning System (CMWS) and future missile warning systems (MWS) to defeat current and emerging missile threats that use multispectral technology for rotary-wing, tilt-rotor and small fixed-wing aircraft across the DoD. CIRCM receives an angular bearing hand-off from the MWS, employs a pointing and tracking system which acquires the handed-over threat and tracks the incoming missile during and after motor burnout. CIRCM jams the missile by using modulated laser energy in the missile seeker band, thus degrading the tracking capability of the missile and causing it to miss the aircraft. CIRCM is utilizing Open Systems Architecture which allows flexibility with software and hardware refreshes. Tech insertions, when coupled with future threat acquisition and integration, will ensure CIRCM performance to keep pace with future threats. CIRCM is part of the suite of ASE Mission Equipment for the FVL platform.

The CIRCM A-Kit includes mounting hardware, wiring harnesses, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type. The CIRCM B-Kit is the mission kit (laser, pointer tracker, and controller) required to achieve near spherical coverage for an aircraft.

JUONS SO-0010 and CIRCM QRC

As a part of Phase 2a of the JUONS (SO-0010) program, the Army integrated the Department of the Navy Large Aircraft Infrared Countermeasure (DoN LAIRCM) system onto the Army and Special Operations Aircraft platforms. Due to a number of challenges, circumstances, and variables, the Army updated the ATW/CIRCM QRC and Limited Interim Missile Warning System (LIMWS) Directed Requirements (dated November 16, 2018). The updated requirements extend the utilization of ATW DoN LAIRCM on conventional Army aircraft and cancel the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintains the need for ATW/CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft will transfer to Special Operations Aircraft budget line in FY22.) As a result, the Army did not acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>
--	--

Fiscal Year (FY) 2022 Base Research, Development, Test, and Evaluation (RDTE) funding in the amount of \$16.630 million will fund A-Kit development, integration and test activities on multi-variant platforms.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	23.179	25.621	7.136	-	7.136
Current President's Budget	22.226	29.770	16.630	-	16.630
Total Adjustments	-0.953	4.149	9.494	-	9.494
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.953	-0.851			
• Adjustments to Budget Years	-	-	9.494	-	9.494

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

Project: EB4: *CIRCM*

Congressional Add: *Program Increase - Aviation Artificial Intelligence Virtual Training Environment*

Congressional Add Subtotals for Project: EB4

Congressional Add Totals for all Projects

	FY 2020	FY 2021
	-	5.000
	-	5.000
	-	5.000

Change Summary Explanation

Funding increase of \$9.494 million required to support A-Kit development and integration testing for UH-60V and AH-64E v6 platforms, in accordance with the Army Cost Position for Full Rate Production Decision.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>				Project (Number/Name) EB4 / <i>CIRCM</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EB4: <i>CIRCM</i>	-	22.226	29.770	16.630	-	16.630	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The CIRCM budget line includes funding to support the development and integration of ASE products onto FVL FARA, FLRAA aircraft variants and future platforms.

The CIRCM budget line includes 1) CIRCM, 2) funding to counter emerging technology as identified in JUONS SO-0010 Phase 2a and the HQDA Directed Requirement for the Common Infrared Countermeasures Quick Reaction Capability (CIRCM QRC), 3) funding to support HQDA Directed Requirement for the Phase 3 ATW/CIRCM QRC.

CIRCM (EB4)

CIRCM is the next generation lightweight, laser-based IRCM component that will interface with both the Army's CMWS and future MWS to defeat current and emerging missile threats that use multispectral technology for rotary-wing, tilt-rotor and small fixed-wing aircraft across the DoD. CIRCM receives an angular bearing hand-off from the MWS, employs a pointing and tracking system which acquires the handed-over threat and tracks the incoming missile during and after motor burnout. CIRCM jams the missile by using modulated laser energy in the missile seeker band, thus degrading the tracking capability of the missile and causing it to miss the aircraft. CIRCM is utilizing Open Systems Architecture which allows flexibility with software and hardware refreshes. Tech insertions, when coupled with future threat acquisition and integration, will ensure CIRCM performance to keep pace with future threats. CIRCM is part of the suite of ASE Mission Equipment for the FVL platform.

The CIRCM A-Kit includes mounting hardware, wiring harnesses, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type. The CIRCM B-Kit is the mission kit (laser, pointer tracker, and controller) required to achieve near spherical coverage for an aircraft.

JUONS SO-0010 and CIRCM QRC

As a part of Phase 2a of the JUONS (SO-0010) program, the Army integrated the DoN LAIRCM system onto the Army and SOA platforms. Due to a number of challenges, circumstances, and variables, the Army updated the ATW/CIRCM QRC and LIMWS Directed Requirements (dated November 16, 2018). The updated requirements extend the utilization of ATW DoN LAIRCM on conventional Army aircraft and cancel the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintains the need for ATW/CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft will transfer to Special Operations Aircraft budget line in FY22.) As a result, the Army did not acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system.

Fiscal Year (FY) 2022 Base RDTE funding in the amount of \$16.630 million will fund A-Kit development, integration and test activities on multi-variant platforms.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>	Project (Number/Name) EB4 / <i>CIRCM</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Title: CIRCM Product Development</p> <p>Description: CIRCM product development, support costs, & management services</p> <p>FY 2021 Plans: FY 2021 Base funding supports continuing A-Kit development and integration activities for multi-variant platforms.</p> <p>FY 2022 Plans: FY 2022 RDTE Base funding supports continuing A-Kit development, model based systems engineering, and integration activities for the AH-64E v6 platform. Supports preliminary analysis for FVL A-kit development.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in requirements are due to the completion of IOT&E and the demonstrated growth in the CIRCM system reliability.</p>		15.376	18.036	9.902
<p>Title: CIRCM Test & Evaluation (T&E)</p> <p>Description: CIRCM T&E activities</p> <p>FY 2021 Plans: FY 2021 RDTE funding supports A-Kit Integration testing and Threat & Vulnerability Analysis.</p> <p>FY 2022 Plans: FY 2022 RDTE Base funding supports A-Kit Integration testing for the UH-60V & the AH-64E v6 platforms. Supports continuing Threat & Vulnerability Analysis.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Increase in requirements are due to A-Kit Integration testing for the UH-60V & the AH-64E v6 platforms.</p>		6.850	4.434	6.728
<p>Title: Phase 3 CIRCM QRC OCO</p> <p>Description: Phase 3 CIRCM QRC SEPM, Software Modeling and Simulation</p> <p>FY 2021 Plans: FY 2021 RDTE OCO funding in the amount of \$2.300 million will fund Phase 3 CIRCM QRC SEPM, Software Modeling and Simulation activities.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 QRC OCO funding line was reduced to \$0.</p>		-	2.300	-
Accomplishments/Planned Programs Subtotals		22.226	24.770	16.630

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>	Project (Number/Name) EB4 / <i>CIRCM</i>
--	--	--

	FY 2020	FY 2021
Congressional Add: Program Increase - Aviation Artificial Intelligence Virtual Training Environment	-	5.000
FY 2021 Plans: FY 2021 RDTE Base funding in the amount of \$5.000 million will fund the development of an Aviation Artificial Intelligence Virtual Training Environment.		
Congressional Adds Subtotals	-	5.000

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• AZ3537: <i>Common Infrared Countermeasures (CIRCM)</i>	178.094	266.517	240.412	-	240.412	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The December 28, 2011, Defense Acquisition Executive (DAE) Acquisition Decision Memorandum (ADM) authorized entry into the Technology Maturation and Risk Reduction (TMRR) phase, designated the program a pre-Major Defense Acquisition Program (MDAP), and approved the updated exit criteria. The August 25, 2015, DAE ADM authorized entry into the Engineering and Manufacturing Development (EMD) phase and designated the program as a MDAP. The EMD contract was awarded to Northrop Grumman Systems Corporation (NGSC) on August 28, 2015. The EMD contract includes priced options for Other Platform A-Kit Development, A-Kit Engineering Support, Low Rate Initial Production (LRIP) 1 and 2 Prototypes (Hardware and Installs), LRIP 1 and 2 Engineering and Test Support, Software Technical Data Package (TDP), Navy funded requirements, and Defense Exportability Features (DEF). CIRCM MS C was approved September 14, 2018, the LRIP and Engineering Support options were exercised and the program entered the Production & Deployment phase with First Unit Equipped (FUE) achieved in the second quarter of FY 2020, and a Full Rate Production Decision Review (FRPDR) planned for the second quarter of FY 2021. During the MS C approval process, the CSA directed funding be increased beginning in FY 2020 to accelerate CIRCM production, Initial Operational Test (IOT) and to field one Combat Aviation Brigade (CAB) per year.

Due to the urgency of addressing the Size, Weight, Power, and Cooling (SWaP-C) issues related to the Phase 2a JUONS SO-0010 DoN LAIRCM initial materiel solution, the Army approved a Directed Requirement for the Phase 3 ATW/CIRCM QRC (requirement updated in November 2018). The updated requirements extend the utilization of ATW DoN LAIRCM on conventional Army aircraft and cancel the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintains the need for ATW/CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft will transfer to Special Operations Aircraft budget line in FY22.) As a result, the Army will no longer acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>	Project (Number/Name) EB4 / <i>CIRCM</i>
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering Program Management	Various	Various : -	29.585	2.087	Oct 2019	2.118	Nov 2020	1.700	Nov 2021	-		1.700	Continuing	Continuing	Continuing
CIRCM QRC System Engineering & Program Management	Various	Various : -	3.223	-		1.200	Oct 2020	-		-		-	Continuing	Continuing	Continuing
NDA SEC 825 MDAP Cost Overrun	TBD	Various : -	0.020	-		-		-		-		-	0.000	0.020	-
Subtotal			32.828	2.087		3.318		1.700		-		1.700	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non-recurring Engineering (NRE) - Multi Platform A-Kit Development & Integration	C/CPFF	Various : -	82.006	10.038	Jun 2020	10.841	Jun 2021	7.010	Jun 2022	-		7.010	Continuing	Continuing	Continuing
Prototyping (A-Kit)	C/FPIF	Various : -	35.327	0.526		3.136		-		-		-	Continuing	Continuing	Continuing
Other - Threat Management	Various	Various : -	30.855	2.435		1.941		1.192		-		1.192	Continuing	Continuing	Continuing
Data - Logistics Support	Various	Various : -	1.005	0.290		-		-		-		-	Continuing	Continuing	Continuing
CIRCM QRC NRE	C/CPFF	Various : -	6.511	-		-		-		-		-	Continuing	Continuing	Continuing
CIRCM QRC Prototyping	C/CPFF	Various : -	2.120	-		-		-		-		-	Continuing	Continuing	Continuing
CIRCM QRC A-Kit Development & Integration	Various	Various : -	27.775	-		-		-		-		-	Continuing	Continuing	Continuing
CIRCM QRC Software Modeling & Simulation	Various	Various : Various	-	-		1.100		-		-		-	Continuing	Continuing	Continuing
Aviation Artificial Intelligence Virtual Training Environment	TBD	To Be Determined : To Be Determined	-	-		5.000		-		-		-	0.000	5.000	-
Subtotal			185.599	13.289		22.018		8.202		-		8.202	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605035A / Common Infrared Countermeasures (CIRCM)				EB4 / CIRCM							
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Equipment	Various	Various : -	5.563	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			5.563	-		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government System Test and Evaluation	Various	Various : -	141.146	4.415	Apr 2020	4.434	Apr 2021	5.453	Apr 2022	-		5.453	Continuing	Continuing	Continuing
Other Testing - Test Support	Various	Various : -	35.647	2.435		-		1.275		-		1.275	Continuing	Continuing	Continuing
CIRCM QRC Government Integration, System Test & Evaluation	Various	Various : -	19.482	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			196.275	6.850		4.434		6.728		-		6.728	Continuing	Continuing	N/A
Project Cost Totals			420.265	22.226		29.770		16.630		-		16.630	Continuing	Continuing	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>	Project (Number/Name) EB4 / <i>CIRCM</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Multi-Platform A-Kit Development, Integration, Testing	[Redacted]																											
Initial Operational Test and Evaluation (IOT&E)	[Redacted]																											
Future Threat Acquisition & Integration	[Redacted]																											

Note
none

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605035A / <i>Common Infrared Countermeasures (CIRCM)</i>	Project (Number/Name) EB4 / <i>CIRCM</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Multi-Platform A-Kit Development, Integration, Testing	1	2015	4	2029
Engineering & Manufacturing Development (EMD) Phase	4	2015	4	2018
Developmental Test Activity	1	2016	4	2018
Prototyping	1	2016	1	2018
Reliability Demonstration Test (RDT)	2	2018	4	2018
Initial Operational Test and Evaluation (IOT&E)	3	2019	1	2020
Future Threat Acquisition & Integration	1	2020	4	2029

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>							
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	9.589	-	-	-	-	-	-	-	-	-	-
EQ5: <i>Combating Weapons of Mass Destruction (CWMD)</i>	-	9.589	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Man-Portable Radiological Detection System (MRDS) capability will provide increased radiological and nuclear (RN) detection, localization, presumptive identification and field-confirmatory identification capabilities that are networked to provide situational awareness at the tactical level. The MRDS will support Countering Weapons of Mass Destruction (CWMD) Interdiction and Elimination operations, specifically RN Sensitive Site Assessments and Sensitive Site Exploitation. The MRDS program will replace low density legacy COTS equipment while providing new equipment to much of the Chemical Biological RN (CBRN) force. The Joint Personal Dosimeter (JPD-I) is intended to replace Army's legacy dosimeters (Army's PDR-75A reader with the DT-236 watch). The JPD-I will provide a sensor to record and retrieve a Service member's radiation exposure from occupational to tactical levels. Future capability may also support Reconnaissance and Surveillance across the full range of CWMD operations. This capability supports Radiological and Nuclear Interdiction (RNI) and Weapons of Mass Destruction - Elimination (WMD-E) operations to: systematically locate, secure, characterize, and disable WMD programs and related capabilities.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	10.000	0.000	0.000	-	0.000
Current President's Budget	9.589	0.000	0.000	-	0.000
Total Adjustments	-0.411	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.411	-			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>				Project (Number/Name) EQ5 / <i>Combating Weapons of Mass Destruction (CWMD)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EQ5: <i>Combating Weapons of Mass Destruction (CWMD)</i>	-	9.589	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

MRDS 655036EQ5 has no FY2022 funding request.

A. Mission Description and Budget Item Justification

The Man-Portable Radiological Detection System (MRDS) capability will provide increased radiological and nuclear (RN) detection, localization, presumptive identification and field-confirmatory identification capabilities that are networked to provide situational awareness at the tactical level. The MRDS will support Countering Weapons of Mass Destruction (CWMD) Interdiction and Elimination operations, specifically RN Sensitive Site Assessments and Sensitive Site Exploitation. The MRDS program will replace low density legacy COTS equipment while providing new equipment to much of the Chemical Biological RN (CBRN) force. The Joint Personal Dosimeter (JPD-I) is intended to replace Army's legacy dosimeters (Army's PDR-75A reader with the DT-236 watch). The JPD-I will provide a sensor to record and retrieve a Service member's radiation exposure from occupational to tactical levels. This capability supports Radiological and Nuclear Interdiction (RNI) and Weapons of Mass Destruction - Elimination (WMD-E) operations to: systematically locate, secure, characterize, and disable WMD programs and related capabilities.

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

	FY 2020	FY 2021	FY 2022
Title: Program Management - MRDS	2.289	-	-
Description: Provide Program Management			
Title: Test & Evaluation Planning - MRDS	0.419	-	-
Description: Provides test & evaluation support (ATEC/OTC).			
Title: System Engineering - MRDS	0.657	-	-
Description: Provide system engineering support to the MRDS program.			
Title: Cybersecurity/Integration - MRDS	1.813	-	-
Description: Provides cybersecurity thru integration of COTS.			
Title: Acquisition Logistics - MRDS	0.500	-	-
Description: Provides Acquisition Logistics support to the MRDS program.			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>	Project (Number/Name) EQ5 / <i>Combating Weapons of Mass Destruction (CWMD)</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: Analytical Support - MRDS Description: Provide analytical and technical support to the MRDS program.	0.536	-	-
Title: Test Execution - MRDS Description: Operational Test and Evaluation of the MRDS Capability.	3.375	-	-
Accomplishments/Planned Programs Subtotals	9.589	-	-

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

N/A

Remarks

D. Acquisition Strategy

Man-portable Radiological Detection System is a single step acquisition strategy starting at Milestone C to acquire Commercial-Off-The-Shelf equipment sets consisting of a Hands-Free search device, a Hand-Held Radioisotope Identification Device, an integrated tactical radio network, and a Situational Awareness tool in order to provide specialized Army units with a net-ready, rugged, and reliable system that can detect, identify, and characterize designated radionuclides and transmit that information securely to tactical, operational, and strategic command levels in near-real time. The contract approach will be a full and open fixed price contract for LRIP systems to support post Milestone C testing, and an indefinite delivery indefinite quantity fixed price contract for the full rate production task order. The level of technological maturity is such that MRDS entered the acquisition cycle from MDD at MS C (FY 2018). The program is working toward a Full Rate Production Decision in 4th Qtr of FY 2020 concurrent with a Full Rate Production Contract Award.

The Joint Personal Dosimeter - Individual (JPD-I) Program Office (PO) will leverage the Navy's market research, testing and down select to meet the Army's requirements. The level of technological maturity is such that JPD-I entered the acquisition cycle from MDD at MS C (FY 2018). A Full Rate Production Decision in 1st Qtr of FY 2019 was made concurrent with a Full Rate Production Contract Award.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>	Project (Number/Name) EQ5 / <i>Combating Weapons of Mass Destruction (CWMD)</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	Allot	Various : Various	5.066	2.289	Dec 2019	-		-		-		-	0.000	7.355	-
Acquisition Document Development	Allot	Various : Various	0.180	-		-		-		-		-	0.000	0.180	-
Subtotal			5.246	2.289		-		-		-		-	0.000	7.535	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contract Award	C/FFP	TBD : TBD	4.806	-		-		-		-		-	0.000	4.806	-
Subtotal			4.806	-		-		-		-		-	0.000	4.806	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cybersecurity	MIPR	Edgewood Chemical and Biological Center : Edgewood, Maryland	1.303	1.813	Jan 2020	-		-		-		-	0.000	3.116	-
Acquisition Logistics	MIPR	Communications-Electronics Command : Aberdeen Proving Ground, MD	1.064	0.500	Jan 2020	-		-		-		-	0.000	1.564	-
Analytical Support	MIPR	Various : Various	0.713	0.536	Jan 2020	-		-		-		-	0.000	1.249	-
Systems Engineering	MIPR	Edgewood Chemical and Biological Center : Aberdeen Proving Ground, MD	1.358	0.657	Jan 2020	-		-		-		-	0.000	2.015	-
Subtotal			4.438	3.506		-		-		-		-	0.000	7.944	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>	Project (Number/Name) EQ5 / <i>Combating Weapons of Mass Destruction (CWMD)</i>
--	---	---

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T&E	MIPR	A TEC : Aberdeen Proving Ground, MD	1.406	0.419	Dec 2019	-		-		-		-	0.000	1.825	-
Component testing	MIPR	Various : Various	3.645	3.375	Feb 2020	-		-		-		-	0.000	7.020	-
Subtotal			5.051	3.794		-		-		-		-	0.000	8.845	N/A
Project Cost Totals			19.541	9.589		0.000		-		-		-	0.000	29.130	N/A

Remarks
 FY 2019 Budget control is in correct. JPEO-CBRND received a total of \$10.883M in PE 6605036A. \$6M for the JPDI & MRDS ATP requirement. \$4.883M for the base program MRDS.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>	Project (Number/Name) EQ5 / <i>Combating Weapons of Mass Destruction (CWMD)</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LRIP- MRDS	█																											
Log Demo and IOT&E - MRDS	█																											
FRP, NET, and Fielding -MRDS					█				█				█				█				█							
Component Testing - JPD I	█																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605036A / <i>Combating Weapons of Mass Destruction (CWMD)</i>	Project (Number/Name) EQ5 / <i>Combating Weapons of Mass Destruction (CWMD)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Documentation Development - MRDS	1	2017	2	2018
Developmental Testing - MRDS	3	2017	4	2017
Milestone C - MRDS	2	2018	2	2018
LRIP Contract Award - MRDS	4	2018	1	2019
LRIP- MRDS	4	2018	3	2020
Component Testing - MRDS	2	2019	4	2019
Log Demo and IOT&E - MRDS	4	2019	3	2020
FRP, NET, and Fielding -MRDS	4	2020	4	2026
LRIP Contract Award - JPD I	2	2018	2	2018
Component Testing - JPD I	2	2019	2	2020
Milestone C and FRP - JPD I	1	2019	1	2019

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)					PE 0605038A / Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite							
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	5.805	4.669	7.618	-	7.618	-	-	-	-	-	-
EQ7: NBC Reconnaissance Vehicle (NBCRV) Sensor Suite	-	5.805	4.669	7.618	-	7.618	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Nuclear, Biological, and Chemical Reconnaissance Vehicles (NBCRV) Sensor Suite Upgrade (SSU) provides maneuver formations the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commander's priority intelligence requirements (PIR), and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability with regard to protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queueing to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	6.054	4.846	8.342	-	8.342
Current President's Budget	5.805	4.669	7.618	-	7.618
Total Adjustments	-0.249	-0.177	-0.724	-	-0.724
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.249	-0.177			
• Adjustments to Budget Years	-	-	-0.724	-	-0.724

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / Nuclear Biological Chemical / Reconnaissance Vehicle (NBCRV) Sensor Suite	Project (Number/Name) EQ7 / NBC Reconnaissance Vehicle (NBCRV) Sensor Suite
--	---	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EQ7: NBC Reconnaissance Vehicle (NBCRV) Sensor Suite	-	5.805	4.669	7.618	-	7.618	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Nuclear, Biological, and Chemical Reconnaissance Vehicles (NBCRV) Sensor Suite Upgrade (SSU) provides maneuver formations the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commander's priority intelligence requirements (PIR), and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability with regard to protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queueing to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability. In FY 2020, NBCRV SSU program will develop a prototype of integrated sensors for demonstration in Joint Warfighter Assessment 2020. In FY 2021, NBCRV SSU program will develop hardened and integrated sensors for development test in FY 2022.

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

	FY 2020	FY 2021	FY 2022
Title: Product Development and Unmanned Platform Integration	5.005	4.341	6.780
Description: Development of CSD, radiological detectors, standoff chemical vapor detector, unmanned platform identification and integration, Government strategic planning, system engineering, logistics, training, and Integrated Product Team (IPT) support.			
FY 2021 Plans: Continue CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, and technical support for the accelerated program.			
FY 2022 Plans: Complete CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, technical support, integration, and the bulk of component and system level developmental testing. Will conduct Limited User Test.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / <i>Nuclear Biological Chemical / Reconnaissance Vehicle (NBCRV) Sensor Suite</i>	Project (Number/Name) EQ7 / <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
The increase is to conduct operational testing including Cybersecurity Testing, Limited User Test, and Logistics Demonstration.			
Title: Program Management and Oversight	0.800	0.328	0.838
Description: Program Management and Oversight			
FY 2021 Plans: Continue Government program management, system engineering, and Integrated Product Team (IPT) support.			
FY 2022 Plans: Complete Government program management, system engineering, and Integrated Product Team (IPT) support.			
FY 2021 to FY 2022 Increase/Decrease Statement: Minor change due to routine program adjustments			
Accomplishments/Planned Programs Subtotals	5.805	4.669	7.618

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

N/A

Remarks

D. Acquisition Strategy

Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) is an upgrade for the Stryker NBCRV. The acquisition strategy for the Stryker NBCRV SSU is to integrate mature sensors into the Stryker NBCRV in FY 2019 for demonstration in Joint Warfighting Assessment (JWA) 19 and system level testing. Following the testing and demonstration, the hardware and software will be fixed and updated for demonstration in JWA 20 and test in FY 2020. An In Progress Review will be held in late FY 2022 to execute a Modification Work Order for fielding in FY 2023. This schedule was accelerated from the previous schedule based on the maturity of the sensor and guidance from the Chief of Staff of the Army. The NBCRV SSU program will conduct system level testing in FY 2021 using Defense Wide funding after the Modification Work Order In Process Review to ensure system performance.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / Nuclear Biological Chemical / Reconnaissance Vehicle (NBCRV) Sensor Suite	Project (Number/Name) EQ7 / NBC Reconnaissance Vehicle (NBCRV) Sensor Suite
--	---	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Personnel	MIPR	JPEO-CBRND : Edgewood, MD	1.986	0.800	Nov 2019	0.328	Nov 2020	0.838	Nov 2021	-		0.838	Continuing	Continuing	Continuing
Subtotal			1.986	0.800		0.328		0.838		-		0.838	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development and Sensor Integration	C/Various	Various : Various	12.094	5.005	Nov 2019	4.341	Nov 2020	4.952	Nov 2021	-		4.952	Continuing	Continuing	Continuing
Product Development (CSD) AGENTASE, LLC (TMRR)	Option/CPFF	AGENTASE, LLC : Elkridge, MD	2.945	-		-		-		-		-	0.000	2.945	-
Product Development (CSD) L3 (TMRR)	Option/CPFF	L-3 Communications Sonoma EO, Inc : Santa Rosa,, CA	2.627	-		-		-		-		-	0.000	2.627	-
Product Development (CSD) UTC (TMRR)	Option/CPFF	Hamilton Sundstand Space Systems : Pomona, CA	2.087	-		-		-		-		-	0.000	2.087	-
Product Development (CSD) Rad/Nuc (M2PRDS)	C/CPFF	Advanced Technologies International : Summerville, SC	1.942	-		-		-		-		-	0.000	1.942	-
Product Development (ECBC Matrix)	MIPR	CCDC CBC : Aberdeen Proving Ground	2.259	-		-		-		-		-	0.000	2.259	-
Subtotal			23.954	5.005		4.341		4.952		-		4.952	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605038A / Nuclear Biological Chemical / Reconnaissance Vehicle (NBCRV) Sensor Suite				EQ7 / NBC Reconnaissance Vehicle (NBCRV) Sensor Suite							
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	MIPR	ECBC : Edgewood, MD	1.301	-		-		-		-		-	Continuing	Continuing	Continuing
Requirements Development Support	Various	Various : Various	0.629	-		-		-		-		-	0.000	0.629	-
Subtotal			1.930	-		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	ECBC : Edgewood, MD	1.483	-		-		1.828	Nov 2021	-		1.828	Continuing	Continuing	Continuing
Subtotal			1.483	-		-		1.828		-		1.828	Continuing	Continuing	N/A
Project Cost Totals			29.353	5.805		4.669		7.618		-		7.618	Continuing	Continuing	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / Nuclear Biological Chemical / Reconnaissance Vehicle (NBCRV) Sensor Suite	Project (Number/Name) EQ7 / NBC Reconnaissance Vehicle (NBCRV) Sensor Suite

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Design and Fabrication Phase 2 (Continued from PE0603627 E	████████████████				████████████████																							
Component Test					████████████████				████████████████																			
System Level Test 1					████████████████				████████████████																			
Joint Modernization Command Focused Assessment		██																										
Limited User Test										██																		
Modification Work Order Execution IPR											██																	
Production/Fielding													████████████████															

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / <i>Nuclear Biological Chemical / Reconnaissance Vehicle (NBCRV) Sensor Suite</i>	Project (Number/Name) EQ7 / <i>NBC Reconnaissance Vehicle (NBCRV) Sensor Suite</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Design and Fabrication (Continued from PE0603627 E79)	2	2017	3	2019
Joint Warfighter Assessment 2019	3	2019	3	2019
Design and Fabrication Phase 2 (Continued from PE0603627 E79)	2	2019	3	2021
Component Test	2	2021	3	2022
System Level Test 1	3	2021	3	2022
Joint Modernization Command Focused Assessment	3	2020	3	2020
Limited User Test	3	2022	3	2022
Modification Work Order Execution IPR	4	2022	4	2022
Production/Fielding	1	2023	4	2024

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	50.662	28.544	18.892	-	18.892	-	-	-	-	-	-
CY5: <i>CYBER Situational Understanding</i>	-	20.183	23.892	18.892	-	18.892	-	-	-	-	-	-
EV5: <i>Defensive CYBER Operations</i>	-	30.479	4.652	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

FY2022 Defensive Cyber Operations (DCO) budget line provides funding for Program Executive Office Command Control and Communications - Tactical (PEO C3T) Cyber Situational Understanding (Cyber SU).

Cyber Situational Understanding (Cyber SU) funding line supports the Army Network Modernization Strategy Line of Effort (LOE), Common Operating Environment (COE). Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy. This funding will be executed by Program Executive Office Command Control and Communications - Tactical (PEO C3T). DCO and Tactical DCO Infrastructure (TDI) funding line supports the Army Network Modernization Strategy LOE, Key Enabler for Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy. DCO funding will be executed by Program Executive Office Enterprise Information Systems (PEO EIS). TDI funding will be executed by PEO C3T.

655041CY5:

- Cyber SU is a mission command application designed for use by maneuver commanders to assist in decision making during combat operations. Cyber SU provides maneuver commanders at Brigade to Army Service Component Command (ASCC) with a broad understanding of Cyber Electromagnetic Activity (CEMA) threats by informing the commander of any cyber related impacts to physical domains, unified land operations, and the overall mission. Cyber SU allows for the visualization and understanding of physical (geographical), logical (at a specific network internet protocol), and cyber persona layers (bad actors, from individuals to nation states) of cyberspace. This is based on data/information from multiple sources and sensors that produce a CEMA overlay on the commander's Common Operational Picture (COP) within the Command Post Computing Environment (CPCE). Supporting CEMA, Cyber SU ingests existing data sources from related programs (e.g, DCO, TDI, CPCE, EWPM, UNO, DCGS-A), synchronizes and integrates blue (friendly), red (enemy), and grey (commercial/private sector data) and enables collaboration at the tactical edge. (PEO C3T)

655041EV5:

- (Legacy) Tactical DCO Infrastructure (TDI) is a software-only program, which consists of pre-configured DCO tools residing on the Tactical Server Infrastructure (TSI). The TDI capability will reside within the Command Post at echelon Corps through Brigade for both organic Cyber Network Defenders as well as remote access by Cyber Protection teams (CPT) to support defense of the Tactical Network. (PEO C3T)

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>
--	---

- Defensive Cyber Operations (DCO) consists of platform and software programs which are key elements of the DCO Maneuver Baseline infrastructure, platform, and tools. The employment of defensive capabilities creates specific effects in cyberspace through actions that allow commanders to achieve the following objectives: deter, destroy, and defeat enemy offensive cyberspace operations; gain time; economy of force; control key terrain; protect tasked critical assets and infrastructure; and develop intelligence. DCO supports the Army Cyber Command (ARCYBER), Army Cyberspace Operations and Integration Center (ACOIC), (5) Regional Cyber Centers (RCCs), Cyber Warfare Battalion (CWB), Multi-Domain Task Force (MDTF), Cyber Protection Brigade (CPB), and (41) Cyber Protection Teams (CPTs) in COMPO 1/2/3. (PEO EIS)

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	50.662	28.544	5.198	-	5.198
Current President's Budget	50.662	28.544	18.892	-	18.892
Total Adjustments	0.000	0.000	13.694	-	13.694
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	13.694	-	13.694

Change Summary Explanation

The increase of \$13.694 Million properly aligns program CY5 Situational Understanding for FY2022.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>				Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>CY5: CYBER Situational Understanding</i>	-	20.183	23.892	18.892	-	18.892	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Cyber Situational Understanding (SU) is not part of the Software Pilot and remains within this budget line item.

A. Mission Description and Budget Item Justification

Cyber Situational Understanding (Cyber SU) funding line supports the Army Network Modernization Strategy LOE 2, Common Operating Environment (COE). Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy. This funding will be executed by Program Executive Office Command Control and Communications - Tactical (PEO C3T).

Cyber SU is a software-only, mission command application designed for use by maneuver commanders at the tactical level (Infantry, Armor, Stryker Brigade Combat Teams, Division, Corps, and Army Service Component Commands). Cyber SU is the first application of its kind designed for maneuver commanders focusing on tactical/ expeditionary combat operations to detect and mitigate cyber and electronic warfare threats and assist with decision making during combat operations.

Cyber SU produces a Cyber Electromagnetic Activity (CEMA) overlay on the commander's Common Operational Picture (COP) within the Command Post Computing Environment (CPCE) software, and is integrated on the Tactical Server Infrastructure (TSI) framework. Unlike Enterprise Cyber Mission Force(s) Tools Cyber SU was designed using the CPCE Software Development Kit (SDK), to operate within the constraints of TSI hardware, a bandwidth constrained tactical environment, and support COE standards on the Army's Command Post. The underlying Cyber SU framework is also being leveraged by the Air Force to ensure alignment with the Army and Air Force Combined Joint All Domain Command and Control (CJADC2). The Army will also continue to explore options to integrate Cyber SU functionality and data ingests between other Services.

Cyber SU provides the maneuver commander the ability to visualize and understand any cyber related impacts/threats to physical (geographical), logical (at a specific network internet protocol), and cyber persona layers (bad actors, from individuals to nation states) of tactical cyberspace data. Supporting CEMA, Cyber SU ingests existing data sources from related programs (e.g. DCO, TDI, CPCE, EWPM, UNO, DCGS-A), synchronizes and integrates blue (friendly), red (enemy), and grey (commercial/ private sector data), and enables collaboration therein at the tactical edge.

Cyber SU follows a five-year, Information Technology (IT) Box construct (FY20 - FY24) to deliver capability based on approved requirements. In this IT Box construct, Cyber SU is being developed in three capability drops (CDs): See Yourself (Initial Capability), See Your Cyber Battlespace (CD1), and Understand Your Cyber Battlespace (CD2). Each capability drop builds upon the previous drop in order to deliver Full Deployment of Cyber SU at the end of the five years. Cyber SU Initial Capability provides the Tactical Maneuver Commander and CEMA work group a user interface and data ingest focused on friendly operations. The CD 1 capability will ingest and integrate critical warfighting cyber data/ functionality (e.g. Cyber Threat Intelligence data, Electronic Warfare data, and Blue Order of Battle data, initial Red

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021	
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>	
Order of Battle data and initial grey data into actionable warfighter information. CD2 will finalize incorporation of Red Order of Battle data and grey data and incorporate advanced features and analytics for proactive decision making in support of multi-domain operations.			
Cyber SU FY22 funding supports the completion of maintenance and patching to allow for the delivery of the Cyber SU Initial capability in support of IOC planned in 3QFY22. Funding also supports the continued development, engineering, testing, training development and program management required to establish the Cyber SU CD 1 capability in support of CD 1 Limited Deployment planned for FY23. In addition, funding supports the initial development of CD2.			
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021
Title: Development Engineering		18.504	17.273
Description: Leverage industry developed prototype software, as well as ingest and synchronize cyber data from multiple Program of Record (PoRs) to develop and engineer the Cyber SU capability.			
FY 2021 Plans: FY2021 funding supports the continued prototyping, development, and testing of systems engineering/architecture products, middleware and back-end services required to establish of the initial Cyber SU capability. Funds support incorporation of Cyber effects of the Command Post Computing Environment (CPCE) applications and critical warfighting functionality into the Cyber SU framework in order to achieve IOC 3QFY22. In addition, FY21 funding also supports the initial development of systems engineering/architecture products, middleware and back-end services required for Cyber SU CD 1 capability in support of CD 1 Limited Deployment planned for FY23. The CD 1 capability will ingest and integrate critical warfighting cyber data/ functionality (e.g. Cyber Threat Intelligence data, Electronic Warfare data, Blue Order of Battle data, initial Red Order of Battle data and initial grey data) into actionable warfighter information that is displayed on a CEMA overlay on the COP within CPCE. After development of each capability drop, funding will be utilized by the vendor to conduct regular software maintenance and patching. PEO C3T will execute these funds.			
FY 2022 Plans: FY2022 funding supports the completion of maintenance and patching to allow for the delivery of the Cyber SU Initial capability in support of IOC planned in 3QFY22. Cyber SU Initial Capability provides the Tactical Maneuver Commander and CEMA work group a user interface with data ingest focused on friendly operations displayed within the Command Post Computing Environment (CPCE). Funding also supports the continued development of systems engineering/architecture products, middleware and back-end services required to establish the Cyber SU CD 1 capability in support of CD 1 Limited Deployment planned for FY23. The CD 1 capability will ingest and integrate critical warfighting cyber data/ functionality (e.g. Cyber Threat Intelligence data, Electronic Warfare data, Blue Order of Battle data, initial Red Order of Battle data and initial grey data) into actionable warfighter information that is displayed on a CEMA overlay on the COP within CPCE. In addition, funding supports the initial development of CD2. CD2 will finalize incorporation of Red Order of Battle data and grey data and incorporate advanced features and analytics for proactive decision making in support of multi-domain operations. After development of each capability			
		15.073	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
drop, funding will be utilized by the vendor to conduct regular software maintenance and patching. PEO C3T will execute these funds.				
FY 2021 to FY 2022 Increase/Decrease Statement: Decrease due to reduced need for prototyping/development as the effort builds on an established initial capability.				
Title: Systems Test and Evaluation		0.612	4.136	1.375
Description: Efforts include the planning and execution of T&E events including Developmental Test, Interoperability Testing, Software Acceptance Testing, Integration Events, Risk Reduction Events, and User Tests/Evaluations.				
FY 2021 Plans: FY 2021 funding will allow for the continued developmental testing (DT), user testing (UT) and user assessments (UA) for the initial Cyber SU capability, in order to gain user feedback to inform an operational assessment in 3QFY21. PEO C3T will execute these funds.				
FY 2022 Plans: FY 2022 funding will allow for the developmental testing (DT) of the Cyber SU CD 1 capability, in order to gain user feedback to inform development as well as an operational assessment in 3QFY22. PEO C3T will execute these funds.				
FY 2021 to FY 2022 Increase/Decrease Statement: Funding decrease due to a reduced amount of testing required. Further efficiency gained through consolidated PM Mission Command test events as a result of leveraging much of the same equipment and support personnel.				
Title: Training		-	0.501	0.659
Description: The development of training support products, including coordination with US Army Training and Doctrine Command (TRADOC) US Army Cyber Command, PORs, and related organizations to develop applicable program of instruction.				
FY 2021 Plans: FY 2021 funding provides for the continued development and verification/validation of the New Equipment Training (NET) training support package to support IOC 3QFY22. PEO C3T will execute these funds.				
FY 2022 Plans: FY 2022 funding provides for the development of the New Equipment Training (NET) training support package and software user manuals for Cyber SU CD 1. PEO C3T will execute these funds.				
FY 2021 to FY 2022 Increase/Decrease Statement:				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Slight increase due to additional integration required for Cyber SU training products to have similar features as the Command Post Computing Environment (CPCE) training.				
Title: Systems Engineering/Management		1.067	1.982	1.785
Description: Systems Engineering/Management includes business, technical and logistical staff support and overall management of program execution, major events and reporting.				
FY 2021 Plans: FY 2021 funding provides for program office staff (matrix and contractor) continued program execution support and to perform duties necessary to plan and execute activities and milestone events. PEO C3T will execute these funds.				
FY 2022 Plans: FY 2022 funding provides for program office staff (matrix and contractor) continued program execution support and to perform duties necessary to plan and execute activities and milestone events. PEO C3T will execute these funds.				
FY 2021 to FY 2022 Increase/Decrease Statement: Funding remains relatively constant.				
Accomplishments/Planned Programs Subtotals		20.183	23.892	18.892
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
N/A				
D. Acquisition Strategy				
The Cyber SU Information System-Initial Capabilities Document was approved on 18 July 2018 by the Joint Requirements Oversight Council. The Requirements Definition Package (RDP) was approved on 19 March 2019 by the Army Requirements Oversight Council Requirements Board. The Cyber SU program is under an Information Technology (IT) Box construct with a five (5) year term (FY20-24) which aligns with the current requirements. The IT Box will be renewed in 3QFY24 for the following five year term (FY25-29).				
The Program Executive Office, Command, Control and Communications-Tactical, Milestone Decision Authority, approved the Materiel Development Decision in Jun 2018, designating Cyber SU as an ACAT III AIS program. Cyber SU entered the Engineering and Manufacturing Development phase of the Acquisition Lifecycle with MDA approval of Milestone B conducted March 2020, and codified in an Acquisition Decision Memorandum April 2020.				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>
<p>The program is utilizing an evolutionary and tailored acquisition under which Cyber SU will develop a series of testable, integrated subsets of capability to meet the overall full functional values of the RDP through the use of Capability Drops (CDs). Subsequent CDs are to be approved by the U.S. Army Cyber Center of Excellence in collaboration with U.S. Army Forces Command.</p> <p>The program awarded a prototyping/development Other Transaction Authority (OTA) to Research Innovations Inc. (RII) in 3QFY20 in order to develop the initial Cyber SU capability. Cyber SU plans to ingest data from related programs (e.g, DCO, TDI, CPCE, EWPMPT, UNO, DCGS-A). Coordination and integration with complimentary programs and systems (sources of cyber data feeds) is an integral part of the program to ensure the data is made available to be consumed by the Cyber SU solution. The Army will also continue to explore options to integrate Cyber SU functionality and data ingests between other Services.</p> <p>Cyber SU will be hosted on the Tactical Server Infrastructure (TSI) and will be fielded by the CPCE/TSI program in accordance with their fielding schedule.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>
--	---	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering/Management	C/FFP	CACI : APG, MD	-	1.067	Mar 2020	1.982		1.785	Mar 2022	-		1.785	Continuing	Continuing	-
Subtotal			-	1.067		1.982		1.785		-		1.785	Continuing	Continuing	N/A

Remarks
 FY20 contract award date reflects when option year was exercised.
 FY22 contract award date reflects when next option year is planned to be exercised.
 Funding remains relatively constant from FY21 to FY22.

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cyber SU Prototyping/Development	C/FFP	Research Innovation Inc. (RII) : Alexandria, VA	-	18.504	Apr 2020	17.273		15.073	Dec 2021	-		15.073	Continuing	Continuing	-
Subtotal			-	18.504		17.273		15.073		-		15.073	Continuing	Continuing	N/A

Remarks
 FY20 contract award date reflects when Prototyping/Development OTA was awarded to RII.
 FY22 contract award date reflects when funding is estimated to be obligated.
 Decrease in funding from FY21 to FY22 is due to a reduced need for prototyping/development as the effort builds on an established initial capability.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training Development	MIPR	DLA : Philadelphia, PA	-	-		0.501		0.659	Jun 2022	-		0.659	Continuing	Continuing	-
Subtotal			-	-		0.501		0.659		-		0.659	Continuing	Continuing	N/A

Remarks
 FY22 contract award date reflects estimated obligation date of funds.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>
--	---	--

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Slight increase from FY21 to FY22 is due to additional integration required for Cyber SU training products to have similar features as the CPCE training.															

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental/Integration/Interoperability Test	MIPR	WSEC : ACC, NJ	-	0.420	May 2020	2.127		0.594	Dec 2021	-		0.594	Continuing	Continuing	-
Test Support	C/FFP	CACI : APG, MD	-	0.133	Mar 2020	1.821		0.484	Mar 2022	-		0.484	Continuing	Continuing	-
Accreditation/Certification	C/FFP	CACI : APG, MD	-	0.059	Mar 2020	0.188		0.297	Mar 2022	-		0.297	Continuing	Continuing	-
Subtotal			-	0.612		4.136		1.375		-		1.375	Continuing	Continuing	N/A

Remarks
 FY20 contract award date reflects when option year was exercised/estimated obligation date of funds.
 FY22 contract award date reflects when option year is planned to be exercised/estimated obligation date of funds.
 Funding decrease from FY21 to FY22 is due to a reduced amount of testing required. Further efficiency gained through consolidated PM Mission Command test events as a result of leveraging much of the same equipment and support personnel.

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	20.183	23.892	18.892	-	18.892	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone B Approval		▲ 1 MS B																										
Prototype/Development and Testing-Initial Capability Drop																												
Integration/IAVAs/Patching-Initial Capability Drop																												
Limited Deployment Decision (Initial Capability)																												
Initial Operational Capability																												
Development and Testing- Capability Drop 1																												
Integration/IAVAs/Patching- Capability Drop 1																												
Limited Deployment Decision (Capability Drop 1)																												
Development/Testing- Capability Drop 2																												
Integration/IAVAs/Patching- Capability Drop 2																												
Full Deployment Decision (FDD) –Capability Drop 2																												
Prototype/Development and Testing- Capability Drop 3																												
Integration/IAVAs/Patching-Capability Drop 3																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Limited Deployment Decision (Capability Drop 3)																									6 ▲ LDD-CD3			
Development and Testing- Capability Drop 4																									Dev./Testing-CD 4			
Integration/AVAs/Patching-Capability Drop 4																									Int./IA			

Note
Cyber SU Full Deployment is defined as when Cyber SU has completed the development and testing of the last capability drop within the IT Box (reaching full functional values of the RDP) and has transferred the capability to the CPCE/TSI program to commence fielding.

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) CY5 / <i>CYBER Situational Understanding</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RDP Approval	2	2019	2	2019
Milestone B Approval	3	2020	3	2020
Prototype/Development and Testing-Initial Capability Drop	3	2020	3	2021
Integration/IAVAs/Patching-Initial Capability Drop	3	2021	1	2022
Limited Deployment Decision (Initial Capability)	2	2022	2	2022
Initial Operational Capability	3	2022	3	2022
Development and Testing- Capability Drop 1	3	2021	3	2022
Integration/IAVAs/Patching- Capability Drop 1	3	2022	3	2023
Limited Deployment Decision (Capability Drop 1)	3	2023	3	2023
Development/Testing- Capability Drop 2	3	2022	3	2023
Integration/IAVAs/Patching- Capability Drop 2	3	2023	3	2024
Full Deployment Decision (FDD) ?Capability Drop 2	4	2024	4	2024
Prototype/Development and Testing- Capability Drop 3	2	2025	3	2025
Integration/IAVAs/Patching-Capability Drop 3	4	2025	1	2026
Limited Deployment Decision (Capability Drop 3)	3	2026	3	2026
Development and Testing- Capability Drop 4	2	2026	3	2026
Integration/IAVAs/Patching-Capability Drop 4	4	2026	1	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>				Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>EV5: Defensive CYBER Operations</i>	-	30.479	4.652	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Defensive Cyber Operations (DCO) programs were selected as a candidate for the BA8 Software RDT&E Appropriation Pilot Program beginning in FY2021. These efforts have been transferred to PE 0608041A Project CD1 beginning in FY2021.

FY2022 DCO Research Development Test and Evaluation (DCO Development Environment (DCODE)) funding associated with software platform infrastructure, integration, and assessments has been transferred to PE 0608041A Project CD1 in FY2022.

A. Mission Description and Budget Item Justification

Defensive Cyber Operations (DCO) and Tactical DCO Infrastructure (TDI) support the Army Network Modernization Strategy Line of Effort (LOE) Key Enabler for the Unified Network. These efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

FY2022 DCO budget line provides funding for Program Executive Office Command Control and Communications - Tactical (PEO C3T) Cyber Situational Understanding (Cyber SU).

Platforms/Levels:

- * DCO - Tactical DCO Infrastructure (TDI) // (FY2022 funds captured in the Pilot program) // (PEO C3T)
- * DCO - Cyberspace Analytics // (FY2022 funds captured in the Pilot program) // (PEO EIS)

Defensive Cyber Tools and Analytics:

- * DCO - Mission Planning // (FY2022 funds captured in the Pilot program) // (PEO EIS)
- * DCO - User Activity Monitoring // (FY2022 funds captured in the Pilot program) // (PEO EIS)
- * DCO - DCO Development Environment (DCODE Forge) // (FY2022 funds captured in the Pilot program) // (PEO EIS)
- * DCO - Army Cyber Command (ARCYBER) Rapid Cyber Prototyping // (FY2022 funds captured in the Pilot program) // (ARCYBER)

655041EV5:

- (Legacy) Tactical DCO Infrastructure (TDI) is a software-only program, which consists of pre-configured DCO tools residing on the Tactical Server Infrastructure (TSI). The TDI capability will reside within the Command Post at echelon Corps through Brigade for both organic Cyber Network Defenders as well as remote access by Cyber Protection teams (CPT) to support defense of the Tactical Network.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>

- Defensive Cyber Operations (DCO) consists of platform and software programs which are key elements of the DCO Maneuver Baseline infrastructure, platform, and tools. The employment of defensive capabilities creates specific effects in cyberspace through actions that allow commanders to achieve the following objectives: deter, destroy, and defeat enemy offensive cyberspace operations; gain time; economy of force; control key terrain; protect tasked critical assets and infrastructure; and develop intelligence. DCO supports the Army Cyber Command (ARCYBER), Army Cyberspace Operations and Integration Center (ACOIC), (5) Regional Cyber Centers (RCCs), Cyber Warfare Battalion (CWB), Multi-Domain Task Force (MDTF), Cyber Protection Brigade (CPB), and (41) Cyber Protection Teams (CPTs) in COMPO 1/2/3.

- (Legacy) ARCYBER Rapid Cyber Prototyping provides software based capabilities that can quickly respond to emerging cyber threats and keep up with threat technology; while supporting Multi-Domain operations. ARCYBER identifies potential development and prototyping efforts via Cyber Needs Forms (CNFs) based on operational feedback, changes in the operational information environment and/or trends of adversarial activity; which drive CONOP and Tactics Techniques and Procedures (TTP) modifications. These are separate and distinct from DCO programmed efforts already funded or budgeted for by PM DCO and are used to rapidly address a network threat/vulnerability.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: DCO - Tactical DCO Infrastructure (TDI) (PEO C3T) Description: DCO Tactical DCO Infrastructure is a software-only program which consists of pre-configured DCO Tools on the Tactical Server Infrastructure (TSI) residing within the Command Post, at Brigade through Corps, for both organic Cyber Network Defenders as well as remote access by Cyber Protection Teams (CPTs) to support defense of the tactical network.	4.794	-	-
Title: DCO - Cyberspace Analytics (PEO EIS) Description: DCO Cyberspace Analytics Big Data Platform (BDP) is a scalable software based capability hosted in the cloud, called Gabriel Nimbus (GN), which offers interfaces and visualization accessible by cyberspace defenders at all levels to facilitate counter-reconnaissance activities meant to discover the presence of advanced or sophisticated cyber threats and vulnerabilities.	14.707	-	-
Title: DCO - Mission Planning (PEO EIS) Description: DCO Mission Planning (DCOMP) solution acts as the lead application integrator for the Army's Big Data Platform. It is a software application-based, scalable warfighting capability for Army DCO mission command and planning at the tactical and strategic levels.	2.184	-	-
Title: DCO - User Activity Monitoring (PEO EIS) Description: DCO User Activity Monitoring is the primary capability within the Army's overall Insider Threat program. UAM is primarily a software-based, scalable solution (some hardware in the on-premise solution) that proactively identifies and mitigates	1.588	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
internal risks associated with the theft or misuse of critical, mission essential data. It utilizes an integrated approach with a centralized UAM cell sending data to a core Insider Threat Hub.				
<p>Title: DCO - Development Environment (formerly Forge) (PEO EIS)</p> <p>Description: DCO Development Environment (DCODE) (formerly Forge) is a physical and virtual assets that provides continual integration, upgrade, assess, optimization and Soldier operational environment. It is designed to provide centralized lifecycle management and consists of the following capabilities: (1) Forge - physical or virtual asset that provides integration and assessment capabilities during the development and integration phases of operations (centrally managed patching and security); and (2) Development Network - provides the capability to remote into multiple networks (provides safe and secure infrastructure framework for Cyber Protection Teams (CPTs)).</p> <p>FY 2021 Plans: FY 2021 funding continues assessment of new cyber technologies within controlled environment, test capabilities in integrated environment, provide virtual training access 24/7 worldwide, and test/push approved enhancement remotely.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY2022 DCO Research Development Test and Evaluation (DCO Development Environment (DCODE)) funding associated with software platform infrastructure, integration, and assessments has been transferred to PE 0608041A Project CD1 in FY2022.</p>		4.643	3.653	-
<p>Title: DCO - Rapid Cyber Prototyping (ARCYBER)</p> <p>Description: ARCYBER Rapid Cyber Prototyping provides software based capabilities that can quickly respond to emerging cyber threats and keep up with threat technology; while supporting Multi-Domain operations. ARCYBER identifies potential development and prototyping efforts via Cyber Needs Forms (CNFs) based on operational feedback, changes in the operational information environment and/or trends of adversarial activity; which drive CONOP and Tactics Techniques and Procedures (TTP) modifications. These are separate and distinct from DCO programmed efforts already funded or budgeted for by PM DCO and are used to rapidly address a network threat/vulnerability.</p> <p>FY 2021 Plans: FY 2021 funding supports the Rapid prototyping efforts and assessment for solutions that will enable solving more complicated problems that span Cyber, EW, and IO domains through rapid prototyping and capability assessments, which is outside of approved Requirements Definition Packages (RDPs) but within the scope of the FY 2018-2022 IT-Box.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: There is no funding budgeted in FY 2022.</p>		1.000	0.999	-
<p>Title: DCO - Management Services (PEO EIS)</p>		1.563	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Description: Program management services consists of System Engineering and Technical Assistance (SETA) contractors and government/contract matrix support from Software Engineering Center (SEC), Information Systems Engineering Command (ISEC), and Army Test and Evaluation Command (ATEC) for development engineering, integration, and testing of software based DCO capabilities.			
Accomplishments/Planned Programs Subtotals	30.479	4.652	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• B63103: <i>Advanced Cyber Tool Development</i>	56.962	41.153	27.389	-	27.389	-	-	-	-	-	-
• B89001: <i>Insider Threat Program - Unit Activity Monitoring</i>	0.756	1.760	-	-	-	-	-	-	-	-	-
• 0608041A: <i>Defensive CYBER - Software Prototype Development</i>	-	56.706	118.811	-	118.811	-	-	-	-	-	-

Remarks
 OPA PE B63103 - DCO hardware procurement, fielding, and new equipment training for Garrison Defensive Platform, Deployable DCO Systems, and DCODE Army.
 OPA PE B89001 - DCO Insider Threat Program - Unit Activity Monitoring for UAM operations conducted in support of the Army's insider threat program.
 RDTE PE 0608041A - DCO Software Pilot Program starting in FY21.

D. Acquisition Strategy
 The DCO Information System Initial Capabilities Document was approved on 19 December 2017 by the Army Requirements Oversight Council (AROC). DCO programs are under an IT Box construct with five year term (FY2018-2022) which aligns with current Requirements Definition Packages (RDPs). IT Box establishes funding thresholds, by appropriation, for a program over a capability's projected lifecycle of five (5) years. Current IT Box will expire in 4QFY2022 and planned to be renewed in 1QFY2022.

The Milestone Decision Authority (MDA) approved the Materiel Development Decision (MDD) on 13 April 2018 designating TDI as an ACAT III program. The Tactical DCO Infrastructure (TDI) program RDP was approved on 8 November 2018 by the Army Requirement Board (ARB). Under subsequent reviews, the MDA approved a tailored defense unique software intensive acquisition approach for TDI. To support this agile acquisition approach, the TDI program office will develop and deploy pre-configured software in a series of capability drops in order to deliver full functional values of the RDP that align with DCO priorities. The TDI program had a Full Deployment Decision (FDD) of TDI's initial capability approved by the MDA on September 2019, which allowed the program to achieve Initial Operational Capability

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>
--	---	---

(IOC) in October 2019. TDI is hosted on the Tactical Server Infrastructure (TSI) and will be fielded by the CPCE/TSI program in accordance with their fielding schedule. Execution of the TDI program will be a combination of government entities and commercial vendors.

The ARB approved Cyber Analytics RDP on 18 May 2018; DCO Mission Planning on 8 November 2018; and User Activity Monitoring on 18 March 2019. The DCODE RDP approval is targeted for 3QFY2021. The MDA designated these as ACAT IV programs. Under subsequent reviews, the MDA approved agile acquisition approach to develop and deliver preconfigured software in a series of releases and capability drops in order to deliver full functional values of the RDP that align with DCO priorities. DCO programs utilize standard and FY2018 National Defense Authorization Act (NDAA) 874 agile pilot evolutionary acquisition processes (30-90 rapid acquisition approach). DCO continually delivers new technologies and capabilities as a prototype and fields updated capabilities. DCO contract strategy utilizes multiple existing contracts vehicles to include Other Transactional Authority (OTA), Federal Acquisition Regulation (FAR)-based, Blanket Purchase Agreement (BPA), and Basic Ordering Agreement (BOA).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCO - Tactical DCO Infrastructure (TDI) (PEO C3T)	C/FFP	CACI : Aberdeen Proving Ground (APG), MD	8.275	0.471	Mar 2020	-		-		-		-	0.000	8.746	-
DCO - Cyberspace Analytics (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.552	-		-		-		-		-	0.000	0.552	-
DCO - Tools Suite (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.189	-		-		-		-		-	0.000	0.189	-
DCO - Garrison Defensive Platform (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.913	-		-		-		-		-	0.000	0.913	-
DCO - Mission Planning (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.542	-		-		-		-		-	0.000	0.542	-
DCO - Deployable DCO System (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	0.189	-		-		-		-		-	0.000	0.189	-
DCO - Management Services (PEO EIS)	Various	PEO EIS : Ft Belvoir, VA	1.726	2.221	Oct 2019	-		-		-		-	0.000	3.947	-
Subtotal			12.386	2.692		-		-		-		-	0.000	15.078	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCO - TDI (PEO C3T)	C/CPFF	Parsons and CACI : Aberdeen Proving Ground (APG), MD	11.340	3.613	Jan 2020	-		-		-		-	0.000	14.953	-
DCO - Cyberspace Analytics (PEO EIS)	C/FFP	ACC-RI : IL	35.777	14.647	Dec 2019	-		-		-		-	0.000	50.424	-
DCO - Garrison Defensive Platform (PEO EIS)	C/FFP	ACC-RI : IL	2.060	-		-		-		-		-	0.000	2.060	-
DCO- Garrison Defensive Platforms (PEO EIS)	C/Various	ACC-PI : NJ	9.690	-		-		-		-		-	0.000	9.690	-
DCO - Mission Planning (PEO EIS)	C/CPFF	ACC-RI : IL	8.133	2.184	Feb 2020	-		-		-		-	0.000	10.317	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>
--	---	---

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCO - User Activity Monitoring (PEO EIS)	C/T&M	ACC-RI : IL	-	1.588	Feb 2020	-		-		-		-	0.000	1.588	-
DCO- Threat Emulation (PEO EIS)	C/FFP	ACC-RI : IL	0.761	-		-		-		-		-	0.000	0.761	-
DCO - Rapid Cyber Prototyping (ARCYBER)	C/TBD	ACC-RI : IL	-	1.000	Apr 2020	0.999	Jun 2021	-		-		-	0.000	1.999	-
DCO- Mission Planning (PEO EIS)	MIPR	USAF, AFMC AIR FORCE RESEARCH LAB : NY	14.520	-		-		-		-		-	0.000	14.520	-
Subtotal			82.281	23.032		0.999		-		-		-	0.000	106.312	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCO - TDI (PEO C3T)	MIPR	DLA : Philadelphia, PA	0.174	0.156		-		-		-		-	0.000	0.330	-
Subtotal			0.174	0.156		-		-		-		-	0.000	0.330	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCO - TDI (PEO C3T)	MIPR	ATEC : Aberdeen Proving Ground (APG), MD	1.896	0.554	Jan 2020	-		-		-		-	0.000	2.450	-
DCO - Cyberspace Analytics (PEO EIS)	IA	ATEC & SEC : MD	4.923	-		-		-		-		-	0.000	4.923	-
DCO - Tools Suite (PEO EIS)	IA	ATEC & SEC : MD	0.500	-		-		-		-		-	0.000	0.500	-
DCO - Garrison Defensive Platform (PEO EIS)	IA	ATEC & SEC : MD	0.500	-		-		-		-		-	0.000	0.500	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>
--	---	---

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete			
DCO - Deployable DCO System (PEO EIS)	IA	ATEC & SEC : MD	0.500	-		-		-		-		-	0.000	0.500	-	
DCO - Mission Planning (PEO EIS)	MIPR	ATEC : MD	1.865	-		-		-		-		-	0.000	1.865	-	
DCO - DCO Development Environment (DCODE, formerly Forge (PEO EIS))	IA	ATEC & SEC & TOBYHANNA : Various	2.747	4.045	Jan 2020	3.653	Jan 2021	-		-		-	Continuing	Continuing	Continuing	
Subtotal			12.931	4.599		3.653		-		-		-	Continuing	Continuing	N/A	
Project Cost Totals			107.772	30.479		4.652		-		-		-	Continuing	Continuing	N/A	

Remarks
DCO-TDI(PEO C3T): Award dates reflect the date that funding was/will be sent onto a pre-existing contract or to another organization.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DCO - TDI- IOC	▲ 1 TDI IOC																											
DCO - TDI Development/Integration/Testing-CD 1																												
DCO - Cyberspace Analytics POR Contract																												
DCO - Mission Planning POR Contract																												
DCO - Mission Planning Capability Drop #2																												
DCO - Mission Planning Capability Drop #3																												
DCO - User Activity Monitoring POR Award																												
DCO - User Activity Monitoring POR Contract																												
DCO - User Activity Monitoring Employ on CASE Network																												
DCO - User Activity Monitoring Integrate with BDP																												
DCO - User Activity Monitoring Behavioral Analytics																												
DCO - Threat Emulation RDP Approval																												
DCO - Threat Emulation Program of Record																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DCO - Development Environment (formerly Forge)	██████████				██████████				██████████																			
DCO - Management Services	██████████				██████████				██████████																			
DCO - ARCYBER Rapid Cyber Prototyping (DRUID)	██████████				██████████				██████████																			
DCO - ARCYBER Rapid Cyber Prototyping (Inception)	██████████				██████████				██████████																			
DCO - ARCYBER Rapid Cyber Prototyping (Rapid Proto/Capability Assessments)	██████████				██████████				██████████																			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DCO - Tactical DCO-Infrastructure (TDI) - RDP Approval	3	2018	3	2018
DCO - TDI Development/Integration/Testing-Initial	1	2019	4	2019
DCO - TDI - Full Deployment Decision- Initial Capability	4	2019	4	2019
DCO - TDI- IOC	1	2020	1	2020
DCO - TDI Development/Integration/Testing-CD 1	4	2019	4	2020
DCO- Cyberspace Analytics RDP Approval	3	2018	3	2018
DCO - Cyberspace Analytics POR Award	1	2019	1	2019
DCO - Cyberspace Analytics POR Contract	2	2019	4	2020
DCO - Cyberspace Analytics Capability Drop #1	1	2019	1	2019
DCO - Cyberspace Analytics Capability Drop #2	2	2019	2	2019
DCO - Cyberpace Analytics Capability Drop #3	3	2019	3	2019
DCO - Mission Planning RDP Approved	3	2018	3	2018
DCO - Mission Planning POR Award	1	2019	1	2019
DCO - Mission Planning POR Contract	2	2019	4	2020
DCO - Mission Planning Capability Drop #1	4	2019	4	2019
DCO - Mission Planning Capability Drop #2	1	2020	1	2020
DCO - Mission Planning Capability Drop #3	2	2020	2	2020
DCO - User Activity Monitoring Prototype Award	1	2019	4	2019
DCO - User Activity Monitoring RDP Approval	1	2019	1	2019
DCO - User Activity Monitoring POR Award	1	2020	1	2020
DCO - User Activity Monitoring POR Contract	1	2020	4	2020
DCO - User Activity Monitoring Employ on CASE Network	1	2020	2	2020

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army			Date: May 2021	
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605041A / <i>Defensive CYBER Tool Development</i>	Project (Number/Name) EV5 / <i>Defensive CYBER Operations</i>		

Events	Start		End	
	Quarter	Year	Quarter	Year
DCO - User Activity Monitoring Integrate with BDP	2	2020	3	2020
DCO - User Activity Monitoring Behavioral Analytics	3	2020	4	2020
DCO - Threat Emulation RDP Approval	1	2020	1	2020
DCO - Threat Emulation Program of Record	1	2020	4	2020
DCO - Development Environment (formerly Forge)	1	2019	4	2021
DCO - Management Services	1	2019	4	2020
DCO - ARCYBER Rapid Cyber Prototyping (DRUID)	3	2020	2	2021
DCO - ARCYBER Rapid Cyber Prototyping (Inception)	4	2020	4	2021
DCO - ARCYBER Rapid Cyber Prototyping (Rapid Proto/Capability Assessments)	3	2021	3	2022

Note

Full operational capability is defined when programs have completed the development and testing of the last capability drop within the IT Box (reaching full functional values of the RDP).

Current DCO and TDI IT box ends in FY22. Army Capabilities Manager (ACM, formerly TRADOC Capability Manager (TCM)) is working to renew the IT Box construct for FY23-27.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	27.236	20.511	28.849	-	28.849	-	-	-	-	-	-
FA1: <i>Manpack Radio</i>	-	22.411	9.754	17.762	-	17.762	-	-	-	-	-	-
FA2: <i>Rifleman Radio (RR)</i>	-	4.825	10.757	11.087	-	11.087	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Strategy Lines of Effort (LOE) 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team (N-CFT) capability set approach to achieve the network modernization strategy.

Tactical Network Radio Systems (Low-Tier) provide both Classified and Unclassified communications. The radios provide the Single Channel Ground and Airborne Radio System (SINCGARS) legacy waveform for Classified and Unclassified communications. They also provide advanced waveforms (e.g. TrellisWare TSM) that provide Secure but Unclassified (SBU) communications. The MP radio provides the Mobile User Objective System (MUOS) waveform for Tactical Satellite communications. The HMS program is currently in the process of conducting testing, including Laboratory and Field Based Risk Reduction events, in support of an Operational Test event.

The Handheld, Manpack, and Small Form Fit (HMS) radio program is a single Acquisition Category IC program encompassing: handheld radios (one-channel Rifleman Radio (RR), two-channel Leader Radio (LR), and Single-Channel Data Radio (SCDR)) and Manpack (MP) radio (Generation 1 and Generation 2 radios). HMS provides voice and data communication to the expeditionary Warfighter with an on-the-move, at-the-halt, and stationary Line of Sight (LOS)/Beyond Line of Sight (BLOS) capability for both dismounted personnel and platforms. HMS radio systems are software reprogrammable, networkable, multi-mode systems capable of simultaneous voice and data communication. HMS radios will support a variety of other platforms, including tactical End User Devices (EUD) voice and data needs. HMS provides tailorable and scalable, software-defined radio systems meeting U.S. Army, Air Force, Navy, Marine Corps and Special Operations Command communications needs.

The ITN is a warfighter-enabling System of Systems comprised of key networking components including HMS Program of Record (POR) radio systems, advanced high capacity commercial radios, commercial phone technologies, and advanced radio-application gateway integration and interoperability technologies. These ITN technologies increase transport options and support a converged Mission Command network. The ITN introduces a new Secure But Unclassified (SBU) security domain enhancing Mission Partner interoperability and significantly reducing key distribution and other security-related burdens for the Soldier at lower echelons. This RDTE 6.5 funding line supports ITN testing and evaluation (T&E). The ITN T&E involves mature system development, integration, and demonstration in support of ITN evaluation to include: concept refinement, characterization, data collection, demos, integrated testing, and operational assessments.

Fiscal Year (FY) 2022 Research Development Test & Evaluation (RDT&E) resources are required for continued Integrated Tactical Network (ITN) Developmental Operations (DevOps), required HMS delta testing, and to examine modular and open system architectures to decrease future integration and waveform porting costs. DevOps includes: Soldier feedback during operational demonstrations, evaluations, and test events, as well as to purchase mature production representative prototype components. The ITN DevOps process relies heavily upon Soldier Touch Points (STPs) and User Juries requiring significant resourcing in order to achieve the goals

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>
--	--

and objectives of the N-CFT and Program offices. Additionally, the RDT&E resources are essential to support the ITN Stryker Brigade Combat Team (SBCT) and Armored Brigade Combat Team (ABCT) characterizations. These characterizations are designed and intended to directly support Capability Set 23 fielding decisions in accordance with the Army approved ITN Abbreviated-Capability Development Document (A-CDD).

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	28.404	28.178	47.525	-	47.525
Current President's Budget	27.236	20.511	28.849	-	28.849
Total Adjustments	-1.168	-7.667	-18.676	-	-18.676
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.639			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.168	-1.028			
• Adjustments to Budget Years	-	-	-18.676	-	-18.676

Change Summary Explanation

In FY21, a \$6.639M congressional mark was assessed against FA1 and an additional \$1.028M was removed for SBIR/STTR taxes.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FA1: <i>Manpack Radio</i>	-	22.411	9.754	17.762	-	17.762	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Strategy Lines of Effort (LOE) 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

The Handheld, Manpack, and Small Form Fit (HMS) radio systems serve as the backbone of the Integrated Tactical Network (ITN) architecture, supporting a converged Mission Command network. Fiscal year (FY) 2022 Research Development Test & Evaluation (RDT&E) funding supports HMS delta testing, examination of modular and open system architectures to decrease future integration and waveform porting costs, and ITN testing and evaluation, of which HMS is a key component. It will support mature system development, integration, and demonstration in support of ITN evaluation to include: concept refinement, characterization, data collection, demos, integrated testing, and operational assessments.

The ITN is a warfighter-enabling System of Systems comprised of key networking components including HMS Program of Record (POR) radio systems, advanced high capacity commercial radios, commercial phone technologies, and advanced radio-application gateway integration and interoperability technologies. These ITN technologies increase transport options and support a converged Mission Command network. The ITN introduces a new Secure But Unclassified (SBU) security domain enhancing Mission Partner interoperability and significantly reducing key distribution and other security-related burdens for the Soldier at lower echelons. This RDTE 6.5 funding line supports ITN testing and evaluation (T&E). The ITN T&E involves mature system development, integration, and demonstration in support of ITN evaluation to include: concept refinement, characterization, data collection, demos, integrated testing, and operational assessments.

The Manpack (MP) radios, both Generation 1 legacy and Generation 2 advanced, provide voice and data communication to the expeditionary Warfighter with an on-the-move, at-the-halt, and stationary Line of Sight (LOS)/Beyond Line of Sight (BLOS) capability for both dismounted personnel and platforms. MP radios will support a variety of other platforms, including tactical End User Devices (EUD) voice and data needs. HMS provides tailorable and scalable, software-defined radio systems meeting U.S. Army, Air Force, Navy, Marine Corps and Special Operations Command communications needs.

MP radios provide both Classified and Unclassified communications. MP radios provide the Single Channel Ground and Airborne Radio System (SINCGARS) legacy waveform for Classified and Unclassified communications. MP radios also provide advanced waveforms (e.g. TrellisWare TSM) that provide Secure but Unclassified (SBU) communications. The MP radio provides the Mobile User Objective System (MUOS) waveform for Tactical Satellite communications. The HMS program is currently in the process of conducting testing, including Laboratory and Field Based Risk Reduction events, in support of an Operational Test event.

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

	FY 2020	FY 2021	FY 2022
Title: Program Management	0.829	2.262	1.230

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Description: Program management includes overall management of program execution, major events, reporting, funds execution, contract management, and logistical support. Includes participation in program planning and Integrated Product Team meetings.</p> <p>FY 2021 Plans: During this timeframe, funds will provide overall management and oversight to implement HMS acquisition strategy and ITN evaluation - to include Matrix and Contractor support.</p> <p>FY 2022 Plans: FY22 funds will provide overall management and oversight to implement HMS acquisition strategy and ITN evaluation - to include Matrix and Contractor support.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The decrease in funds for Program Management is a direct result of ramping down after the completion of the HMS OT.</p>				
<p>Title: HMS Engineering/Technical Support</p> <p>Description: Overall technical analysis support to PdM HMS' Manpack and ITN products.</p> <p>FY 2021 Plans: FY 2021 funds will provide technical systems engineering support to evaluate technical alternatives and perform communication architecture analysis to identify alternatives to reduce cost, improve performance, and achieve tactical radio objectives. Funds will facilitate technical test support for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include MP.</p> <p>FY 2022 Plans: FY 2022 funds will provide technical systems engineering support to evaluate technical alternatives and perform communication architecture analysis to identify alternatives to reduce cost, improve performance, and achieve tactical radio objectives. Funds will facilitate technical test support for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include MP.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The decrease in funds for HMS Engineering/Technical Support is a direct result of ramping down after the completion of the HMS OT.</p>		12.632	3.866	3.123
<p>Title: Test and Evaluation</p>		8.950	3.626	13.409

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Sys tems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: Manpack's Test and Evaluation focuses on the key technical and operational characteristics of the system: Radio Frequency performance, security, Reliability, Availability & Maintainability, suitability and survivability requirements, in addition to operational environmental performance requirements as per the Capability Production Document. The OT will include support from Army and DoD operational testers and will use communication scenarios based on the Operational Mode Summary / Mission Profile of the system(s) under test. The OT is designed to validate that HMS products meet warfighter needs in terms of effectiveness, suitability and survivability in an operationally realistic environment. Results from OT will facilitate the delivery orders for Full Rate Production and inform any required delta testing.</p> <p>HMS also supports ITN's iterative evaluation and capability implementation strategy. HMS System of Systems product qualification testing (SoS PQT) includes interoperability with the ITN evaluating and demonstrating the efficacy of the ITN Variable Height Antenna (VHA) and Tactical Radio Integration Kit (TRIK) components in expansion of HMS radio range and function. The HMS Operational Test (OT) includes likelihood of an ITN excursion. In FY22 ITN capabilities will be demonstrated in an operational environment up to the Soldier Touch Point (STP) culminating event (brigade scale), as necessary, every two years. In addition, the Armored Brigade Combat Team (ABCT) Characterization event will take place, resulting in an updated ITN NBOI for Armored formations which will require further refinement once experimented with and applied to more traditional ABCT units. Additionally, funding will support any required delta testing for HMS systems.</p> <p>FY 2021 Plans: The FY 2021 funding will facilitate testing for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include MP.</p> <p>FY 2022 Plans: The FY 2022 funding will facilitate testing for HMS delta testing and candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include MP.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase in funds for Test and Evaluation is a direct result of HMS delta testing and supporting ITN's iterative evaluation and capability implementation strategy, which includes preparations for the upcoming Capability Set 23 Design Decision and Soldier Touch Point.</p>			
Accomplishments/Planned Programs Subtotals	22.411	9.754	17.762

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>

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

Line Item	FY 2020	FY 2021	FY 2022	FY 2022	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Cost To	
			Base	OCO	Total					Complete	Total Cost
• FA2: <i>Rifleman Radio (RR)</i>	4.825	10.757	11.087	-	11.087	-	-	-	-	-	-
• B95004: <i>Handheld Manpack Small Form Fit (HMS)</i>	468.026	547.148	775.069	-	775.069	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

MP Radio is currently executing a May 2014 approved acquisition strategy to procure Non-Developmental Items (NDI). Utilizing a full and open competition strategy, the MP base contract was awarded to all potential industry partners. The MP contract was awarded on 26 February 2016, and procures NDI MP radios for use in a classified environment. As laid out in the Acquisition Strategy, these candidate NDI radios will need to demonstrate through testing, compliance with program requirements; assess effectiveness, suitability, and survivability; to obtain material release for Full Rate Production (FRP). The MP is currently capable of running the following waveforms: Single Channel Ground and Airborne Radio System (SINCGARS), Satellite Communications (SATCOM) - Army managed waveforms, Mobile User Objective System (MUOS) - Navy managed waveform, and other advanced networking waveforms.

The Army will procure radios through a multiple step selection process:

- a. Awarded FFP Contracts to all qualified vendors based on technical acceptability and demonstrations (26 February 2016)
- b. Awarded initial delivery orders based on Qualification Test results (19 December 2016)
- c. Awarded second delivery orders based on Customer Test results (31 July 2017)
- d. Awarded LRIP delivery orders (30 April 2018, 06 June 2019, and 22 April 2020)
- e. Achieve Full Rate Production (3QFY21)

On 14 May 2019, the ITN gained approval from the Army Acquisition Executive to execute via the Middle Tier of Acquisition (MTA) Rapid Prototyping pathway. The ITN Rapid Prototyping MTA approach provides for the use of innovative technologies to rapidly develop fieldable prototypes to demonstrate new capabilities and meet emerging military needs. The ITN acquisition approach is based on integration of Commercial-Off-The-Shelf (COTS), Non-Developmental Item (NDI), and Government-Off-The-Shelf (GOTS) components. The accelerated schedule for the procurement of experimentation equipment was directed by the Army and driven by the ITN Directed Requirement (DR). Contract execution for ITN Non-POR equipment is being leveraged from existing indefinite delivery indefinite quantity (IDIQ) contracts. All contracts are competitive awards using FAR approved contracting vehicles, such as DLA, CHS, NASA SEWP, GSA (IDIQ) or direct contracts that have been established after a market survey has been completed.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Sys tems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>
--	---	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Office Support	Various	PEO C3T & CECOM : Various; APG, MD	0.935	0.829		1.456		1.230		-		1.230	0.000	4.450	-
Subtotal			0.935	0.829		1.456		1.230		-		1.230	0.000	4.450	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering/Technical Support	Various	PEO C3T, ARL, C5ISR, & ATC : Various	3.294	12.632		4.672		3.123		-		3.123	0.000	23.721	-
Subtotal			3.294	12.632		4.672		3.123		-		3.123	0.000	23.721	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Follow on Delta Development & Testing	Various	EPG : Ft. Huachuca	2.447	-		1.651		1.556		-		1.556	0.000	5.654	-
Follow on Delta Development & Testing (2)	Various	OTC : Various	6.813	7.241		-		-		-		-	0.000	14.054	-
ITN Testing	Various	Various : TBD	-	1.709		1.975		11.853		-		11.853	0.000	15.537	-
Subtotal			9.260	8.950		3.626		13.409		-		13.409	0.000	35.245	N/A

			Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			13.489	22.411	9.754	17.762	-	17.762	0.000	63.416	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MP LBRR	[Redacted]																											
ITN CS21 Design Decision	1																											
Operational Test (OT)					HMS OT																							
MP Full Rate Production (FRP)					2																							
Stryker Brigade Combat Team (SBCT) Characterization					3																							
ITN CS23 Prototyping & Testing					[Redacted]																							
ITN CS23 Soldier Touch Point									4																			
ITN CS23 Design Decision									5																			
Armored Brigade Combat Team (ABCT) Characterization									6																			
HMS Follow-on Test Events FY22									HMS Follow-on Test Events FY22																			
HMS Follow-on Test Events FY23													HMS Follow-on Test Events FY23															
ITN CS25 Soldier Touch Point																	7											
ITN CS25 Design Decision																	8											

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
HMS Follow-on Test Events FY24																					■ HMS Follow-on Test Events FY24															
ITN CS25 Prototyping & Testing																									■ ITN CS25 Prototyping & Testing											
HMS Follow-on Test Events FY25																													■ HMS Follow-on Test Events FY25							
HMS Follow-on Test Events FY26																																	■ HMS Follow-on Test Events FY26			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Manpack (MP) Customer Test (CT)	2	2017	4	2017
MP Sandbox and Soldier Feedback Study	1	2018	2	2018
MP Field/Lab Base Risk Reduction Test (FBRR/LBRR)	3	2018	4	2018
NIE 18.2	1	2019	1	2019
MP Log Demo	2	2019	3	2019
MP MUOS MOT&E 2B	3	2019	3	2019
Integrated Tactical Network (ITN) CS21 LBRR	3	2019	4	2019
MP LBRR	2	2020	3	2020
ITN CS21 Design Decision	3	2020	3	2020
Operational Test (OT)	2	2021	2	2021
MP Full Rate Production (FRP)	3	2021	3	2021
Stryker Brigade Combat Team (SBCT) Characterization	4	2021	4	2021
ITN CS23 Prototyping & Testing	2	2021	2	2022
ITN CS23 Soldier Touch Point	2	2022	2	2022
ITN CS23 Design Decision	3	2022	3	2022
Armored Brigade Combat Team (ABCT) Characterization	3	2022	3	2022
HMS Follow-on Test Events FY22	3	2022	3	2022
HMS Follow-on Test Events FY23	3	2023	3	2023
ITN CS25 Soldier Touch Point	2	2024	2	2024
ITN CS25 Design Decision	3	2024	3	2024
HMS Follow-on Test Events FY24	3	2024	3	2024
ITN CS25 Prototyping & Testing	3	2024	2	2026

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA1 / <i>Manpack Radio</i>
--	--	--

Events	Start		End	
	Quarter	Year	Quarter	Year
HMS Follow-on Test Events FY25	3	2025	3	2025
HMS Follow-on Test Events FY26	3	2026	3	2026
HMS Follow-on Test Events FY27	3	2027	3	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>FA2: Rifleman Radio (RR)</i>	-	4.825	10.757	11.087	-	11.087	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

The Handheld, Manpack, and Small Form Fit (HMS) radio systems serve as the backbone of the Integrated Tactical Network (ITN) architecture, supporting a converged Mission Command network. Fiscal year (FY) 2022 Research Development Test & Evaluation (RDT&E) funding supports HMS delta testing, examination of modular and open system architectures to decrease future integration and waveform porting costs, and ITN testing and evaluation, of which HMS is a key component. It will support mature system development, integration, and demonstration in support of ITN evaluation to include: concept refinement, characterization, data collection, demos, integrated testing, and operational assessments.

The ITN is a warfighter-enabling System of Systems comprised of key networking components including HMS Program of Record (POR) radio systems, advanced high capacity commercial radios, commercial phone technologies, and advanced radio-application gateway integration and interoperability technologies. These ITN technologies increase transport options and support a converged Mission Command network. The ITN introduces a new Secure But Unclassified (SBU) security domain enhancing Mission Partner interoperability and significantly reducing key distribution and other security-related burdens for the Soldier at lower echelons. This RDTE 6.5 funding line supports ITN testing and evaluation (T&E). The ITN T&E involves mature system development, integration, and demonstration in support of ITN evaluation to include: concept refinement, characterization, data collection, demos, integrated testing, and operational assessments.

The HMS handheld radios include the one-channel Rifleman Radio (RR), two-channel Leader Radio (LR), and Single-Channel Data Radio (SCDR). Handheld radios provide voice/data communication to the expeditionary Warfighter with an on-the-move, at-the-halt, and stationary Line of Sight (LOS)/Beyond Line of Sight (BLOS) capability for both dismounted personnel and platforms. Handheld radio systems are software reprogrammable, networkable, multi-mode systems capable of simultaneous voice and data communication (RR/LR). Handheld radios will support a variety of other platforms, including tactical End User Devices (EUD) voice and data needs. HMS provides tailorable and scalable, software-defined radio systems meeting U.S. Army, Air Force, Navy, Marine Corps and Special Operations Command communications needs.

Handheld radios provide both Classified and Unclassified communications. Handheld radios provide the Single Channel Ground and Airborne Radio System (SINGARS) legacy waveform for Classified and Unclassified communications. Handheld radios also provide advanced waveforms (e.g. TrellisWare TSM) that provide Secure but Unclassified (SBU) communications. The HMS program is currently in the process of conducting testing, including Laboratory and Field Based Risk Reduction events, in support of an Operational Test event.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Title: Program Management</p> <p>Description: Program management includes overall management of program execution, major events, reporting, funds execution, contract management, and logistical support. Includes participation in program planning and Integrated Product Team meetings.</p> <p>FY 2021 Plans: During this timeframe, funds will provide overall management and oversight to implement HMS acquisition strategy and ITN evaluation - to include Matrix and Contractor support.</p> <p>FY 2022 Plans: During this timeframe, funds will provide overall management and oversight to implement HMS acquisition strategy and ITN evaluation - to include Matrix and Contractor support.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase in funds for Program Management is a direct result of HMS delta testing and supporting ITN's iterative evaluation and capability implementation strategy.</p>		0.003	0.144	0.899
<p>Title: HMS Engineering/Technical Support</p> <p>Description: Overall technical analysis support to PdM HMS' Handheld and ITN products.</p> <p>FY 2021 Plans: FY 2021 funds will provide technical systems engineering support to evaluate technical alternatives and perform communication architecture analysis to identify alternatives to reduce cost, improve performance, and achieve tactical radio objectives. Funds will facilitate technical test support for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include LR.</p> <p>FY 2022 Plans: FY 2021 funds will provide technical systems engineering support to evaluate technical alternatives and perform communication architecture analysis to identify alternatives to reduce cost, improve performance, and achieve tactical radio objectives. Funds will facilitate technical test support for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include LR.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The decrease in funds for HMS Engineering/Technical Support is a direct result of ramping down after the completion of the HMS OT.</p>		0.105	5.440	1.725
<p>Title: Test and Evaluation</p>		4.717	5.173	8.463

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: Handheld's Test and Evaluation focuses on the evaluation of key technical and operational characteristics of the system: Radio Frequency performance, security, Reliability, Availability & Maintainability, and survivability requirements, in addition to operational environmental performance requirements as per the Capability Production Document. All previous testing on the Leader Radio, served as risk reduction and Operational Test (OT) preparations in support of FRP. The OT will include support from Army and DoD operational testers and will use communication scenarios based on the Operational Mode Summary / Mission Profile of the system(s) under test. The OT is designed to validate that the HMS products meet warfighter needs in terms of effectiveness, suitability and survivability in an operationally realistic environment. Results from the OT will facilitate the delivery orders for Full Rate Production and inform any required delta testing.</p> <p>HMS also supports ITN's iterative evaluation and capability implementation strategy. HMS System of Systems product qualification testing (SoS PQT) includes interoperability with the ITN evaluating and demonstrating the efficacy of the ITN Variable Height Antenna (VHA) and Tactical Radio Integration Kit (TRIK) components in expansion of HMS radio range and function. The HMS Operational Test (OT) includes likelihood of an ITN excursion. In FY22 ITN capabilities will be demonstrated in an operational environment up to the Soldier Touch Point (STP) culminating event (brigade scale), as necessary, every two years. In addition, the Armored Brigade Combat Team (ABCT) Characterization event will take place, resulting in an updated ITN NBOI for Armored formations which will require further refinement once experimented with and applied to more traditional ABCT units. Additionally, funding will support any required delta testing for HMS systems.</p> <p>FY 2021 Plans: The FY 2021 funding will facilitate testing for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include LR.</p> <p>FY 2022 Plans: The FY 2022 funding will facilitate testing for candidate products utilized within ITN's iterative evaluation and capability implementation strategy to include LR.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase in funds for Test and Evaluation is a direct result of HMS delta testing and supporting ITN's iterative evaluation and capability implementation strategy, which includes preparations for the upcoming Capability Set 23 Design Decision and Soldier Touch Point.</p>			
Accomplishments/Planned Programs Subtotals	4.825	10.757	11.087

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>
--	--	--

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• FA1: <i>Manpack Radio</i>	22.411	9.754	17.762	-	17.762	-	-	-	-	-	-
• B95004: <i>Handheld Manpack Small Form Fit (HMS)</i>	468.026	547.148	775.069	-	775.069	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

On 13 September 2016 the Army Acquisition Executive approved a decrease to the Basis of Issue (BOI) for the single channel RR, increase the BOI for the two channel LR and move forward with acquisition activities for the two channel LR. An acquisition strategy addendum adding LR was approved in March 2017. The addendum continued the multi-vendor approach utilizing the existing Indefinite Delivery Indefinite Quantity (IDIQ) RR base contract (awarded 29 April 2015) to on-ramp LR capabilities (18 September 2018). The LR effort is a separate competition under the Handheld radio suite. As laid out in the acquisition strategy, these candidate non-developmental radios will need to demonstrate through testing, compliance with program requirements; assess effectiveness, suitability, and survivability; to obtain material release for Full Rate Production (FRP).

The LR will simultaneously run Single Channel Ground and Airborne Radio System (SINCGARS) and other advanced networking waveforms, in one radio with both handheld and mounted configurations, for fixed and mobile sites.

The Army will procure radios through a multiple step selection process:

- a. Awarded FFP Contracts to all qualified vendors based on technical acceptability and demonstrations (18 September 2018)
- b. Awarded LRIP delivery orders to support SFAB and ITN fieldings/evaluations (18 September 2018)
- c. Awarded LRIP delivery orders based on results of the best value trade-off construct (20 December 2019 & 12 November 2020)
- d. Achieve Full Rate Production (3QFY21)

On 14 May 2019, the ITN gained approval from the Army Acquisition Executive to execute via the Middle Tier of Acquisition (MTA) Rapid Prototyping pathway. The ITN Rapid Prototyping MTA approach provides for the use of innovative technologies to rapidly develop fieldable prototypes to demonstrate new capabilities and meet emerging military needs. The ITN acquisition approach is based on integration of Commercial-Off-The-Shelf (COTS), Non-Developmental Item (NDI), and Government-Off-The-Shelf (GOTS) components. The accelerated schedule for the procurement of experimentation equipment was directed by the Army and driven by the ITN Directed Requirement (DR). Contract execution for ITN Non-POR equipment is being leveraged from existing indefinite delivery indefinite quantity (IDIQ) contracts. All contracts are competitive awards using FAR approved contracting vehicles, such as DLA, CHS, NASA SEWP, GSA (IDIQ) or direct contracts that have been established after a market survey has been completed.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605042A / Tactical Network Radio Sys tems (Low-Tier)				FA2 / Rifleman Radio (RR)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Office Support	Various	PEO C3T & CECOM : Various; APG, MD	2.587	0.003		0.441		0.899		-		0.899	0.000	3.930	Continuing
Subtotal			2.587	0.003		0.441		0.899		-		0.899	0.000	3.930	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HMS Engineering/ Technical Support	Various	PEO C3T, ARL, C5ISR, & ATC : Various	2.319	0.105		5.143		1.725		-		1.725	0.000	9.292	-
Subtotal			2.319	0.105		5.143		1.725		-		1.725	0.000	9.292	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Follow on Delta Development & Testing	Various	EPG : Fort Huachuca	4.776	-		0.962		1.064		-		1.064	0.000	6.802	-
Follow on Delta Development & Testing (2)	Various	OTC : Various	5.534	4.717		-		-		-		-	0.000	10.251	-
ITN Testing	Various	Various : TBD	13.099	-		4.211		7.399		-		7.399	0.000	24.709	-
Subtotal			23.409	4.717		5.173		8.463		-		8.463	0.000	41.762	N/A
Project Cost Totals			28.315	4.825		10.757		11.087		-		11.087	0.000	54.984	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Production Qualification Test (PQT)	[Redacted]																											
LR EUA	[Redacted]																											
ITN CS21 Design Decision	1																											
Operational Test (OT)					[Redacted]																							
LR Full Rate Production (FRP)						2																						
Stryker Brigade Combat Team (SBCT) Characterization							3																					
ITN CS23 Soldier Touch Point								4																				
ITN CS23 Prototyping & Testing					[Redacted]																							
ITN CS23 Design Decision								5																				
Armored Brigade Combat Team (ABCT) Characterization								6																				
HMS Follow-on Test Events FY22									[Redacted]																			
HMS Follow-on Test Events FY23													[Redacted]															
ITN CS25 Prototyping & Testing													[Redacted]															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ITN CS25 Soldier Touch Point																	7 ITN CS25 STP											
ITN CS25 Design Decision																	8 ITN CS25 Design Decision											
HMS Follow-on Test Events FY24																	HMS Follow-on Test Events FY24											
HMS Follow-on Test Events FY25																	HMS Follow-on Test Events FY25											
ITN CS27 Prototyping & Testing																	ITN CS27 Prototyping & Testing											
HMS Follow-on Test Events FY26																	HMS Follow-on Test Events FY26											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>
--	--	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Leader Radio (LR) Release For Proposal (RFP)	4	2017	4	2017
LR Qualification Test (QT)	1	2018	2	2018
LR Lab Based Risk Reduction	4	2018	4	2018
LR Contract Award	4	2018	4	2018
LR Early User Assessment (EUA)	3	2019	4	2019
Production Qualification Test (PQT)	4	2019	2	2020
Integrated Tactical Network (ITN) CS21 LBRR	3	2019	4	2019
LR Lab Based Risk Reduction (LBRR)	2	2019	4	2019
LR EUA	4	2019	2	2020
ITN CS21 Design Decision	3	2020	3	2020
Operational Test (OT)	2	2021	2	2021
LR Full Rate Production (FRP)	3	2021	3	2021
Stryker Brigade Combat Team (SBCT) Characterization	4	2021	4	2021
ITN CS23 Soldier Touch Point	2	2022	2	2022
ITN CS23 Prototyping & Testing	2	2021	2	2022
ITN CS23 Design Decision	3	2022	3	2022
Armored Brigade Combat Team (ABCT) Characterization	3	2022	3	2022
HMS Follow-on Test Events FY22	3	2022	3	2022
HMS Follow-on Test Events FY23	3	2023	3	2023
ITN CS25 Prototyping & Testing	4	2022	2	2024
ITN CS25 Soldier Touch Point	2	2024	2	2024
ITN CS25 Design Decision	3	2024	3	2024

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605042A / <i>Tactical Network Radio Systems (Low-Tier)</i>	Project (Number/Name) FA2 / <i>Rifleman Radio (RR)</i>
--	--	--

Events	Start		End	
	Quarter	Year	Quarter	Year
HMS Follow-on Test Events FY24	3	2024	3	2024
HMS Follow-on Test Events FY25	3	2025	3	2025
ITN CS27 Prototyping & Testing	4	2024	1	2027
HMS Follow-on Test Events FY26	3	2026	3	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	16.379	22.025	22.960	-	22.960	-	-	-	-	-	-
FA7: <i>Contract Writing System</i>	-	16.379	22.025	22.960	-	22.960	-	-	-	-	-	-

Note

ACWS as a Business System follows Acquisition Framework as outlined in DoDI 5000.75. Decisions rendered by the Milestone Decision Authority (MDA), as outlined in DoDI 5000.75, are referred to as "Authority To Proceed" and replace DoDI 5000.02 "Milestones." ACWS official MDA delegation to Program Executive Office, Enterprise Information Systems was on 19 March 2018.

A. Mission Description and Budget Item Justification

The Army Contract Writing System (ACWS) will be the Army's single, next-generation, enterprise-wide contract writing, management, execution, and close-out software system. ACWS will facilitate the standardization of Army Procurement business processes and streamline the integration with Army Enterprise Resource Planning (ERP) systems. As a financial feeder system, ACWS will meet the full scope of Army contracting requirements, including those in secure and non-secure locations, those supporting combat or non-combat contingencies, those within or outside the borders of the Continental United States, those supporting grants and assistance agreements, and those performing weapons systems, construction, installation, other specialized contracting activities, and the Federal Financial Management Improvement Act of 1996. In November 2020, the MDA approved a Limited Deployment ATP for ACWS to deploy a Minimal Viable Solution (MVS) to the Humphrey's Engineer Center in November 2020. ACWS is on track to deploy an Initial Operating Capability (IOC) Q2FY2022. ACWS will deploy a full replacement capability by the end of FY 2023 to SPS users, allowing the Army to avoid the full SPS bill (\$14M+/ year) from OSD.

FY 2022 RDTE Funding will initiate the development of integration with the Logistics Modernization Program (LMP), to replace important contracting functions in PADDs to manage complex weapons procurements, and other key system interfaces and functionality. Business system interfaces will be developed with these key partners to complete system development. FY 2022 RDTE funding will be used for designing, developing and testing activities to release interim and objective functionality to support the National Guard and Secure contracting activities.

ACWS will also plan for and conduct one or more separate operational Pilots in parallel to ACWS development to review options for enhanced usability and functionality improvements

As a Section 873 Pilot Program, participates in the 873 Community of Practice (CoP), sharing and utilizing lessons learned, shaping agile policy, processes, and tools for DoD. The program will re- introduce Agile practices beginning in its sustainment task order, to be released in FY2021.

During FY 2020, ACWS coordinated with the Navy's eProcurement System (ePS) team to identify and implement efficiencies; the two teams will continue implementing those plans during FY 2021 and 2022, including using combined buying power for potential economies of scale for license purchases.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	17.082	22.860	18.363	-	18.363
Current President's Budget	16.379	22.025	22.960	-	22.960
Total Adjustments	-0.703	-0.835	4.597	-	4.597
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.703	-0.835			
• Adjustments to Budget Years	-	-	4.597	-	4.597

Change Summary Explanation

Fiscal Year 2022 (FY22) RDTE increase of \$4.597 million related to a change in schedule due to vendor performance and identification of complex requirements. This schedule rebaseline coupled with development of complex capabilities supporting the contracting community drove the increase in FY2022.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>				Project (Number/Name) FA7 / <i>Contract Writing System</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FA7: <i>Contract Writing System</i>	-	16.379	22.025	22.960	-	22.960	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army Contract Writing System (ACWS) will be the Army's single, next-generation, enterprise-wide contract writing, management, execution, and close-out software system. ACWS will facilitate the standardization of Army Procurement business processes and streamline the integration with Army Enterprise Resource Planning (ERP) systems. As a financial feeder system, ACWS will meet the full scope of Army contracting requirements, including those in secure and non-secure locations, those supporting combat or non-combat contingencies, those within or outside the borders of the Continental United States, those supporting grants and assistance agreements, and those performing weapons systems, construction, installation, other specialized contracting activities, and the Federal Financial Management Improvement Act of 1996. In November 2020, the MDA approved a Limited Deployment ATP for ACWS to deploy a Minimal Viable Solution (MVS) to the Humphrey's Engineer Center in November 2020. ACWS is on track to deploy an Initial Operating Capability (IOC) Q2FY2022. ACWS will deploy a full replacement capability by the end of FY 2023 to SPS users, allowing the Army to avoid the full SPS bill (\$14M+/ year) from OSD.

FY 2022 RDTE Funding will initiate the development of integration with the Logistics Modernization Program (LMP), to replace important contracting functions in PADD5 to manage complex weapons procurements, and other key system interfaces and functionality. Business system interfaces will be developed with these key partners to complete system development. FY 2022 RDTE funding will be used for designing, developing and testing activities to release interim and objective functionality to support the National Guard and Secure contracting activities.

ACWS will also plan for and conduct one or more separate operational Pilots in parallel to ACWS development to review options for enhanced usability and functionality improvements

As a Section 873 Pilot Program, participates in the 873 Community of Practice (CoP), sharing and utilizing lessons learned, shaping agile policy, processes, and tools for DoD. The program will re- introduce Agile practices beginning in its sustainment task order, to be released in FY2021.

During FY 2020, ACWS coordinated with the Navy's eProcurement System (ePS) team to identify and implement efficiencies; the two teams will continue implementing those plans during FY 2021 and 2022, including using combined buying power for potential economies of scale for license purchases.

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

	FY 2020	FY 2021	FY 2022
Title: Program Office	5.906	4.533	3.403
Description: These resources in the ACWS Program Management Office include Government, matrixed, and SETA contractor support for capability development, enterprise architecture, contract management, management analysis, capital/ financial planning, life cycle planning, risk management, schedule management, and facilities (for both Government and contractor staff).			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p><i>FY 2021 Plans:</i> Program management support in the ACWS Government Program Management Office includes Mitre, CECOM, DASA(P), and other contractor support for resource planning, capability development, life cycle planning, risk management, schedule management, and facilities.</p> <p><i>FY 2022 Plans:</i> Program management support in the ACWS Government Program Management Office includes contractor support, CECOM, DASA(P), and other contractor support for resource planning, capability development, life cycle planning, risk management, schedule management, and facilities.</p> <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Year over year decreases reflect shifting cost out from under Program Office to the area of work it supports, including testing, product development, and security. ACWS program office costs have been realigned to more accurately reflect the types of work being performed in each area. Program office includes SETA and matrixed resources to support functions around scheduling, financial management, program documentation, and quality control.</p>			
<p><i>Title:</i> Product Development</p> <p><i>Description:</i> Product development is responsible for design and development of ACWS. This cross-functional team of Government and contractor staff analyze and design the Minimum Viable Solution, Initial Operational Capability, and Full Deployment requirements to efficiently ensure completeness in satisfying system requirements. Hosting infrastructure (using Infrastructure as a Service [IaaS]) and managed services are also included as a requirement of the ACWS product.</p> <p><i>FY 2021 Plans:</i> Activities going on in FY2021 include continued testing and issue resolution of ACWS Initial Operational Capability (IOC) software; which upgrades the Minimum Viable Solution (MVS) software by including capability to interface with the General Fund Enterprise Business System (GFEBS), incorporates construction contracting functionality, and delivers 80% of the overall ACWS requirements; conducting Army Test and Evaluation Command (ATEC) System Qualification Testing (SQT); and deploying the ACWS IOC software to three locations. ACWS IOC functionality allows for the replacement of the Standard Procurement System (SPS) at all Army locations outside of secure and National Guard/Joint Base activities</p> <p><i>FY 2022 Plans:</i> Product and software development activities include adding complex weapons system procurement functionality, foreign military sales, integration with the Logistics Modernization Program (LMP), Grants Officer management functionality, and functionality necessary to deploy to National Guard/Joint Base activities. This allows for the replacement of the Procurement Automated Data and Document System (PADDS). Deployment planning for the replacement of PADDS also occurs in FY22.</p> <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i></p>	7.061	15.821	13.440

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
---	----------------	----------------	----------------

ACWS product development costs have been realigned to more accurately reflect the types of work being performed in each area. Product development costs decrease in FY22 completes IOC and transitions to focus on development of full operating capability. Cyber security support and testing activities have been shifted to those sections driving the decrease. Development priorities have been delayed due to schedule slips due to requirement complexity being underestimation by the vendor. The program recently rebaselined its schedule to more accurately reflect the complexity of requirements to support the Army's contracting community.

<p>Title: Security</p> <p>Description: Security related costs all include Information Assurance (IA)/ Risk Management Framework (RMF) activities, and cyber security support for the Cloud Solution Provider's government approved hosting environment complementing the Interim Authorization to Test (IATT) and Authority to Operate (ATO) controls.</p> <p>FY 2021 Plans: System integrator costs to support cybersecurity vulnerability scanning, system hardening, Risk Management Framework costs, and audit readiness. The Secure Activities capability will require a separate Authority to Operate (ATO) and additional work to update existing documentation for PADDs Replacement interfaces. There will also be extensive work to meet audit requirements in FY 2021.</p> <p>FY 2022 Plans: System integrator costs to support cybersecurity vulnerability scanning, system hardening, Risk Management Framework costs, and audit readiness. The Secure Activities capability will require a separate Authority to Operate (ATO) and additional work to update existing documentation for Full Deployment interfaces. There will also be extensive work to meet audit requirements in FY 2022.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: ACWS cyber security costs were previously shown under product development. These costs have been realigned to more accurately reflect the types of work being performed in each area. Security resources will focus on supporting ATO compliance and cyber testing requirements during FY2022.</p>	1.206	0.753	2.490
---	-------	-------	-------

<p>Title: Test & Evaluation</p> <p>Description: Costs associated with The test and evaluation function to validate and inspect capability requirements ensuring they are satisfactorily addressed through design analysis and development of test scripts. The Army Test and Evaluation Command (ATEC) and Joint Interoperability Test Command (JITC) will support ACWS as testers of the system.</p> <p>FY 2021 Plans:</p>	2.206	0.918	3.627
--	-------	-------	-------

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Army Test and Evaluation Command (ATEC) and Joint Interoperability Test Command (JITC) testing for ACWS Full Deployment release.			
<i>FY 2022 Plans:</i> Operational Evaluation(OE) led by ATEC to assess functionality meets user needs following capability increments.			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> ACWS test and evaluation costs have been realigned to more accurately reflect the types of work being performed in this area. These resources were previously shown under product development. Test & Evaluation resources will be focused on completing testing in advance of the full operating capability release.			
Accomplishments/Planned Programs Subtotals	16.379	22.025	22.960

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• B66001: <i>Contract Writing System</i>	6.000	2.459	16.957	-	16.957	-	-	-	-	-	-
• OMA - ERPB / 423612000 /	-	7.338	12.826	-	12.826	-	-	-	-	-	-
5T0: <i>ACWS Sustainment OMA</i>											

Remarks

FY 2022 base procurement funds in the amount of \$11.848 million to procure requisite ACWS software licenses for IOC deployment and fielding as the solution will ultimately support 10,000 Army users across the world. OPA funds of \$4.225 million support deployment activities including training and deployment teams for the IOC release which will be deployed in second quarter FY2022 and run throughout FY2023. Funding also supports system fielding activities including training, deployment, and Organization Change Management (Soldier Touchpoints). FY2022 OPA funds of \$0.884 million will also support the PADDs replacement/ LMP integration deployment.

FY 2022 OMA funding will be used for sustainment of sites that have already been deployed in FY 2021 and FY 2022, license maintenance, hosting, sustainment, and service desk activities.

D. Acquisition Strategy

Through full and open competition, ACWS awarded a Single Award ID/IQ contract with a 10-year ordering period to CGI Federal Inc. on 22 May 2017. Task Order 0001 of this contract conducted risk reduction activities concurrent with development of regulatory and statutory documentation requirements. These activities were conducted for the purpose of meeting the OSD goals to sunset Standard Procurement System (SPS) in FY 2023. Risk reduction activities include Business Process Reengineering, Global Analysis, Blueprinting, Role Design, and Interface Definition. Following risk reduction, ACWS baselined the program at the IOC Authorization to Proceed (ATP), and developed initial software release interfaces (part of the Minimum Viable Solution release). Task Order 0002 was issued in August 2018 for the design, development, and testing of the Minimum Viable Solution and Initial Operational Capability releases. Task Order 0002 has been extended into FY22 to support

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 5	PE 0605047A / <i>Contract Writing System</i>	FA7 / <i>Contract Writing System</i>

the deployment of IOC. In FY22, ACWS plans to issue a new task order that will extend through FY23 to begin Full Deployment design, development and test, including functionality required to decommission PADDs (LMP Integration), onboard National Guard users (DEAMS integration), and business intelligence capabilities. Future plans starting in FY24 will include the activities associated with the development, testing, and accreditation of the secure contracting and disconnected contracting capabilities.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / Contract Writing System	Project (Number/Name) FA7 / Contract Writing System
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office	Various	PdM ACWS : Arlington, VA	21.025	5.906	Oct 2019	4.533	Oct 2020	3.403	Oct 2021	-		3.403	0.000	34.867	-
Subtotal			21.025	5.906		4.533		3.403		-		3.403	0.000	34.867	N/A

Remarks
FY2022 projected costs include PMO contractor support labor, and HW/SW tools expenses.

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	Option/ Various	CGI Federal : Arlington, VA	54.544	7.061	Oct 2019	15.821	Oct 2020	13.440	Oct 2021	-		13.440	0.000	90.866	-
Subtotal			54.544	7.061		15.821		13.440		-		13.440	0.000	90.866	N/A

Remarks
FY2022 projected costs include the development of the LMP integration required for PADDs replacement. This funding also includes changes to support hosting infrastructure to support the increased user base (using Infrastructure as a Service [IaaS]) and managed services are also included as a requirement on the ACWS Product Development System Integrator contract with CGI Federal and efforts to satisfy secure contracting requirements.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Security	Option/ Various	CGI Federal & PdM ACWS : ARL C SSP in AWS GovCloud West	3.007	1.206	Oct 2019	0.753	Oct 2020	2.490	Oct 2021	-		2.490	0.000	7.456	-
Subtotal			3.007	1.206		0.753		2.490		-		2.490	0.000	7.456	N/A

Remarks
FY2022 projected costs include Information Assurance (IA)/ Risk Management Framework (RMF) activities, and required services from a Cyber Security Support Provider (Army Research Lab) for the Cloud Solution Provider's government approved hosting environment. These costs also include cyber security support from the system integrator to support ATO compliance.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>
--	--	--

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	MIPR	ATEC & JTIC & CGI : TBD	1.207	2.206	Oct 2019	0.918	Oct 2020	3.627	Oct 2021	-		3.627	0.000	7.958	-
Subtotal			1.207	2.206		0.918		3.627		-		3.627	0.000	7.958	N/A

Remarks
 FY2022 projected costs include integrated testing activities with the Army Test and Evaluation Command (ATEC) and the Joint Interoperability Test Command (JITC) to complete the IOC release and begin testing of the LMP integration. These costs also include costs from the system integrator to complete testing of the product.

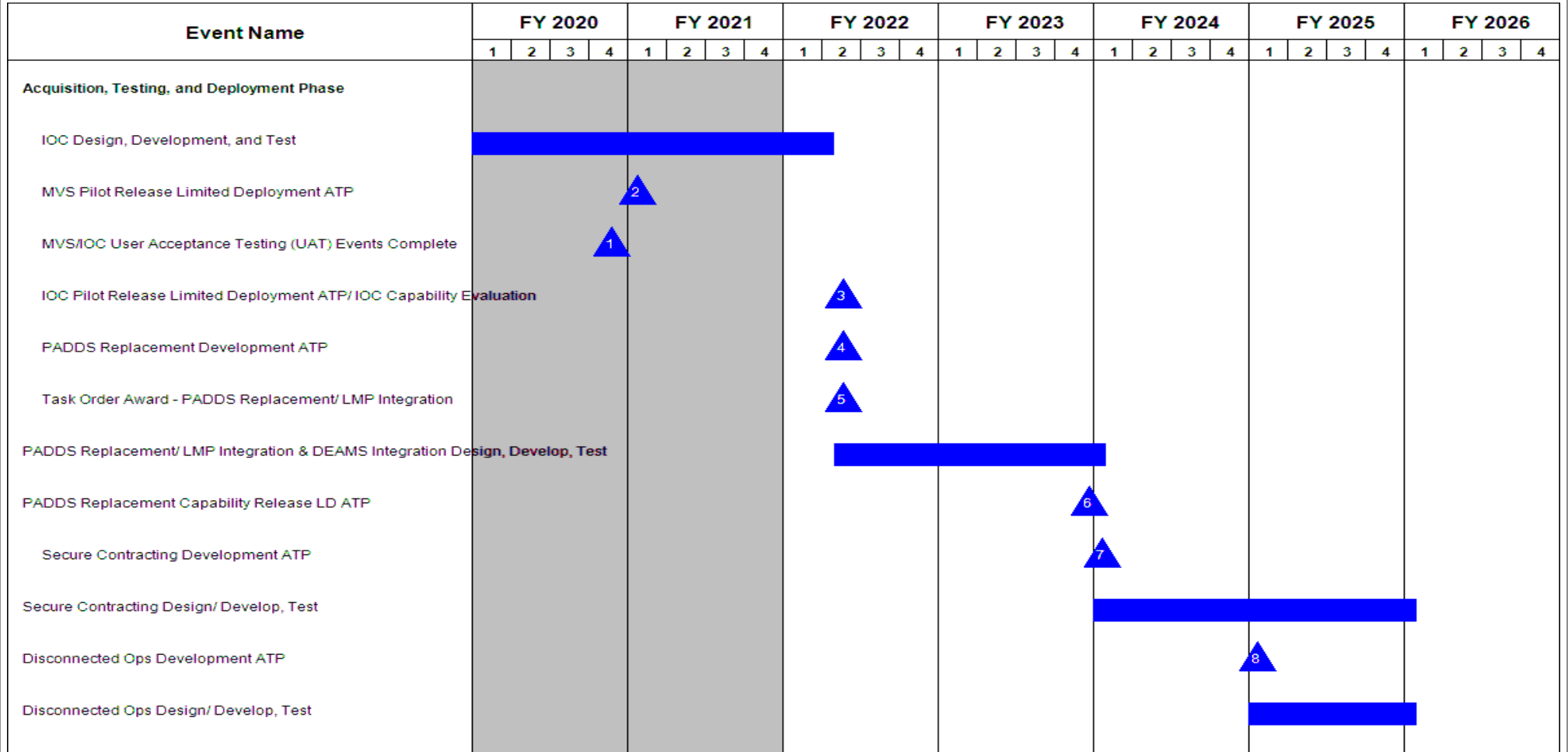
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.783	16.379	22.025	22.960	-	22.960	0.000	141.147	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>
--	--	--



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>
--	--	--

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Secure Contracting & Disconnected Ops Capability Release LD ATP																									▲ 9			
Capability Support ATP																									▲ 10			
Fielding and Deployment																												
IOC Deployment																												
PADDs Replacement																												
Secure/Disconnected State Capability Deployment																												
Full Operational Capability																									▲ 11			
System Sustainment																												
System Sustainment Task Order																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>
--	--	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RFP Release ADM (Material Solution Analysis Phase)	3	2016	3	2016
ATP-1 (MS A) / Contract Award - Task Order 0001	3	2017	3	2017
Risk Reduction Activities	3	2017	4	2018
Acquisition, Testing, and Deployment Phase	3	2016	3	2023
IOC Design, Development, and Test	4	2018	2	2022
Baseline ATP / Contract Award - MVS/IOC Release Task Order	4	2018	4	2018
MVS Pilot Release Limited Deployment ATP	1	2021	1	2021
MVS/IOC User Acceptance Testing (UAT) Events Complete	4	2020	4	2020
IOC Pilot Release Limited Deployment ATP/ IOC Capability Evaluation	2	2022	2	2022
PADDS Replacement Development ATP	2	2022	2	2022
Task Order Award - PADDS Replacement/ LMP Integration	2	2022	2	2022
PADDS Replacement/ LMP Integration & DEAMS Integration Design, Develop, Test	2	2022	1	2024
PADDS Replacement Capability Release LD ATP	4	2023	4	2023
Secure Contracting Development ATP	1	2024	1	2024
Secure Contracting Design/ Develop, Test	1	2024	1	2026
Disconnected Ops Development ATP	1	2025	1	2025
Disconnected Ops Design/ Develop, Test	1	2025	1	2026
Secure Contracting & Disconnected Ops Capability Release LD ATP	4	2025	4	2025
Capability Support ATP	2	2026	2	2026
Fielding and Deployment	2	2021	4	2025
IOC Deployment	2	2022	4	2023
PADDS Replacement	1	2024	4	2025
Secure/ Disconnected State Capability Deployment	1	2026	3	2026

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605047A / <i>Contract Writing System</i>	Project (Number/Name) FA7 / <i>Contract Writing System</i>
--	--	--

Events	Start		End	
	Quarter	Year	Quarter	Year
Full Operational Capability	3	2026	3	2026
System Sustainment	2	2022	4	2026
System Sustainment Task Order	2	2022	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605049A / <i>Missile Warning System Modernization (MWSM)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	1.475	-	-	-	-	-	-	-	-	-	-
XT4: <i>Advanced Threat Detection System (ATDS)</i>	-	1.475	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Missile Warning System Modernization (MWSM) budget line includes funding to support the development and integration of Aircraft Survivability Equipment (ASE) products onto Future Vertical Lift (FVL) Future Attack Reconnaissance Aircraft (FARA) and Future Long Range Assault Aircraft (FLRAA) aircraft variants and future platforms.

ATDS will provide enhanced missile warning capabilities for current and future Army rotary-wing, small fixed wing, tilt-rotor platforms, and Special Operations rotary wing aircraft. Primary capability achieved through ATDS is the agility necessary to rapidly react to evolving threats.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	1.539	0.000	0.000	-	0.000
Current President's Budget	1.475	0.000	0.000	-	0.000
Total Adjustments	-0.064	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.064	-			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605049A / <i>Missile Warning System Modernization (MWSM)</i>	Project (Number/Name) XT4 / <i>Advanced Threat Detection System (ATDS)</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
XT4: <i>Advanced Threat Detection System (ATDS)</i>	-	1.475	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

Advanced Threat Detection System (ATDS) capability no longer aligns with the current Army focus and will not be pursued at this time; therefore there are no funding requirements for Fiscal Year (FY) 2021 - FY 2022.

A. Mission Description and Budget Item Justification

The Missile Warning System Modernization (MWSM) budget line includes funding to support the development and integration of Aircraft Survivability Equipment (ASE) products onto Future Vertical Lift (FVL) Future Attack Reconnaissance Aircraft (FARA) and Future Long Range Assault Aircraft (FLRAA) aircraft variants and future platforms.

ATDS will provide enhanced missile warning capabilities for current and future Army rotary-wing, small fixed wing, tilt-rotor platforms, and Special Operations rotary wing aircraft. Primary capability achieved through ATDS is the agility necessary to rapidly react to evolving threats.

Justification: FY 2021 - FY 2022 was reduced to \$0 in response to the December 17, 2018 Material Development Decision (MDD) Request Memo rescission.

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

	FY 2020	FY 2021	FY 2022
Title: ATDS	1.475	-	-
Description: Enhanced market research for Future Vertical Lift (FVL).			
Accomplishments/Planned Programs Subtotals	1.475	-	-

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

N/A

Remarks

D. Acquisition Strategy

ATDS Materiel Development Decision (MDD) Request Memo was rescinded on December 17, 2018. Prior to the rescission, the Army Acquisition Executive (AAE) was briefed October 22, 2018. Determination was the Army has shifted focus to FVL in the Aviation arena. ATDS capability no longer aligns with the current focus and will not be pursued at this time. Remaining prior year funding supports enhanced market research and future missile warning system studies to assess existing and/or proposed technologies available for future development.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605049A / Missile Warning System M odernization (MWSM)				XT4 / Advanced Threat Detection System (ATDS)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Program Management - SEPM	TBD	PM ASE : HSV, AL	1.836	1.475	Oct 2019	-		-		-		-	0.000	3.311	Continuing
FY19 Rescission	TBD	Various : Various	6.776	-		-		-		-		-	0.000	6.776	-
Subtotal			8.612	1.475		-		-		-		-	0.000	10.087	N/A
Project Cost Totals			8.612	1.475		0.000		-		-		-	0.000	10.087	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605049A / <i>Missile Warning System M odernization (MWSM)</i>	Project (Number/Name) XT4 / <i>Advanced Threat Detection System (ATDS)</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Enhanced Market Research																												
Enhanced Market Research Report	1																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605049A / <i>Missile Warning System Modernization (MWSM)</i>	Project (Number/Name) XT4 / <i>Advanced Threat Detection System (ATDS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PEO Acquisition Decision Memorandum (ADM)	1	2019	1	2019
Enhanced Market Research	2	2019	2	2020
Enhanced Market Research Report	2	2020	2	2020

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	130.211	99.208	65.603	-	65.603	-	-	-	-	-	-
ER7: <i>Aircraft Survivability Equipment Development</i>	-	47.244	31.128	38.329	-	38.329	-	-	-	-	-	-
ER8: <i>Common Missile Warning System (CMWS)</i>	-	82.967	68.080	27.274	-	27.274	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Aircraft Survivability Development budget line includes funding to support the development and integration of Aircraft Survivability Equipment (ASE) products onto Future Vertical Lift (FVL) Future Attack Reconnaissance Aircraft (FARA), Future Long Range Assault Aircraft (FLRAA) aircraft variants and future platforms.

The Aircraft Survivability Development program includes Projects titled Aircraft Survivability Equipment Development (ER7) and Common Missile Warning System (CMWS) (ER8). This program also includes funding for Joint Urgent Operational Needs Statement (JUONS) SO-0010 Phase 2a, Headquarters Department of the Army (HQDA) Directed Requirement for Advanced Threat Warner (ATW) portion of Phase 3 ATW/Common Infrared Countermeasures Quick Reaction Capability (ATW/ CIRCM QRC), and Limited Interim Missile Warning System Quick Reaction Capability (LIMWS QRC).

ER7: Aircraft Survivability Development.

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

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

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

Phase 3 adds active Radio Frequency Electronic Countermeasures (RF-ECM) capability for selected aircraft with Material Development Decision (MDD) planned in the future.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>	
<p>Justification: FY 2022 Base Research Development Technology & Evaluation (RDT&E) funding of \$38.329 million supports APR-39E(V)2 hardware and software system development, system government qualification, and performance testing.</p> <p>ER8: Common Missile Warning System (CMWS). The Fiscal Year (FY) 2022 Direct War/Enduring Operations dollars in the amount of \$19.129 million in Project ER8 will continue to support the CMWS program is a missile warning system that cues both flare and laser-based countermeasures to defeat incoming Infrared (IR)-seeking missiles and will alert aircrews to the presence of certain incoming unguided munitions. The B-Kit consists of the components which perform the missile detection and aircrew notification, unguided munitions detection and aircrew notification, false alarm rejection, and countermeasure employment/cueing functions of the system. The CMWS Electronic Control Unit (ECU) receives ultraviolet (UV) missile detection data from Electro-Optic Missile Sensors (EOMS), which detect UV signals, and sends a missile alert signal to warn aircrews via on-board avionics. Tier 1 threat missiles detected and tracked by CMWS are subsequently defeated by a combination of missile seeker countermeasures, including decoy flares and IR Laser Jamming (currently Common Infrared Countermeasures (CIRCM) -multiple platforms and Advanced Threat Infrared Countermeasures (ATIRCM)-equipped CH-47 platform only). In addition CMWS ECU receives from the EOMS unguided munitions detection data which it also passes to the aircrew through aural and visual alerts. The aircrew then applies the appropriate Tactics, Techniques and Procedures (TTPs) to break contact or engage the enemy with own-ship ordnance. CMWS Generation 3 (Gen 3) ECU in conjunction with ongoing software development efforts will address outstanding materiel release conditions and ensure protection against emerging IR-guided missile threats. Due to limited quantities of B-Kits, CMWS will remain in the Army inventory for a number of years and must remain relevant against emerging threats.</p> <p>The A-Kit for CMWS includes mounting hardware, wiring harnesses, cables, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type.</p> <p>As a part of Phase 2a of the JUONS (SO-0010) program, the Army integrated the Department of the Navy Large Aircraft Infrared Countermeasure (DoN LAIRCM) system onto the Army and Special Operations Aircraft platforms. Due to a number of challenges, circumstances, and variables, the Army updated the Advanced Threat Warning/CIRCM QRC and LIMWS Directed Requirements (dated November 16, 2018). The updated requirements extend the utilization of ATW DoN LAIRCM on conventional Army aircraft and cancel the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintains the need for ATW/CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft will transfer to Special Operations Aircraft budget line in FY22) As a result, the Army did not acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system.</p> <p>Phase 4 LIMWS QRC addresses the HQDA Directed Requirement to provide a greater capability than CMWS, the current Program of Record (POR), to bridge the gap between CMWS and the future POR. LIMWS is required to provide increased detection range, improved detection in clutter, more agile algorithms to rapidly respond to emerging threats, and eliminates the need for sensor alignments. To maintain overmatch of quickly emerging threat technology and tactics, LIMWS will explore and develop system modifications and performance improvements. LIMWS is part of the suite of ASE mission equipment for FVL platforms.</p>		

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>
--	---

Justification:
 CMWS: FY 2022 Base RDTE dollars in the amount of \$8.149 million will fund Future Sensor and Algorithm Analysis including potential for incorporation of machine learning features, Threat and Vulnerability Analysis, and Systems Engineering Project Management (SEPM).

 Phase 4 LIMWS QRC: FY 2022 Direct War/Enduring Operation RDTE dollars in the amount of \$19.125 million are required to fund software development and testing of A-Kits for integration onto Army and Special Operations Aircraft; software, firmware, and hardware updates for Conventional Army Aircraft.

- References:**
- Joint Staff, J-8 Deputy Director for Requirements (DOR) memorandum, April 24, 2015
 - Phase 2a SOCOM JUONs S0-0010, Joint Rapid Acquisition Cell (JRAC) memorandum, May 29, 2015
 - Directed Requirement for the Phase 3 Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW/CIRCM QRC) to Support Joint Urgent Operational Need (JUON) S0-0010, CIRCM Critical Intelligence Parameters Breach, December 18, 2015
 - Directed Requirement for Limited Interim Missile Warning System to Detect Enemy Man Portable Air Defense Systems, March 26, 2017
 - Update to the Directed Requirement for the United States Special Operations Command Joint Urgent Operational Needs SO-0010 Threat Detection and Countermeasures to Enemy Man Portable Air Defense System Capability, November 16, 2018
 - Directed Requirement for Limited Interim Missile Warning System to Detect Enemy Man Portable Air Defense Systems, November 16, 2018
 - Aircraft Survivability Equipment (ASE) Modernization Fielding Guidance, Change 1, November 19, 2018
 - Acquisition Decision Memorandum (ADM) for Radio Frequency (RF) Project Manager Aircraft Survivability Equipment (PM ASE) Engineering Change Proposal (ECP) for Radar Warning Receiver AN/APR39-D(V)2 to AN/APR39-E(V)2, June 24, 2019 by PEO IEW&S.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	132.477	100.518	51.255	-	51.255
Current President's Budget	130.211	99.208	65.603	-	65.603
Total Adjustments	-2.266	-1.310	14.348	-	14.348
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.266	-1.310			
• Adjustments to Budget Years	-	-	14.348	-	14.348

Change Summary Explanation
 The increase of \$14.348 million in FY22 base funding is due to a combination of the LIMWS movement of \$19.125 million from OCO to Direct War/Enduring Operation and the FY22 reduction in ER7 base of \$4.777 million.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development				Project (Number/Name) ER7 / Aircraft Survivability Equipment Development			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
ER7: Aircraft Survivability Equipment Development	-	47.244	31.128	38.329	-	38.329	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aircraft Survivability Equipment Development budget line includes funding to support the development and integration of ASE products onto FVL FARA, FLRAA aircraft variants and future platforms.

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

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

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

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

Justification: FY 2022 Base RDT&E funding of \$38.329 million supports APR-39E(V)2 hardware and software system development, system government qualification, and performance testing.

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

	FY 2020	FY 2021	FY 2022
Title: Phase 2 Radio Frequency Countermeasure (CM)	47.244	31.128	38.329
Description: Phase 2 RWR Modernization			
FY 2021 Plans: Will fund APR-39E(V)2 hardware and software system development, prototyping, platform integration, system engineering and program management, initial system government qualification and performance testing.			
FY 2022 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER7 / Aircraft Survivability Equipment Development
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Will fund APR-39E(V)2 hardware and software system development, platform integration, systems engineering and program management, initial system government qualification and performance testing. Supports preliminary analysis for FVL A-Kit development and integration.			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> FY 2022 includes increased Base RDTE funding as APR-39E(V)2 is maturing in its system development.			
Accomplishments/Planned Programs Subtotals	47.244	31.128	38.329

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• AZ3511: Radio Frequency CM	46.353	36.890	56.441	-	56.441	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

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

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

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

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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605051A / Aircraft Survivability Development				ER7 / Aircraft Survivability Equipment Development							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Threat Management/SEPM	Various	Various : -	9.624	1.788	Nov 2019	1.255	Nov 2020	1.910	Nov 2021	-		1.910	Continuing	Continuing	-
Project Management	Various	Various : -	1.926	-		-		-		-		-	Continuing	Continuing	-
NDAAC SEC 825 MDAP Cost Overrun	Various	Various : Various	0.028	-		-		-		-		-	0.000	0.028	-
Subtotal			11.578	1.788		1.255		1.910		-		1.910	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Digital Radar Warning Receiver (RWR) (D(V)2)	Various	Lab Demo / Study : Various	10.634	-		-		-		-		-	Continuing	Continuing	-
APR-39E(V)2 SW & HW Development	Various	OGA : Aberdeen Proving Grounds, MD	47.837	42.321	Jan 2020	18.129	Oct 2020	19.799	Oct 2021	-		19.799	Continuing	Continuing	-
Threat and Vulnerability Analysis/Sil Updates	MIPR	I2WD : Aberdeen Proving Grounds, MD	2.547	-		-		-		-		-	Continuing	Continuing	-
Depot Standup	MIPR	Tobyhanna : Tobyhanna, PA	1.063	-		-		-		-		-	0.000	1.063	-
APR-39E(V)2 Platform Integration	Various	Multiple : -	4.552	1.391	Jan 2020	2.000	Jan 2021	-		-		-	Continuing	Continuing	-
Subtotal			66.633	43.712		20.129		19.799		-		19.799	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support	Various	Various : -	4.685	-		-		-		-		-	Continuing	Continuing	-
Matrix Support	Various	Various : -	6.800	-		-		-		-		-	Continuing	Continuing	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development					Project (Number/Name) ER7 / Aircraft Survivability Equipment Development					
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			11.485	-		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DT/OT	Various	Various : -	3.439	-		-		6.140	Mar 2022	-		6.140	Continuing	Continuing	-
Government System Test and Evaluation	Various	Various : -	20.967	1.744		9.744	Mar 2021	10.480	Oct 2021	-		10.480	Continuing	Continuing	-
Subtotal			24.406	1.744		9.744		16.620		-		16.620	Continuing	Continuing	N/A
Project Cost Totals			114.102	47.244		31.128		38.329		-		38.329	Continuing	Continuing	N/A
<u>Remarks</u>															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER7 / Aircraft Survivability Equipment Development

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Phase 2B APR-39E(V)2 Software and Hardware Development	[Redacted]																												
Phase 2B APR-39E(V)2 Government System Test and Evaluation					[Redacted]																								
Phase 2B APR-39E(V)2 DT/OT									[Redacted]																				
Phase 2B APR-39E(V)2 Platform Integration		[Redacted]																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER7 / Aircraft Survivability Equipment Development

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Threat Vulnerability Analysis//SIL Updates	3	2016	4	2017
Phase 2B APR-39E(V)2 Software and Hardware Development	2	2018	3	2023
Phase 2B APR-39E(V)2 Government System Test and Evaluation	3	2021	1	2024
Phase 2B APR-39E(V)2 DT/OT	2	2022	3	2023
Phase 2B APR-39E(V)2 Platform Integration	2	2020	4	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development				Project (Number/Name) ER8 / Common Missile Warning System (CMWS)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
ER8: Common Missile Warning System (CMWS)	-	82.967	68.080	27.274	-	27.274	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The CMWS budget line includes funding to support the development and integration of ASE products onto FVL FARA, FLRAA aircraft variants and future platforms.

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

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

As a part of Phase 2a of the JUONS (SO-0010) program, the Army integrated the DoN LAIRCM system onto the Army and Special Operations Aircraft platforms. Due to a number of challenges, circumstances, and variables, the Army updated the Advanced Threat Warning/CIRCM QRC and LIMWS Directed Requirements (dated November 16, 2018). The updated requirements extend the utilization of ATW DoN LAIRCM on conventional Army aircraft and cancel the need for the ATW/CIRCM QRC system for the conventional Army. (It should be noted that the updated requirement maintains the need for ATW/CIRCM on the Special Operations Aircraft. Sustainment of ATW on Special Operations Aircraft will transfer to Special Operations Aircraft budget line in FY22.) As a result, the Army did not acquire the ATW sensors for use in Phase 3 of the JUONS effort. Instead, the Army accelerated the procurement of the CIRCM QRC systems for use with the currently fielded CMWS in preparation for transition to the LIMWS system.

Phase 4 LIMWS QRC addresses the HQDA Directed Requirement to provide a greater capability than the current POR, CMWS, to bridge the gap between CMWS and the future POR. LIMWS is required to provide increased detection range, improved detection in clutter, more agile algorithms to rapidly respond to emerging threats, and eliminates the need for sensor alignments. To maintain overmatch of quickly emerging threat technology and tactics, LIMWS will explore and develop system modifications and performance improvements. LIMWS is part of the suite of ASE mission equipment for the FVL platforms.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

CMWS: Fiscal Year FY 2022 Base RDTE dollars in the amount of \$8.149 million will fund Future Sensor and Algorithm Analysis including potential for incorporation of machine learning features, Threat and Vulnerability Analysis, and SEPM.

Phase 4 LIMWS: FY 2022 Direct War/Enduring Operation RDTE dollars in the amount of \$19.125 million are required to fund software development and testing of A-Kits for integration onto Army and Special Operations Aircraft; software, firmware, and hardware updates for Conventional Army Aircraft.

References:

- Joint Staff, J-8 Deputy Director for Requirements (DOR) memorandum, April 24, 2015
- Phase 2a SOCOM JUONs S0-0010, Joint Rapid Acquisition Cell (JRAC) memorandum, May 29, 2015
- Directed Requirement for the Phase 3 Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW/CIRCM QRC) to Support Joint Urgent Operational Need (JUON) S0-0010, CIRCM Critical Intelligence Parameters Breach, December 18, 2015
- Directed Requirement for Limited Interim Missile Warning System to Detect Enemy Man Portable Air Defense Systems, March 26, 2017
- Update to the Directed Requirement for the United States Special Operations Command Joint Urgent Operational Needs SO-0010 Threat Detection and Countermeasures to Enemy Man Portable Air Defense System Capability, November 16, 2018
- Directed Requirement for Limited Interim Missile Warning System to Detect Enemy Man Portable Air Defense Systems, November 16, 2018
- Aircraft Survivability Equipment (ASE) Modernization Fielding Guidance, Change 1, November 19, 2018

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

	FY 2020	FY 2021	FY 2022
<p>Title: CMWS Product Development and Management Services</p> <p>Description: RDTE funding supports continuing development engineering threat and vulnerability analysis, SEPM, and integration with other ASE Systems.</p> <p>FY 2021 Plans: FY 2021 Base RDTE dollars in the amount of \$3.589 million will fund Future Sensor and Algorithm Analysis, Threat and Vulnerability Analysis, SEPM, analyze machine learning capabilities, and Model Based Systems Engineering (MBSE).</p> <p>FY 2022 Plans: FY 2022 Base RDTE dollars in the amount of \$8.149 million will fund Future Sensor and Algorithm Analysis including potential for incorporation of machine learning features, Threat and Vulnerability Analysis, SEPM, and MBSE.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 includes increased funding for potential incorporation of machine learning features.</p>	5.547	3.586	8.149
<p>Title: Phase 3 CIRCM QRC OCO</p> <p>Description: Phase 3 CIRCM QRC will achieve a reduction in Size, Weight, and Power (SWaP).</p>	2.220	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Title: Phase 4 LIMWS QRC</p> <p>Description: Phase 4 LIMWS is a follow-on bridging solution to the JUONS SO-0010 to provide a greater capability than the current POR, CMWS, until the future POR is available. LIMWS is a Chief of Staff of the Army approved Directed Requirement issued by Army G-8 on March 26, 2017. LIMWS QRC provides an enhanced missile warning system to detect emerging and evolving enemy Man Portable Air Defense Systems (MANPADS) threats.</p> <p>FY 2021 Plans: FY 2021 OCO RDTE dollars in the amount of \$64.625 million funds development, engineering support and test of platform integration hardware and software for Army and Special Operations aircraft.</p> <p>FY 2022 Plans: FY 2022 Direct War/Enduring Operation RDTE dollars in the amount of \$19.125 million are required to fund development and testing of software and A-Kits for integration onto Army and Special Operations Aircraft as well as software, firmware, and hardware updates for Conventional Army Aircraft. Supports preliminary analysis for FVL integration. LIMWS will use MBSE models to support integration onto FVL aircraft variants.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Reduction due to the completion of the Army lead platform development, lead program testing and completion of SOA platform software builds.</p>	75.200	64.494	19.125
Accomplishments/Planned Programs Subtotals	82.967	68.080	27.274

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AZ3517: CMWS	144.218	159.729	148.570	-	148.570	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
 CMWS: Procurement of US Government CMWS A-Kit and B-Kits are complete. CMWS is managed as Mission Equipment for deploying units and fielded as directed by Army G-3/5/7. The CMWS program will continue to be supported through a five year services-only Cost Plus Fixed Fee or Cost Plus Incentive Fee contract, with services to begin by September 2019.

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

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / <i>Aircraft Survivability Development</i>	Project (Number/Name) ER8 / <i>Common Missile Warning System (CMWS)</i>

Phase 4 LIMWS QRC: Acquisition strategy included a full and open competition for selection of prime vendor for development of B-Kits, development of A-Kits, and support testing for the lead program. Additional platform A-Kit development will be handled by government organizations, small business and industry partners.

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

Future Sensor and Algorithm Analysis development equally supports MANPADS and Hostile Fire overmatch through evaluation of emerging sensor technologies and advances in algorithm techniques such as machine learning. This analysis identifies opportunities to optimize performance and modernize fielded systems in order to maintain relevance for the future. The CMWS machine learning analysis will explore the multitude of machine learning algorithms to determine the feasibility and applicability of applying them to the CMWS UV phenomenology environment. The goal is to address the CMWS areas of performance that could be improved with the use of machine learning algorithms. This a collaborative effort between industry, Army Futures Command, and an University Accredited Research Center.

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

Development of MBSE models of CMWS and LIMWS, which will align to Program Executive Office Aviation (PEO AVN) system engineering models, will be used to support integration of ASE products onto FARA and FLRAA aircraft variants. Continued MBSE development supports improved performance, weight reduction and testing.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

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

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CMWS Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	9.471	0.549	Jan 2020	0.750	Jan 2020	0.800	Jan 2022	-		0.800	Continuing	Continuing	Continuing
Advanced Missile Warning System Systems Engineering Program Management	TBD	TBD : TBD	2.000	-		-		-		-		-	0.000	2.000	-
JUONS SO-0010 Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	1.627	-		-		-		-		-	0.000	1.627	-
CIRCM QRC Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	8.144	-		-		-		-		-	Continuing	Continuing	Continuing
LIMWS - SEPM	Various	Various : PM ASE, HSV, AL	6.856	-		-		-		-		-	0.000	6.856	-
SBIR / STTR Transfer	TBD	Various : Various	0.212	-		-		-		-		-	0.000	0.212	-
Subtotal			28.310	0.549		0.750		0.800		-		0.800	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CMWS tier 2/3 Upgrades	Various	Various : -	2.000	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Threat Analysis Database Design	Various	BAE : Various	0.455	-		-		-		-		-	0.000	0.455	-
CMWS Threat Analysis Database (TAD)	Various	BAE : Various	6.119	-		-		-		-		-	0.000	6.119	-
CMWS Enhanced Sensor Study & Evaluation	Various	Various : -	11.466	-		-		-		-		-	0.000	11.466	-
CMWS Data Modeling	TBD	Various : Various	0.688	-		-		-		-		-	0.000	0.688	-
CMWS Future Sensor and Algorithm Analysis	Various	Various : TBD	4.558	2.112	Mar 2020	1.282	Mar 2020	3.351	Mar 2022	-		3.351	0.000	11.303	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

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

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CMWS Prime Contractor-- Integration Engineering	TBD	TBD, TBD : TBD	7.787	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Aircraft Integration	TBD	Various : Various	19.974	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Software	TBD	Various : Various	3.000	-		-		-		-		-	Continuing	Continuing	Continuing
JUONS SO-0010 Prime Contractor -- Integration Engineering	Various	Various : Various	8.842	-		-		-		-		-	0.000	8.842	-
JUONS SO-0010 Software	Various	Various : Various	1.534	-		-		-		-		-	0.000	1.534	-
JUONS SO-0010 Training	Various	Various : Various	0.200	-		-		-		-		-	0.000	0.200	-
CIRCM QRC Development Engineering	Various	Northrup Grumman : Rolling Meadow, IL	5.100	-		-		-		-		-	0.000	5.100	-
CIRCM QRC System Development and Qualification	Various	Various : Various	53.474	-		-		-		-		-	Continuing	Continuing	Continuing
CIRCM QRC Aircraft Integration	Various	Various : Various	24.223	-		-		-		-		-	Continuing	Continuing	Continuing
Limited Interim Missile Warning System (LIMWS) - Development Engineering	Various	Various : PM ASE, HSV, AL	129.091	37.151	Mar 2020	45.454	Mar 2021	10.781	Mar 2022	-		10.781	Continuing	Continuing	-
CMWS Threat and Vulnerability Analysis	Various	Various : TBD	5.463	2.886	Mar 2020	1.554	Mar 2020	3.998	Mar 2022	-		3.998	Continuing	Continuing	Continuing
Subtotal			283.974	42.149		48.290		18.130		-		18.130	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LIMWS - Matrix Support	Various	Various : PM ASE, HSV, AL	6.745	0.094	Jan 2020	2.170	Jan 2021	-		-		-	0.000	9.009	-
LIMWS - Contractor Support	Various	Various : PM ASE, HSV, AL	6.032	-		3.797	Jan 2021	2.000	Jan 2022	-		2.000	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

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

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			12.777	0.094		5.967		2.000		-		2.000	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CMWS Test and Evaluation	TBD	Various : Various	16.156	-		-		-		-		-	Continuing	Continuing	Continuing
JUONS SO-0010 Test and Evaluation	Various	Various : Various	26.709	-		-		-		-		-	Continuing	Continuing	-
CIRCM QRC Test and Evaluation/Tech Manuals	Various	Various : Various	32.830	2.220	Mar 2020	-		-		-		-	Continuing	Continuing	Continuing
LIMWS - Government Testing	Various	Various : PM ASE, HSV, AL	22.833	37.955	Mar 2020	13.073	Mar 2021	6.344	Mar 2022	-		6.344	Continuing	Continuing	-
Subtotal			98.528	40.175		13.073		6.344		-		6.344	Continuing	Continuing	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	423.589	82.967	68.080	27.274	-	27.274	Continuing	Continuing	N/A

Remarks
LIMWS Matrix Support transitions to APA in FY22.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CMWS Threat and Vulnerability Analysis	[Redacted]																											
CMWS Future Sensor and Algorithm Analysis	[Redacted]																											
Phase 3 ATWCIRCM QRC Engineering, Integration, and Test	[Redacted]																											
Phase 4 LIMWS QRC Development Engineering and Test	[Redacted]																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / Aircraft Survivability Development	Project (Number/Name) ER8 / Common Missile Warning System (CMWS)

Schedule Details

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

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Capability Inc 2 - Block 1
---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	186.369	153.362	233.512	-	233.512	-	-	-	-	-	-
EY7: IFPC Increment 2 - Block 1	-	186.369	153.362	233.512	-	233.512	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Indirect Fire Protection Capability Increment 2 (IFPC Inc 2) will provide a ground-based weapon system designed to acquire, track, engage, and defeat Cruise Missiles (CM), Unmanned Aircraft Systems (UAS), and Rocket, Artillery, and Mortar (RAM) threats. The IFPC Inc 2 system consists of a launcher and interceptor integrated with the Army Integrated Air and Missile Defense (AIAMD) open systems architecture, IAMD Battle Command System (IBCS), and the Sentinel sensor to support the Threshold CM and UAS defeat mission. The Objective counter-RAM mission employs both alternative kinetic and non-kinetic defeat solutions.

The Army is pursuing the IFPC Inc 2 capability consisting of a launcher and interceptor as the kinetic solution for the mission to defeat CM, UAS, and RAM threats. The Army plans to pursue the IFPC High Energy Laser (IFPC HEL) and IFPC High Powered Microwave (IFPC HPM) as non-kinetic complementary capabilities as part of the IFPC Objective counter-RAM mission.

Additionally, the Army was directed in section 112 of the Nation Defense Authorization Act for 2019 to deploy an Interim Cruise Missile Defense (CMD) capability. The Army contracted with the Israeli Missile Defense Organization (IMDO) for two Interim CMD (Iron Dome Defense System - Army (IDDS-A)) batteries and continues efforts to improve their interoperability with the Army's Integrated Air and Missile Defense networks.

FY 2022 Base dollars in the amount of \$233.512 million are designated for Interim CMD Interoperability testing and support and the development and integration of the IFPC Inc 2 system.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	194.366	235.770	341.077	-	341.077
Current President's Budget	186.369	153.362	233.512	-	233.512
Total Adjustments	-7.997	-82.408	-107.565	-	-107.565
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-73.802			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-7.997	-8.606			
• Adjustments to Budget Years	-	-	-107.565	-	-107.565

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army Date: May 2021

Appropriation/Budget Activity
2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)

R-1 Program Element (Number/Name)
PE 0605052A / Indirect Fire Protection Capability Inc 2 - Block 1

Change Summary Explanation

Fiscal year (FY) 2022 decrease of \$104.677 million aligned program requirements with the current acquisition strategy and \$2.888 million reduced for inflation rate adjustments.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Capability Inc 2 - Block 1	Project (Number/Name) EY7 / IFPC Increment 2 - Block 1
--	---	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EY7: IFPC Increment 2 - Block 1	-	186.369	153.362	233.512	-	233.512	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Indirect Fire Protection Capability Increment 2 (IFPC Inc 2) will provide a ground-based weapon system designed to acquire, track, engage, and defeat Cruise Missiles (CM), Unmanned Aircraft Systems (UAS), and Rocket, Artillery, and Mortar (RAM) threats. The IFPC Inc 2 system consists of a launcher and interceptor integrated with the Army Integrated Air and Missile Defense (AIAMD) open systems architecture, IAMD Battle Command System (IBCS), and the Sentinel sensor to support the Threshold CM and UAS defeat mission. The Objective counter-RAM mission employs both alternative kinetic and non-kinetic defeat solutions.

In Fiscal Year (FY) 2018, the Army evaluated alternative strategies to address an Army interim CM defense (CMD) capability at critical strategic fixed site locations while continuing the development of an IFPC capability. In FY 2019, the Army signed a contract with the Israeli Missile Defense Organization (IMDO) for two Interim CMD (Iron Dome Defense System - Army (IDDS-A)) batteries. The IFPC Inc 2 program is conducting an interoperability effort to establish communications between the Interim CMD (IDDS-A) batteries' Battle Management Center (BMC) and the US Army's Air and Missile Defense (AMD) Architecture that includes the Army's Integrated Air and Missile Defense (IAMD) Battle Command System (IBCS) and legacy Air Defense command and control (C2) networks.

Concurrently with the Interim CMD effort, the Army is pursuing an Enduring IFPC Inc 2 Middle Tier Acquisition (MTA) - Rapid Prototyping strategy. This competitive strategy invites Industry to participate in a "Shoot Off" demonstration in FY 2021 using Industries' proposed launcher and missile solutions integrated with the Army's IBCS and Sentinel radar. The Army will release a solicitation and will evaluate Industry proposals informed by models and simulations, hardware-in-the-loop, and live fire data to make a Best Value recommendation to proceed to a single vendor to deliver the Enduring IFPC Inc 2 prototype solution. The Army will use this MTA Rapid Prototyping approach to provide a prototype capability in FY 2023, before transitioning into Production and Deployment phase by FY 2025.

The Army plans to pursue the IFPC High Energy Laser (IFPC HEL) and IFPC High Powered Microwave (IFPC HPM) as part of the IFPC Objective counter-RAM mission. The IFPC HEL and IFPC HPM elements will be robust, cost effective, and sustainable complementary capabilities to the overall IFPC mission to protect key fixed and semi-fixed sites. The IFPC Product Office will conduct initial planning and coordination with the Army Rapid Capabilities and Critical Technologies Office (RCCTO) and the Army's Air and Missile Defense Cross-Functional Team (AMD CFT) in FY 2022 to enable an efficient transfer of the IFPC HEL and IFPC HPM efforts in FY 2024.

FY 2022 Base dollars in the amount of \$233.512 million are designated for Interim CMD Interoperability testing and support and the development and integration of the IFPC Inc 2 system.

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

	FY 2020	FY 2021	FY 2022
Title: Interim CMD (Iron Dome Defense System - Army) Integration and Testing	52.888	4.350	30.059

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / <i>Indirect Fire Protection Capability Inc 2 - Block 1</i>	Project (Number/Name) EY7 / <i>IFPC Increment 2 - Block 1</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Description: Funding is provided to support the assessment of operational utility and safety of the Iron Dome Defense System-Army (IDDS-A) as an Interim IFPC Inc 2 capability</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Continue Performance Analysis of Interim CMD (IDDS-A) systems - Continue Logistics Assessments - Continue system engineering, integration, logistics engineering, system evaluation management, technical configuration control, and business management activities - Continue assessment of Interim CMD (IDDS-A) systems launcher and interceptor interoperability with US command and control system - Continue interoperability system engineering and software development efforts to enable Interim CMD (IDDS-A) system to interoperate with United States (US) systems utilizing a US external command and control system - Continue IAMD support of Interim CMD (IDDS-A) Interoperability <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Residual testing of Interim CMD (IDDS-A) capability - Interim CMD (IDDS-A) Interoperability Operational Assessment - Conduct system engineering, logistics engineering, system evaluation management, and technical configuration control to enhance interoperability of Interim CMD (IDDS-A) capability with US missile defense architecture - Assess supportability requirements, sufficiency of training, maintenance and repair procedures, and capabilities of logistics support package during Operational Assessment - Continue IAMD effort to expand interoperability between Interim CMD (IDDS-A) and the Army Integrated Air and Missile Defense (AIAMD) through IBCS - IFPC's Interim CMD (IDDS-A) will develop nascent capability and support Army demonstration and test initiatives to increase interoperable offensive and defensive capability across warfighter functions and multiple domains <p>FY 2021 to FY 2022 Increase/Decrease Statement: Interim CMD (IDDS-A) capability increased requirements due to transition to operational assessment in FY 2022</p>				
<p>Title: IFPC Inc 2 Prototype Development, Integration, Manufacturing, and Testing</p> <p>Description: Funding is provided to support the development, integration, prototype manufacturing, and testing of the IFPC Inc 2 capability</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Hold "Shoot Off" demonstration for IFPC Inc 2 participating contractors 		59.195	149.012	203.453

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / <i>Indirect Fire Protection Capability Inc 2 - Block 1</i>	Project (Number/Name) EY7 / <i>IFPC Increment 2 - Block 1</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<ul style="list-style-type: none"> - Award contract for follow-on development and Rapid Prototyping effort to initiate manufacturing of incrementally funded IFPC Inc 2 prototype launchers (16) and interceptors (80) - Continue launcher, interceptor, and system hardware and software design - Continue launcher and interceptor development activities, to include Communications and Data Uplink with mission command and sensor, and launcher Weapons Interface Controller and Engagement Calculator software development - Continue engineering and technical support of the IFPC Inc 2 hardware, software, and interface development - Continue IFPC Inc 2 launcher and interceptor model accreditation - Continue IFPC Inc 2 interceptor integration with launcher - Continue IFPC Inc 2 launcher and interceptor Integration with mission command and sensor <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Continue manufacturing of incrementally funded IFPC Inc 2 prototype launchers (16) and interceptors (80) - Continue launcher, interceptor, and system hardware and software design for producibility, affordability, and operational supportability to ensure materiel availability and reduce the logistics footprint - Continue IFPC Inc 2 interceptor integration with launcher - Continue IFPC Inc 2 launcher and interceptor development activities to integrate launcher and interceptor hardware and software, communications, and Data Uplink, and externally with IBCS EOC and Sentinel radar to ensure operational integrity and protection of critical program information - Continue IFPC Inc 2 launcher and interceptor model and simulation accreditation to provide alternate means to prove out system capabilities while reducing live fire test event requirements - Continue Interoperability End-to-End simulations and testing, to include updating the GSIL's Hardware-in-the-Loop elements with selected prototype hardware - Develop and integrate Operator and Maintainer Interfaces: Technical User and Maintenance Manuals, internal Maintenance Troubleshooting software, internal training software, RT3 software update for IFPC system, update to IBCS mission command SW tools (i.e., Integrated Defense Designer tool to inform for optimal coverage and protection) - Develop trainer hardware and software packages for institutional Operators and Maintainers training at ADA School and NG Training Sites - Initiate testing activities to demonstrate system integration, interoperability, supportability, safety, and utility - Initiate testing activities to demonstrate reliability, availability, maintainability, and sustainment features included in design of the system and ensure operational supportability while minimizing the logistical footprint - Conduct initial planning and coordination with RCCTO and AMD CFT on IFPC HEL and IFPC HPM <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase will fund the enduring IFPC Inc 2 ?Shoot-Off? demonstration that will take place in 3Q FY 2021, followed by an independent source selection based on proposals, informed by ?Shoot-Off? results and digital simulation data. In 4Q FY 2021,</p>			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / <i>Indirect Fire Protection Capability Inc 2 - Block 1</i>	Project (Number/Name) EY7 / <i>IFPC Increment 2 - Block 1</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
the approved industry materiel solutions will begin prototyping activities, to include efforts to initiate manufacturing (i.e., long lead procurements, manufacturing setup) of 16 prototype launchers and 80 prototype interceptors.			
FY 2022 efforts will provide follow-on activities to continue prototyping manufacturing and design and initiate testing, modeling & simulation, interoperability modeling, maintainability and sustainability engineering, and User Interface efforts.			
Title: FY 2020 Congressional Rescission	74.286	-	-
Description: Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	186.369	153.362	233.512

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• C62002: <i>IFPC INC 2- I BLOCK 1 SYSTEM</i>	9.337	62.461	25.253	-	25.253	-	-	-	-	-	-
• E10: <i>Sentinel</i>	91.782	105.271	127.919	-	127.919	-	-	-	-	-	-
• WK5057: <i>Sentinel Mods</i>	133.910	92.380	47.642	-	47.642	-	-	-	-	-	-
• S40: <i>Army Integrated Air and Missile Defense</i>	211.634	206.850	157.873	-	157.873	-	-	-	-	-	-
• BZ5075: <i>IAMD Battle Command System</i>	29.629	198.587	301.872	-	301.872	-	-	-	-	-	-

Remarks
This program is an integral part of the Army Integrated Air and Missile Defense (AIAMD) architecture.

D. Acquisition Strategy
As reported in Oct 2018, the Army will rapidly field an Interim CMD capability with the Israeli Iron Dome system. Concurrently, the Army will integrate an Enduring IFPC capability of a launcher and interceptor leveraging the AIAMD open systems architecture and IBCS, as the Fire Control component, and the US Sentinel sensor.

The Army approved a Directed Requirement to initiate procurement of the Israeli Iron Dome missile system for the Interim CMD capability on 9 Feb 2019. Congress approved ATR actions to align IFPC FY 2018 and 2019 Procurement to fund the Interim CMD (Iron Dome Defense System-Army) purchase and to repurpose the FY 2019 RDTE funds in May 2019 for associated system evaluation.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / <i>Indirect Fire Protection Capability Inc 2 - Block 1</i>	Project (Number/Name) EY7 / <i>IFPC Increment 2 - Block 1</i>
<p>To support the Interim CMD (IDDS-A) requirement, the Army has signed a contract for two Interim CMD (IDDS-A) batteries for technical evaluation, assessment of operational utility, and safety evaluation. Additionally, the IFPC program will perform logistics analysis and assessments to determine IDDS-A training requirements, fielding requirement, spares packages, maintenance policies, and required Operational and Maintenance documentation. IFPC is conducting interoperability efforts to assess the ability to improve IDDS-A interoperability with U.S. ADA system architecture, continuing its logistics assessments, Modeling and Simulation analysis, and integration activities, as well as, conducting Performance Analysis and Testing of the Interim CMD (IDDS-A) capability at White Sands Missile Range prior to their deployment for operational assessment.</p> <p>The Army will utilize a Middle Tier Acquisition (MTA) Rapid Prototyping approach to evaluate new capability and provide a prototype capability in FY 2023, before transitioning into Production and Deployment phase by FY 2025. In support of the IFPC Inc 2 solution, the Army will pursue a Competitive strategy with Industry participating in a "Shoot Off" demonstration using Industries' proposed launcher and missile solutions integrated with the Army's IBCS and Sentinel radar. On 2 July 2020, the Army Contracting Command - Redstone (ACC-RSA) signed bailment agreements with two vendors in support of the "Shoot Off" phase effort. The Army will evaluate Industry proposals informed by models and simulations, hardware-in-the-loop, and live fire data, to make a Best Value recommendation to proceed to a single vendor to deliver the enduring IFPC Inc 2 prototype solution.</p> <p>The Army plans to pursue the IFPC High Energy Laser (IFPC HEL) and IFPC High Powered Microwave (IFPC HPM) as part of the IFPC Objective counter-RAM mission. The IFPC HEL and IFPC HPM elements are currently managed by the Army Rapid Capabilities and Critical Technologies Office (RCCTO) and are planned for transfer of responsibility to the IFPC Product Office in FY 2024.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Cap ability Inc 2 - Block 1	Project (Number/Name) EY7 / IFPC Increment 2 - Block 1
--	---	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.674	0.474	May 2020	0.425	May 2021	0.500	May 2022	-		0.500	Continuing	Continuing	Continuing
FY 2020 Withhold Pending Congressional Rescission	TBD	Various : Various	-	74.286		-		-		-		-	0.000	74.286	-
Withhold Pending BTR to M-SHORAD	TBD	TBD : TBD	-	-		0.963	Apr 2021	-		-		-	0.000	0.963	-
Subtotal			0.674	74.760		1.388		0.500		-		0.500	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interim IFPC - System Dev & Interoperability External Spt	Various	Multiple Activities : Multiple Locations	-	-		4.350	May 2021	4.980	May 2022	-		4.980	0.000	9.330	-
Interim IFPC Ctr Eng, Product Dev, & Interoperability	Various	Multiple Activities : Multiple Locations	20.883	-		-		13.605	Jun 2022	-		13.605	0.000	34.488	-
IFPC Technical Support	MIPR	Multiple Activities : Multiple Locations	-	7.509	Jul 2020	-		-		-		-	0.000	7.509	-
IFPC - System Eng & Integration	Various	Multiple Activities : Multiple Locations	30.941	15.022	Aug 2020	17.137	Jul 2021	20.074	Jun 2022	-		20.074	Continuing	Continuing	Continuing
IFPC System Dev and Integration External Support	Various	Multiple Activities : Multiple Locations	-	45.010	Jul 2020	21.985	May 2021	33.426	Jul 2022	-		33.426	Continuing	Continuing	Continuing
IFPC Contractor Prototype Development / Integration	C/TBD	To Be Determined : To Be Determined	-	-		55.140	Aug 2021	59.852	Apr 2022	-		59.852	Continuing	Continuing	Continuing
IFPC Contractor Prototype Manufacturing	C/TBD	To Be Determined : To Be Determined	-	-		49.696	Aug 2021	37.509	Apr 2022	-		37.509	Continuing	Continuing	-
Subtotal			51.824	67.541		148.308		169.446		-		169.446	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Cap ability Inc 2 - Block 1	Project (Number/Name) EY7 / IFPC Increment 2 - Block 1
--	---	--

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interim IFPC - Log Support	TBD	TBD : TBD	42.600	12.086	Apr 2020	-		-		-		-	0.000	54.686	-
IFPC Log Support	Various	Multiple Activities : Multiple Locations	4.023	0.919	Jul 2020	0.750	May 2021	2.786	Jul 2022	-		2.786	Continuing	Continuing	-
IFPC Contractor Log Support	C/TBD	To Be Determined : To Be Determined	-	-		-		5.305	Apr 2022	-		5.305	Continuing	Continuing	-
Subtotal			46.623	13.005		0.750		8.091		-		8.091	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interim IFPC Operational Testing	IA	Multiple Activities : Multiple Locations	19.888	30.663	Apr 2020	-		12.874	Apr 2022	-		12.874	0.000	63.425	-
IFPC PM Testing Support	IA	Multiple Activities : Multiple Locations	1.209	0.400	Jul 2020	2.200	Jun 2021	2.695	Jun 2022	-		2.695	Continuing	Continuing	Continuing
IFPC Developmental Testing	IA	Multiple Activities : Multiple Locations	-	-		0.716	Apr 2021	23.431	May 2022	-		23.431	Continuing	Continuing	-
IFPC Contractor Test Support	C/TBD	To Be Determined : To Be Determined	-	-		-		16.475	Apr 2022	-		16.475	Continuing	Continuing	-
Subtotal			21.097	31.063		2.916		55.475		-		55.475	Continuing	Continuing	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
	Project Cost Totals		120.218	186.369	153.362	233.512	-	233.512	Continuing	Continuing

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Capability Inc 2 - Block 1	Project (Number/Name) EY7 / IFPC Increment 2 - Block 1

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interim CMD Capability Integration and Test Activities	[Redacted]				Interim CMD Integration and Test Activities																							
Interim CMD Interoperability and development effort					Interim CMD Interoperability																							
Interim CMD 1st Iron Dome Battery Delivery					1				Interim CMD 1st Iron Dome Battery Delivered																			
Interim CMD 2nd Iron Dome Battery Delivery					2				Interim CMD 2nd Iron Dome Battery Delivered																			
Interim CMD Live Fire Performance Testing									Interim CMD Live Fire Performance Testing																			
Interim CMD Safety Confirmation/Capabilities & Limitations Testing									Interim CMD Safety and Caps/Lims Testing																			
Interim CMD Urgent Materiel Release for Deployment of Batteries 1&2					4				Interim CMD UMR Btlys 1&2																			
Interim CMD Interoperability Operational Analysis									Interim CMD Interoperability Analysis																			
IFPC MDA Decision Point for Middle Tier Acquisition Strategy					3				IFPC MTA Strategy Decision Point																			
IFPC Industry Partners' preparation for "Shoot-Off" Demonstration	IFPC "Shoot-Off" Prep																											
IFPC "Shoot-Off" Demonstration					IFPC "Shoot-Off"																							
IFPC OTA (Single Vendor) for Prototype development completion and manufacturing									IFPC Prototype Dev & Mfg																			
IFPC System Testing (Component/System Qual & DT/Live Fire Testing)									IFPC System Qual / DT / Live Fire																			

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Capability Inc 2 - Block 1	Project (Number/Name) EY7 / IFPC Increment 2 - Block 1

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026																																																																																																																											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																								
IFPC Operational Demonstration																	IFPC Operational Demonstration																																																																																																																																			
IFPC Early Operational Capability Units																																	5																																																																																																																			
IFPC MS C / Production Decision																																																													6																																																																																							
IFPC Low Rate Initial Production (LRIP)																																																																																					IFPC LRIP																																																															
IFPC Initial Operational Test & Evaluation (IOT&E)																																																																																																													IFPC IOT&E																																							
IFPC Full Rate Production (FRP)																																																																																																																																	IFPC FRP																			
IFPC First Unit Equipped (FUE)																																																																																																																																																				
	IFPC FUE																																																																																																																																																			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / Indirect Fire Protection Capability Inc 2 - Block 1	Project (Number/Name) EY7 / IFPC Increment 2 - Block 1
--	---	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
National Defense Authorization Act for FY2019 directed IFPC Report to Congress	1	2019	1	2019
Interim CMD Directed Requirement - Interim CMD System	2	2019	2	2019
Interim CMD Title 10, Para 2373 Contract Award for Interim Iron Dome Btrys 1&2	4	2019	4	2019
Interim CMD Capability Integration and Test Activities	1	2020	4	2020
Interim CMD Interoperability and development effort	4	2020	4	2023
Interim CMD 1st Iron Dome Battery Delivery	1	2021	1	2021
Interim CMD 2nd Iron Dome Battery Delivery	2	2021	2	2021
Interim CMD Live Fire Performance Testing	4	2021	4	2021
Interim CMD Safety Confirmation/Capabilities & Limitations Testing	4	2021	4	2021
Interim CMD Urgent Materiel Release for Deployment of Batteries 1&2	4	2021	4	2021
Interim CMD Interoperability Operational Analysis	3	2022	3	2022
IFPC MDA Decision Point for Middle Tier Acquisition Strategy	2	2021	2	2021
IFPC Industry Partners' preparation for "Shoot-Off" Demonstration	3	2020	3	2021
IFPC "Shoot-Off" Demonstration	3	2021	4	2021
IFPC OTA (Single Vendor) for Prototype development completion and manufacturing	4	2021	3	2023
IFPC System Testing (Component/System Qual & DT/Live Fire Testing)	2	2022	4	2023
IFPC Operational Demonstration	4	2023	1	2024
IFPC Early Operational Capability Units	4	2023	4	2023
IFPC MS C / Production Decision	2	2024	2	2024
IFPC Low Rate Initial Production (LRIP)	3	2024	1	2026
IFPC Initial Operational Test & Evaluation (IOT&E)	3	2025	1	2026
IFPC Full Rate Production (FRP)	1	2026	1	2031

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605052A / <i>Indirect Fire Protection Capability Inc 2 - Block 1</i>	Project (Number/Name) EY7 / <i>IFPC Increment 2 - Block 1</i>
--	--	---

Events	Start		End	
	Quarter	Year	Quarter	Year
IFPC First Unit Equipped (FUE)	3	2026	3	2026
IFPC Follow-On Test & Evaluation (FOT&E)	1	2028	4	2028

Note
 CMD: Cruise Missiles Defense
 FUE:
 FY: Fiscal Year
 IFPC: Indirect Fire Protection Capability

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	24.747	12.010	18.241	-	18.241	-	-	-	-	-	-
BS9: <i>Robotic Payloads</i>	-	-	-	8.531	-	8.531	-	-	-	-	-	-
FB2: <i>Man Transportable Robotic System (MTRS) Inc II</i>	-	4.455	-	-	-	-	-	-	-	-	-	-
FB3: <i>Robotics Architecture</i>	-	2.758	2.604	2.346	-	2.346	-	-	-	-	-	-
FB4: <i>Common Robotic Systems</i>	-	4.191	1.766	-	-	-	-	-	-	-	-	-
FB6: <i>Squad Multipurpose Equipment Transport (SMET)</i>	-	4.794	4.125	3.763	-	3.763	-	-	-	-	-	-
FB9: <i>MTRS Standardization</i>	-	7.412	-	-	-	-	-	-	-	-	-	-
FG8: <i>Common Robotic Controller</i>	-	1.137	3.515	3.601	-	3.601	-	-	-	-	-	-

Note

For Project FD2 Soldier Robotics Systems, the primary program funded in Fiscal Year (FY) 2021 was Enhanced Robotic Payloads which has a new FY 2022 Program of Record (POR) line under Program Element (PE) 0605053A Project BS9 Robotic Payloads.

For Project FB4 Common Robotic Systems, efforts ended in FY 2021. Program is eliminated in FY 2022.

A. Mission Description and Budget Item Justification

This Program Element supports modernization of the current Ground Robotic fleets by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, Robotic Architecture, autonomous operations and other emerging technologies. Funding also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

BS9: The Robotic Payloads project is a suite of modular capabilities designed with open architecture to provide and increased level of standoff, situational awareness, disruption capability and dexterity to respond to current and emergent Engineer, CBRN and EOD requirements. Current Man Transportable Robotic Systems Increment II (MTRS Inc II) and Common Robotic System - Heavy (CRS-H) system characteristics include the following: a remote controlled articulated arm with a gripper, operating range up to 800 meters, multiple illuminated cameras, a pan/tilt surveillance camera, two-way radio, and a ruggedized operator control unit. The platforms provided will support development and testing of the following capabilities: Extended Range Mesh Network (ERMN), Pan/Tilt Imager (PTI) and Obstacle Avoidance & Digital Modeling (OA&DM). The use of robotic payloads allows the first approach, to potentially explosive hazards, to be made by a robot rather than a Soldier. These multiple, modular robotic mission payloads will use open architecture to integrate with the MTRS Inc II and CRS-H platforms to form the Army's next generation platform adaptable robotics systems.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>
--	--

FY 2022 funding in the amount of \$8.531 million supports development of Extended Range Mesh Network (ERMN) and Pan/Tilt Imager (PTI) payload prototypes and payload to platform integration requirements. Additionally, FY 2022 funding will support development of integration provisions for mounting the ERMN and PTI to both the MTRS Inc II and CRS-H platforms as well as development of the necessary software updates to allow for payload to platform communications.

FB2: The Man Transportable Robotic System (MTRS) Inc. II is the Army's Soldier transportable, remotely operated, medium size (<= 164 lbs.) common robotic system. The system utilizes both radio and tethered communications allowing dismounted Soldiers to perform hazardous missions from a safe standoff distance. The MTRS Inc. II system consists of an Operator Control Unit (OCU), a suite of various mission payloads, and a mobility platform. Open architecture and the Ground Robotic Autonomous Systems (RAS) Interoperability Profile (IOP) requirements are employed to reduce obsolescence risks and to maximize efficiency in acquiring future capabilities. MTRS Inc. II will support current and future payload missions for the Engineer's route clearance platoons, Special Operational Forces (SOF) detachments, Chemical Biological Radiological and Nuclear (CBRN), and Explosive Ordnance Disposal (EOD) Units.

FB2 has no FY22 funding request.

FB3: Robotic Architecture (RA) provides the engineering and development resources to manage the overarching architecture for robotic systems that are both modular and interoperable across the Joint Force in order to facilitate future modernization efforts. It will manage the interoperability standards, modular payload interfaces, common software and common architecture for robotics & autonomous platforms, payloads & universal controllers. It will establish a Common Specifications Reference (CSR) to provide a repository codifying the Army Robotic Autonomous Systems (RAS) standards for open architecture, interoperability interfaces, and common control. RA includes the construction of program specific Interoperability Profiles (IOP) (i.e. Small Multipurpose Equipment Transport (S-MET), Tactical Wheeled Vehicle-Leader Follower (TWV-LF), Route Clearance Interrogation System Type I (RCIS Type I), Common Robotics System (Vehicle) (CRS(V)), Common Robotics System (Medium) (CRS(M)), Common Robotics System (Individual) (CRS(I)) Inc. II, Common Robotics System (Heavy) (CRS(H)), Enhanced Robotic Payload (ERP), Light Reconnaissance Robot (LRR), Optionally Manned Fighting Vehicle (OMFV), Robotic Combat Vehicle (RCV), Assault Breacher Vehicle Remote Control System (ABV RCS), Advanced Reconnaissance Vehicle (ARV), Universal Robotic Controller, etc.), new standards addressing emerging requirements and Modular Mission Payloads (MMP) (i.e. Cyber Security, new autonomous behaviors & artificial intelligence, new payloads, lethality, etc.).

FY 2022 RDTE funds in the amount of \$2.346 million supports the initial development of the Robotics and Autonomous Systems-Ground (RAS-G) Interoperability Profile (IOP) Version 6.0. IOP V6.0 will provide the required modular open interfaces and compliance test tools for new programs including S-MET Modular Mission Payloads (MMPs), LRR, CRS(M), TWV-LF, OMFV, RCV, ERP, Assault Breacher Vehicle Remote Control System (ABV RCS), Advanced Reconnaissance Vehicle (ARV), Universal Robotic Controller, and robotic applique kits for manned ground systems. Additionally, FY 2022 RDTE funds will continue the development & hardening of Robotic Operating System, Military (ROS-M) software modules and ROS-M instantiation documents, and management of ROS-M registry & repository infrastructure. FY 2022 RDTE funds will also continue the development and refinement of the Common Specification Reference (CSR).

FB4: The Common Robotic System - Individual (CRS(I)) is the Army's small sized (<25 lbs.) Soldier back-packable, remotely operated, common robotic system. The system provides dismounted Soldiers with increased standoff capability from hazardous threats. The system consists of a Universal Robotic Controller (URC), a suite of various payloads, and an open architecture common mobility platform allowing for future capability growth. The CRS(I) will allow the operator to quickly re-configure

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>
--	--

for other various missions by adding or removing modules and/or payloads. The CRS(I) will provide interrogation, detection, confirmation, and neutralization capabilities employed to support a wide spectrum of mobility missions for current and future forces. This capability provides commanders the ability to persistently monitor the Operating Environment (OE) while protecting and sustaining the force. The CRS(I) complements the Joint Integrated Warfighting Force by providing standoff to the Warfighter during major combat, stability, and homeland security operations.

FB4 has no FY22 funding request.

FB6: Small Multipurpose Equipment Transport (S-MET) will help to reduce Soldier loads by transporting mission specific equipment, resupply equipment, and supplies required for extended operations. The S-MET will be capable of carrying the equipment currently required to support Infantry and Engineer Platoons in the Infantry Brigade Combat Team (IBCT) for a 72 hour mission without resupply. The S-MET will reduce Soldier load, increase squad mobility during combat operations and dismounted maneuvers. S-MET will have open architectures, a remote control, support casualty evacuation, power generation/offload and Modular Mission Payloads (MMP).

FY 2022 RDTE funding in the amount of \$3.763 million supports the development, integration, and procurement of Technical Insertions, Engineering Change Proposals, and Modular Mission Payloads (MMP) to increase mission capabilities and address requirements in the Abbreviated Capability Development Document (A-CDD). FY2022 RDTE funds testing and development of logistics material required to support MMP efforts. Program support to include labor, travel and miscellaneous expenses in support of these RDTE efforts will also be funded.

FB8: The Soldier Borne Sensor (SBS) is a small unmanned aerial vehicle. The SBS provides a near term solution to three Army War-fighting Challenges at the Infantry Squad level: develop situational understanding, conduct air-ground reconnaissance, and conduct joint combined arms maneuver. The system is simple to deploy and use to support the squad leader's decision-making process. The system allows Soldiers to obtain local situational awareness and understanding of their immediate surroundings while remaining in covered or concealed positions. Funding in this project aligns with Army's priorities in support of the National Defense Strategy. In FY 2020, this project and funding transitioned to PE: 06044827A / Soldier Systems - Warrior Dem/Val project 0604827A.FK4.

FB9: The Common Robotic System, Heavy (CRS(H)) is a modular large-sized system that provides enhanced protection to the EOD Soldier in order to support the Joint Force Commander with the ability to identify, render safe and dispose of explosive ordnance (EO) and improvised explosive devices (IEDs) in support of the Range of Military Operations (ROMO) and Home Land Defense (HLD) operations. CRS(H) will also enable EOD Soldiers to execute Defense Support of the Civil Authorities (DSCA) operations in response to requests from federal, state, local, and tribal authorities for domestic incidents, emergencies, disasters, designated law enforcement support and other activities. CRS(H) will support current and future missions for Explosive Ordnance Disposal (EOD) units.

The MTRS Standardization project provides the platforms to support integration and testing of payloads and technology for non-standard unmanned ground robotics systems used by Army Engineers, Explosive Ordnance Disposal (EOD), Chemical, Biological, Radiological, and Nuclear (CBRN) and Special Operational Forces (SOF) units. Current system characteristics include the following: a remote controlled articulated arm with a gripper, operating range up to 800 meters, multiple illuminated cameras, a pan/tilt surveillance camera, two-way radio, and a ruggedized operator control unit. The platforms provided will support development and testing of the following capabilities: High Dexterous Manipulation System (HDMS), Multi-Spectral Image Fusion System (MIFS), and Precision Aimed Multi-shot Disruptor (PAMD). The use of robotics allows the first approach, to potentially explosive hazards, to be made by a robot rather than a Soldier.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>
--	--

FB9 has no FY22 funding request.

FG8: Universal Robotics Control (URC) will provide the common operational software to run specific applications (Apps) for all battalion and below Robotic and Autonomous Systems (RAS). URC will provide multiple layers of situational awareness while reducing the Soldier's physical and cognitive load as well as the training burden. URC is both backwards compatible with existing Army RAS and forward compatible with emerging Army and Joint RAS. URC will integrate across all RAS programs for interoperability, network transport (radio wave forms), and the larger common Network. URC is a critical enabling capability for NGCV OMFV and RCV programs.

PEO Aviation will assess the technology readiness level of Universal Robotics Control (URC) in FY 21 and determine via analysis or prototype the acquisition pathway to fulfill the Capability Requirements outlined in the RAS ICD. The Prototype Demonstration and Data Analysis Framework will help determine if the URC should be a hardware-based program requiring a Capability Development Document (CDD), a software-based program requiring an Information System Capability Development Document (IS-CDD), or a Capability Needs Statement and User Agreement associated with a Software Acquisition Pathway. Will leverage RAS ICD, Navy Common Control System IS ICD, FUAS ICDs, RPUAS CPD, CRS-I CDD, OMFV, etc., will also be used in the analysis.

FY 2022 RDTE funding in the amount of \$3.601 million will be utilized for Systems Engineering and Program Management (SEPM) support in preparing the Contracts Requirements Package (CRP) for URC. This includes Statement of Work and System Specification preparation, as well as follow up from the FY22 prototype/ demonstration and analysis to further shape the acquisition strategy. FY22 funding will also be utilized for risk reduction activities to include using a government or contractor provider to further enhance the prototype product and inform the CRP process.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	26.104	13.710	10.556	-	10.556
Current President's Budget	24.747	12.010	18.241	-	18.241
Total Adjustments	-1.357	-1.700	7.685	-	7.685
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.200			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.283	-			
• SBIR/STTR Transfer	-1.074	-0.500			
• Adjustments to Budget Years	-	-	7.685	-	7.685

Change Summary Explanation

Increase from FY2021PB to FY2022PB in PE 605053A is due to new start project BS9, Robotic Payloads (\$9.260 million). This project is required as the program successfully transitions from Robotic technologies into a Program of Record (PoR) by utilizing 604017 (FD2).

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>				Project (Number/Name) BS9 / <i>Robotic Payloads</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
BS9: <i>Robotic Payloads</i>	-	-	-	8.531	-	8.531	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

For Project FD2 Soldier Robotics Systems, the primary program funded in Fiscal Year (FY) 2021 was Enhanced Robotic Payloads which has a new FY 2022 Program of Record (POR) line under Program Element (PE) 0605053A Project BS9 Robotic Payloads.

A. Mission Description and Budget Item Justification

The Ground Robotics - Robotic Payloads project is a suite of modular capabilities designed with open architecture to provide and increased level of standoff, situational awareness, disruption capability and dexterity to respond to current and emergent Engineer, CBRN and EOD requirements. Current Man Transportable Robotic Systems Increment II (MTRS Inc II) and Common Robotic System - Heavy (CRS-H) system characteristics include the following: a remote controlled articulated arm with a gripper, operating range up to 800 meters, multiple illuminated cameras, a pan/tilt surveillance camera, two-way radio, and a ruggedized operator control unit. The platforms provided will support development and testing of the following capabilities: Extended Range Mesh Network (ERMN), Pan/Tilt Imager (PTI) and Obstacle Avoidance & Digital Modeling (OA&DM). The use of robotic payloads allows the first approach, to potentially explosive hazards, to be made by a robot rather than a Soldier. These multiple, modular robotic mission payloads will use open architecture to integrate with the MTRS Inc II and CRS-H platforms to form the Army's next generation platform adaptable robotics systems.

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

	FY 2020	FY 2021	FY 2022
Title: Prototype and Payload Development	-	-	4.678
Description: Development of Extended Range Mesh Network (ERMN), Pan/Tilt Imager (PTI) and Obstacle Avoidance & Digital Modeling (OA&DM) payload prototypes and payload to platform integration requirements.			
FY 2022 Plans: Development of Extended Range Mesh Network (ERMN) and Pan/Tilt Imager (PTI) payload prototypes and payload to platform integration requirements.			
FY 2021 to FY 2022 Increase/Decrease Statement: BS9 Robotic Payloads is a new start in FY 2022.			
Title: Integration & Software Development (Platform)	-	-	2.941
Description: Development of integration provisions for mounting the ERMN, PTI, and OA&DM to both the MTRS Inc II and CRS-H platforms. Development of the necessary software updates to allow for payload to platform communications. ERMN & PTI payloads will take priority over OA&DM due to technology readiness level of the OA&DM.			
FY 2022 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) BS9 / <i>Robotic Payloads</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Development of integration provisions for mounting the ERMN and PTI to both the MTRS Inc II and CRS-H platforms. Development of the necessary software updates to allow for payload to platform communications. ERMN & PTI payloads will take priority over OA&DM due to technology readiness level of the OA&DM. FY 2021 to FY 2022 Increase/Decrease Statement: BS9 Robotic Payloads is a new start in FY 2022.			
Title: Program Support FY 2022 Plans: Funding will support the Enhanced Robotic Payloads program during the prototype and development of the payloads as well as integration & software development for the platforms. FY 2021 to FY 2022 Increase/Decrease Statement: BS9 Robotic Payloads is a new start in FY 2022.	-	-	0.912
Accomplishments/Planned Programs Subtotals	-	-	8.531

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• FD2: <i>Soldier Robotics Systems</i>	2.657	3.138	-	-	-	-	-	-	-	-	-

Remarks
PE 0604017A FD2 is a shared funding line. FD2 is 6.4 RDT&E funding used to transition Robotic technologies into Program of Records (PoR). FD2 line was used in FY2019-FY2021 to transition the Enhanced Robotic Payloads technologies into a PoR as follows: FY2019: 0.375; FY 2020: 1.196; FY 2021: 1.738

D. Acquisition Strategy
PdM RAS will develop a unique Performance Specification for each payload from the ERP-UGS Capability Development Document (CDD). PdM RAS will seek out proposals from industry on capabilities to meet the payload performance specifications and select the best capability to then be further developed, integrated into the platforms, and tested as a system in an abbreviated Engineering Manufacturing Development (EMD) phase. After a successful EMD, a production decision will be made to enter Production and Deployment (PD) phase.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) BS9 / <i>Robotic Payloads</i>
--	--	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone B/Decision Point									▲ 1																			
Prototype & Payload Development PTI and ERMN																												
Integration & SW Development PTI and ERMN																												
Payload Testing PTI and ERMN																												
Program Support																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) BS9 / <i>Robotic Payloads</i>
--	--	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B/Decision Point	2	2022	2	2022
Prototype & Payload Development PTI and ERMN	2	2022	2	2023
Integration & SW Development PTI and ERMN	4	2022	2	2023
Payload Testing PTI and ERMN	2	2023	4	2023
Program Support	1	2022	4	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>				Project (Number/Name) FB2 / <i>Man Transportable Robotic System (MTRS) Inc II</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FB2: <i>Man Transportable Robotic System (MTRS) Inc II</i>	-	4.455	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Man Transportable Robotic System (MTRS) Inc. II is the Army's Soldier transportable, remotely operated, medium size (<= 164 lbs.) common robotic system. The system utilizes both radio and tethered communications allowing dismounted Soldiers to perform hazardous missions from a safe standoff distance. The MTRS Inc. II system consists of an Operator Control Unit (OCU), a suite of various mission payloads, and a mobility platform. Open architecture and the Ground Robotic Autonomous Systems (RAS) Interoperability Profile (IOP) requirements are employed to reduce obsolescence risks and to maximize efficiency in acquiring future capabilities. MTRS Inc. II will support current and future payload missions for the Engineer's route clearance platoons, Special Operational Forces (SOF) detachments, Chemical Biological Radiological and Nuclear (CBRN), and Explosive Ordnance Disposal (EOD) Units.

0605053A FB2 has no FY22 funding request.

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

	FY 2020	FY 2021	FY 2022
Title: MTRS Inc II RDTE - Engineering Change Proposals	0.100	-	-
Description: MTRS Inc. II RDTE funding to support Government initiated Engineering Change Proposals (ECP) to the MTRS Inc. II system.			
Title: MTRS Inc II RDTE - IPT Matrix Support Salary	0.055	-	-
Description: MTRS Inc. II RDTE funding to support engineering and various test efforts to include redesign of test articles, delta PQT test execution, software, engineering test support staff salaries, and System Engineering Program Management (SEPM) costs.			
Title: MTRS Inc II RDTE ? TARDEC Multi-Robot Operator Control Unit (MOCU) Software Support	1.732	-	-
Description: MTRS Inc. II RDTE funding to support the following TARDEC services to include software subject matter expert support, testing support, issue remediation, and transitioning MOCU software lead to TARDEC SEC as the software sustainment agency.			
Title: MTRS Inc II RDTE ? SPAWAR Multi-Robot Operator Control Unit (MOCU) 3 SW Support	1.146	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB2 / <i>Man Transportable Robotic System (MTRS) Inc II</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Description: MTRS Inc. II RDTE funding to provide subject matter expert support, software updates, incremental software drops for integration and testing, software test simulator, software drop test reports, debugging and issue remediation, and the transition of MOCU software to TARDEC for long term sustainment.			
Title: MTRS Inc II RDTE - Virtual Clearance Training Suite (VCTS)	0.591	-	-
Description: MTRS Inc. II RDTE funding to support the development activities to incorporate MTRS Inc. II into the Virtual Clearance Training Suite.			
Title: MTRS Inc II RDTE - Endeavor Logistic Product development, demonstration and verification	0.211	-	-
Description: MTRS Inc. II RDTE funding to support the development of a MTRS Inc. II logistic products, demonstration and verification.			
Title: MTRS Inc II RDTE - Testing	0.620	-	-
Description: MTRS Inc. II delta Production Qualification Testing (PQT).			
Accomplishments/Planned Programs Subtotals	4.455	-	-

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• R67050: <i>Man Transportable Robotic Sys Inc II (MTRS Inc II)</i>	36.254	63.976	62.365	-	62.365	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The MTRS Inc II acquisition strategy executed an abbreviated Engineering Manufacturing Development (EMD) phase followed by a Production Deployment phase to integrate available payloads into the MTRS Inc II materiel solution. This EMD/Production Deployment award was based on a selection from a full and open competition. The contract is Firm Fixed Price and included a Critical Design Review (CDR) in FY 2018, design integration, Production Qualification Test (PQT) (FY 2019), Low Rate Initial Production (LRIP) Delta PQT (FY 2020) and Full Rate Production (FRP) (FY 2020). The program has obtained First Unit Equipped (FUE) under a Conditional Materiel Release (CMR) utilizing Interim Logistics Support (ILS) in 2QFY20 while working toward obtaining Full Materiel Release (FMR) under organic sustainment in FY 2021.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB2 / <i>Man Transportable Robotic System (MTRS) Inc II</i>
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Costs	MIPR	VARIOUS : MULTIPLE	5.176	0.317	Nov 2019	-		-		-		-	0.000	5.493	-
Subtotal			5.176	0.317		-		-		-		-	0.000	5.493	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Hardware	SS/FFP	Endeavor : Chelmsford, MA	3.137	-		-		-		-		-	0.000	3.137	-
Virtual Clearance Training Suite (VCTS)	Various	Various : Multiple	-	0.591	Oct 2019	-		-		-		-	0.000	0.591	-
Subtotal			3.137	0.591		-		-		-		-	0.000	3.728	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MTRS Inc II MOCU development	Various	Various : Multiple	3.624	2.689	Oct 2019	-		-		-		-	0.000	6.313	-
MTRS Inc II contract data	SS/FFP	Endeavor : Chelmsford, MA	2.786	0.138	Oct 2019	-		-		-		-	0.000	2.924	-
MTRS In II Engineering Change Proposals	TBD	TBD : TBD	-	0.100	Oct 2019	-		-		-		-	0.000	0.100	-
Subtotal			6.410	2.927		-		-		-		-	0.000	9.337	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB2 / <i>Man Transportable Robotic System (MTRS) Inc II</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MTRS Inc II PCA/PRR			3 PCA/PRR																									
MTRS Inc II Logistics Development		LOG Dev																										
MTRS Inc II Low Rate Initial Production		LRIP																										
MTRS Inc II Conditional Material Release (CMR) Fielding Decision			2 CMR Decision																									
MTRS Inc II Interim Logistic Support		ILS																										
MTRS Inc II Virtual Clearance Training Suite (VCTS)						VCTS																						
MTRS Inc II Delta Production Qualification Test		Delta PQT																										
MTRS Inc II Full Rate Production (FRP) Decision								4 FRP																				
MTRS Inc II Full Material Release (FMR) Fielding under organic sustainment										FMR Fielding																		
MTRS Inc II First Unit Equipped (FUE)		1 FUE																										

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB2 / <i>Man Transportable Robotic System (MTRS) Inc II</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MTRS Inc II Cyber PDR	2	2018	2	2018
MTRS Inc II CDR	3	2018	3	2018
MTRS Inc II FCA/SVR	1	2019	1	2019
MTRS Inc II PCA/PRR	3	2020	3	2020
MTRS Inc II PQT systems production	4	2018	1	2019
MTRS Inc II Production Qualification Testing	2	2019	3	2019
MTRS Inc II Logistics Development	1	2019	3	2021
MTRS Inc II Limited User Test	2	2019	2	2019
MTRS Inc II Low Rate Initial Production	3	2019	4	2020
MTRS Inc II Conditional Material Release (CMR) Fielding Decision	2	2020	2	2020
MTRS Inc II Interim Logistic Support	2	2020	3	2021
MTRS Inc II Virtual Clearance Training Suite (VCTS)	4	2020	4	2021
MTRS Inc II Delta Production Qualification Test	2	2020	4	2020
MTRS Inc II Full Rate Production (FRP) Decision	4	2020	4	2020
MTRS Inc II Full Material Release (FMR) Fielding under organic sustainment	1	2022	1	2024
MTRS Inc II First Unit Equipped (FUE)	2	2020	2	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>				Project (Number/Name) FB3 / <i>Robotics Architecture</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FB3: <i>Robotics Architecture</i>	-	2.758	2.604	2.346	-	2.346	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Robotic Architecture (RA) provides the engineering and development resources to manage the overarching architecture for robotic systems that are both modular and interoperable across the Joint Force in order to facilitate future modernization efforts. It will manage the interoperability standards, modular payload interfaces, common software and common architecture for robotics & autonomous platforms, payloads & universal controllers. It will establish a Common Specifications Reference (CSR) to provide a repository codifying the Army Robotic Autonomous Systems (RAS) standards for open architecture, interoperability interfaces, and common control. RA includes the construction of program specific Interoperability Profiles (IOP) (i.e. Small Multipurpose Equipment Transport (S-MET), Tactical Wheeled Vehicle-Leader Follower (TWV-LF), Route Clearance Interrogation System (RCIS), Common Robotics System (Medium) (CRS(M), Common Robotics System (Individual), (CRS(I)), Man Transportable Robotic System (MTRS) Inc. II, Common Robotics System (Heavy) (CRS(H)), Enhanced Robotic Payloads (ERP), Light Reconnaissance Robot (LRR), Optionally Manned Fighting Vehicle (OMFV), Robotic Combat (RCV) variants, robotic assault breacher vehicles, robotic applique kits for manned ground systems, etc.), and new standards addressing emerging requirements and Modular Mission Payloads (MMP) including Cyber Security, software safety requirements from MIL-STD-882E, new autonomous behaviors & artificial intelligence, new payloads, lethality, etc.

FY 2022 RDTE funds in the amount of \$2.346 million supports the initial development of the Robotics and Autonomous Systems, Ground (RAS-G) Interoperability Profile (IOP) Version 6.0. IOP V6.0 will provide the required modular open interfaces and compliance test tools for new programs including S-MET Modular Mission Payloads (MMPs), LRR, CRS(M), TWV-LF, OMFV, RCV, ERP, Assault Breacher Vehicle Remote Control System (ABV RCS), Advanced Reconnaissance Vehicle (ARV), Universal Robotic Controller, and robotic applique kits for manned ground systems. Additionally, FY 2022 RDTE funds will continue the development & hardening of Robotic Operating System, Military (ROS-M) software modules and ROS-M instantiation documents, and management of ROS-M registry & repository infrastructure. FY 2022 RDTE funds will also continue the development and refinement of the Common Specification Reference (CSR).

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

	FY 2020	FY 2021	FY 2022
Title: Robotics Architecture	2.758	2.604	2.346
Description: Provide architecture tools and support for current Programs of Record (PoR) & new requirements to allow for interoperability within the Joint community for Robotics & Autonomous Systems.			
FY 2021 Plans: FY 2021 RDTE funds in the amount of \$2.604 million supports the further development and finalization of the Robotics and Autonomous Systems, Ground (RAS-G) Interoperability Profile (IOP) Version 5.0. IOP V5.0 will provide the required modular open interfaces and compliance test tools for new programs including S-MET Modular Mission Payloads (MMPs), LRR, CRS(M), TWV-LF, OMFV, RCV, ERP, robotic assault breacher vehicles, and robotic applique kits for manned ground systems. Additionally, FY			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB3 / <i>Robotics Architecture</i>
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>2021 RDTE funds will continue the development & hardening of Robotic Operating System, Military (ROS-M) software modules and ROS-M instantiation documents, and management of ROS-M registry & repository infrastructure.</p> <p><i>FY 2022 Plans:</i> FY 2022 RDTE funds in the amount of \$2.346 million supports the initial development of the Robotics and Autonomous Systems, Ground (RAS-G) Interoperability Profile (IOP) Version 6. IOP V6.0 will provide the required modular open interfaces and compliance test tools for new programs including S-MET Modular Mission Payloads (MMPs), LRR, CRS(M), TWVLF, OMFV, RCV, ERP, ABV RCS, ARV, URC, and robotic applique kits for manned ground systems. Additionally, FY 2022 RDTE funds will continue the development & hardening of Robotic Operating System, Military (ROS-M) software modules and ROS-M instantiation documents, and management of ROS-M registry & repository infrastructure. FY 2022 RDTE funds will also continue the development and refinement of the Common Specification Reference (CSR).</p> <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Funding increase in FY 2022 is minimal due to inflation.</p>			
Accomplishments/Planned Programs Subtotals	2.758	2.604	2.346

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

N/A

Remarks

D. Acquisition Strategy

In FY 2021 the Robotics Architecture line funds supporting matrix personnel & related contracts to develop IOP, ROS-M, and CSR tools and supporting infrastructure. It leverages intellectual capital and products which allow for Joint interoperability and helps meet Army Program of Record cost and schedule while delivering high quality products for fielding. The architecture and tools developed under this line provide enterprise wide efficiencies and are central to the Army's acquisition philosophy of a modular open system approach between the major subsystems of robotics and autonomous systems, as described throughout the Army approved Robotics & Autonomous Systems (RAS) Initial Capabilities Document (ICD).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB3 / <i>Robotics Architecture</i>
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	MIPR	Various : Multiple	1.691	0.127	Oct 2019	-		0.200	Nov 2021	-		0.200	0.000	2.018	-
Subtotal			1.691	0.127		-		0.200		-		0.200	0.000	2.018	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IOP V4	Various	Various : Multiple	1.471	-		-		-		-		-	0.000	1.471	-
Instantiation Tool Development	SS/CPFF	DCS : Warren, MI	-	0.084	Jun 2020	-		-		-		-	0.000	0.084	-
Conformance Verification Testing (CVT) Update	MIPR	TARDEC : Warren, MI	-	0.283	Apr 2020	-		-		-		-	0.000	0.283	-
IOP V5 and V6 Development	SS/CPFF	Various,DCS : Warren, MI	-	1.053	Jan 2020	1.000	Jan 2021	1.221	Jun 2022	-		1.221	0.000	3.274	-
Robotic Operating System - Military (ROS-M)	Various	Various : Multiple	-	0.783	Apr 2020	0.702	Apr 2021	0.525	May 2022	-		0.525	0.000	2.010	-
IOP V4 Radio Interfaces Development	MIPR	NAVSEA : Washington D.C.	0.560	-		-		-		-		-	0.000	0.560	-
Instantiation Tool Development	Various	Various : Multiple	-	-		0.100	May 2021	-		-		-	0.000	0.100	-
IOP Software Safety	RO	GVSC : Warren	-	-		0.150	Apr 2021	-		-		-	0.000	0.150	-
Common Specification Reference (CSR)	C/CPFF	TBD : TBD	-	-		-		0.400	Mar 2022	-		0.400	0.000	0.400	-
Subtotal			2.031	2.203		1.952		2.146		-		2.146	0.000	8.332	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Conformance Verification Testing (CVT) Maintenance	MIPR	TARDEC : Warren, MI	-	0.110	Jan 2020	0.123	Jan 2021	-		-		-	0.000	0.233	-

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date: May 2021**

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB3 / <i>Robotics Architecture</i>
--	--	--

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conformance Verification Tool (CVT) V4 Update release to industry																												
	V4 CVT																											
IOP V5 Capability Plan (CP) Development																												
	V5 CP Dev																											
IOP V5 WIPT Kickoff																												
			V5 WIPT																									
IOP V5 WG Development																												
			V5 WG Dev																									
IOP V5 Best Artifacts Stress Testing																												
					V5 Test																							
Conformance Verification Tool (V5) Development																												
					V5 CVT																							
IOP V6																												
									V6																			
Conformance Verification Tool (V6) Development																												
													V6 Dev															
IOP V7																												
																	V7											
Conformance Verification Tool (V7) Development																												
																					V7 Dev							
IOP V8																												
																							V8					
ROS-M Module SRR																												
			SRR																									
ROS-M Module PDR																												
							PDR																					

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB3 / <i>Robotics Architecture</i>
--	--	--

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ROS-M Module CDR					[Bar] CDR																							
ROS-M Module Build					[Bar] Build																							
ROS-M Module Stress Testing & Hardening					[Bar] Test																							
ROS-M Module Registry & Repository software Drop					[Bar] Registry																							
ROS-M Capability Sets													[Bar] Capability sets															
Common Specification Reference Updates																	[Bar] CSR											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB3 / <i>Robotics Architecture</i>
--	--	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IOP V4 Capability Plan (CP) Development	1	2018	2	2018
IOP V4 WIPT Kickoff	3	2018	3	2018
IOP V4 WG Development	3	2018	3	2019
Conformance Verification Testing (CVT) V3 Update release to industry	1	2018	4	2018
Instantiation tool development	2	2018	4	2018
Conformance Verification Testing (CVT) V4 Development	1	2019	4	2019
Conformance Verification Tool (CVT) V4 Update release to industry	1	2020	1	2021
IOP V5 Capability Plan (CP) Development	1	2020	2	2020
IOP V5 WIPT Kickoff	3	2020	3	2020
IOP V5 WG Development	3	2020	3	2021
IOP V5 Best Artifacts Stress Testing	1	2021	3	2021
Conformance Verification Tool (V5) Development	2	2021	2	2022
IOP V6	1	2022	1	2023
Conformance Verification Tool (V6) Development	2	2023	1	2025
IOP V7	1	2024	4	2024
Conformance Verification Tool (V7) Development	2	2025	1	2027
IOP V8	1	2026	4	2026
ROS-M Module SRR	3	2020	3	2020
ROS-M Module PDR	4	2020	4	2020
ROS-M Module CDR	1	2021	1	2021
ROS-M Module Build	1	2021	2	2021
ROS-M Module Stress Testing & Hardening	4	2020	2	2021
ROS-M Module Registry & Repository software Drop	2	2021	2	2021

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB3 / <i>Robotics Architecture</i>
--	--	--

Events	Start		End	
	Quarter	Year	Quarter	Year
ROS-M Capability Sets	1	2022	4	2026
Common Specification Reference Updates	3	2022	4	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>				Project (Number/Name) FB4 / <i>Common Robotic Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FB4: <i>Common Robotic Systems</i>	-	4.191	1.766	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FB4 / Common Robotic Systems is being eliminated for Fiscal Year (FY) 2022.

A. Mission Description and Budget Item Justification

The Common Robotic System - Individual (CRS(I)) is the Army's small sized (<25 lbs.) Soldier back-packable, remotely operated, Common Robotic System. The system provides dismounted Soldiers with increased standoff capability from hazardous threats. The system consists of a Universal Robotic Controller (URC), a suite of various payloads, and an open architecture common mobility platform allowing for future capability growth. The CRS(I) will allow the operator to quickly re-configure for other various missions by adding or removing modules and/or payloads. The CRS(I) will provide interrogation, detection, confirmation, and neutralization capabilities employed to support a wide spectrum of mobility missions for current and future forces. This capability provides commanders the ability to persistently monitor the Operating Environment (OE) while protecting and sustaining the force. The CRS(I) complements the Joint Integrated War-fighting Force by providing standoff to the Warfighter during major combat, stability, and homeland security operations.

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

	FY 2020	FY 2021	FY 2022
<p>Title: CRS(I) PQT and LUT execution</p> <p>Description: ATEC costs to execute Production Qualification Test (PQT) and Limited User Test (LUT).</p> <p>FY 2021 Plans: Funding for Army Test and Evaluation Command (ATEC) to execute Production Qualification Testing (PQT) and Limited User Testing (LUT) in accordance with program Test and Evaluation Master Plan (TEMP).</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Effort ends in FY 2021.</p>	2.788	0.265	-
<p>Title: CRS(I) Log manuals</p> <p>Description: CRS(I) RDTE funding for contractor to complete development of Operator and Maintainer Technical Manuals.</p> <p>FY 2021 Plans: Funding for further development and verification of Maintainer Technical Manuals (TM), Logistics Demonstration, training packages to support transition to full organic sustainment under Full Materiel Release (FMR).</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>	0.260	0.400	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB4 / <i>Common Robotic Systems</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Effort ends in FY 2021.				
<p>Title: CRS(I) TARDEC Software Support</p> <p>Description: CRS(I) RDTE funding to support the following Engineering services to include software subject matter expert support, testing support, issue remediation, and transitioning platform software lead to the software sustainment agency.</p> <p>FY 2021 Plans: Funding to support software and engineering activities to include travel associated with the CRS(I) software efforts to enhance security vulnerabilities and software performance. Develop Software Loader Verifier (SLV) and Software Integration Lab (SIL).</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Effort ends in FY 2021.</p>		0.370	0.416	-
<p>Title: CRS(I) IPT Matrix Support Salary</p> <p>Description: CRS(I) RDTE funding to support System Engineering Program Management (SEPM) costs.</p>		0.505	-	-
<p>Title: CRS(I) NIWC MOCU software support</p> <p>Description: CRS(I) RDTE funding to provide subject matter expert support, software updates, incremental software drops for integration and testing, software test simulator, software drop test reports, debugging and issue remediation, and the transition of platform software into sustainment.</p>		0.230	-	-
<p>Title: CRS(I) Engineering Change Proposals (ECPs) Development, Testing and Validation and Modification Work Orders</p> <p>Description: Changes to proposed configuration after baseline performance established at initial PQT.</p> <p>FY 2021 Plans: Funding to develop, test, and validate proposed configuration changes to the CRS(I) and its baselined performance requirements and configuration documentation. This includes CRS(I) contractor support for contractor tasks associated with these ECPs. This will also fund tasks associated with developing Modification Work Orders to retrofit fielded systems.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Effort ends in FY 2021.</p>		0.038	0.685	-
Accomplishments/Planned Programs Subtotals		4.191	1.766	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB4 / <i>Common Robotic Systems</i>
--	--	---

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• G99595: <i>Common Robotic System-Individual (CRS-I)</i>	2.285	1.154	1.141	-	1.141	-	-	-	-	-	-
• G93696: <i>Common Robotic System - Individual (CRS-I)</i>	30.387	52.528	12.625	-	12.625	-	-	-	-	-	-

Remarks

In FY 2019, CRS(I) and the Common Robotic Controller OPA funding was in the same funding line G99595. Beginning in FY 2020, CRS(I) had its own OPA funding line G93696 separate from the Common Robotic controller G99595.

D. Acquisition Strategy

The CRS(I) competitive Firm Fixed Price (FFP) contract was awarded to a single contractor in March 2019 for the CRS (I) Low Rate Initial Production (LRIP) phase. This phase includes Full Materiel Release (FMR) (FY 2021) and Full Rate Production (FRP) (FY 2021).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB4 / <i>Common Robotic Systems</i>
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	MIPR	Combat Support - Combat Service Support : Warren MI	-	0.505	Oct 2019	-		-		-		-	0.000	0.505	-
Subtotal			-	0.505		-		-		-		-	0.000	0.505	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Log manuals	C/CPFF	Multiple : Various	-	0.260	Jan 2021	0.265	May 2021	-		-		-	0.000	0.525	-
Subtotal			-	0.260		0.265		-		-		-	0.000	0.525	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Production Qualification Testing (PQT) & Limited User Testing (LUT)	Various	Aberdeen Test Center : Aberdeen MD	-	2.788	Dec 2019	0.400	Feb 2021	-		-		-	0.000	3.188	-
TARDEC software support	Various	TARDEC : Warren, MI	-	0.370	Oct 2019	0.416	Jan 2021	-		-		-	0.000	0.786	-
NIWC software support	Various	SPAWAR : San Diego, CA	-	0.230	Oct 2019	-		-		-		-	0.000	0.230	-
ECP/MWO Development Testing and Validation	C/CPFF	Qinetiq North America : Waltham, MA	-	0.038	Dec 2020	0.685	Jun 2021	-		-		-	0.000	0.723	-
Subtotal			-	3.426		1.501		-		-		-	0.000	4.927	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	4.191	1.766	-	-	-	0.000	5.957	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB4 / <i>Common Robotic Systems</i>
--	--	---

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
--	-------------	---------	---------	--------------	-------------	---------------	------------------	------------	--------------------------

<u>Remarks</u>									
----------------	--	--	--	--	--	--	--	--	--

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB4 / <i>Common Robotic Systems</i>
--	--	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CRS(I) LOG Development	[Redacted]				[Redacted]																							
	Log Development																											
CRS(I) Low-Rate Initial Production	[Redacted]				[Redacted]																							
	LRIP																											
CRS(I) Production Qualification Testing (PQT)/Limited User Test (LUT)	[Redacted]				[Redacted]																							
	PQT/LUT																											
CRS(I) Authority to Operate (ATO)	[Redacted]				[Redacted]																							
	1 ATO																											
CRS(I) Delta PQT	[Redacted]				[Redacted]																							
	Delta PQT																											
CRS(I) First Unit Equiped (FUE)					[Redacted]																							
					2 FUE																							
CRS(I) Full Rate Production Decision					[Redacted]																							
					3 FRP Decision																							
CRS (I) Initial Operational Capability (IOC)									[Redacted]																			
									4 IOC																			
CRS(I) organic sustainment under Full Materiel Release (FMR)													[Redacted]															
													5 FMR															

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB4 / <i>Common Robotic Systems</i>
--	--	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CRS(I) Milestone B	2	2018	2	2018
CRS(I) Contract Award	2	2018	2	2018
CRS(I) LOG Development	3	2018	3	2021
CRS(I) Critical Design Review (CDR) (x2)	3	2018	3	2018
CRS(I) Run-off	1	2019	1	2019
CRS(I) Post-CDR Design/Competitive Downselection (to one vendor)	1	2019	2	2019
CRS(I) Milestone C	2	2019	2	2019
CRS(I) Low-Rate Initial Production	2	2019	4	2021
CRS(I) Production Qualification Testing (PQT)/Limited User Testing (LUT)	3	2019	1	2020
CRS(I) Authority to Operate (ATO)	3	2020	3	2020
CRS(I) Delta PQT	3	2020	4	2021
CRS(I) First Unit Equiped (FUE)	4	2021	4	2021
CRS(I) Full Rate Production Decision	4	2021	4	2021
CRS (I) Initial Operational Capability (IOC)	2	2022	2	2022
CRS(I) organic sustainment under Full Materiel Release (FMR)	2	2022	2	2022

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>				Project (Number/Name) FB6 / <i>Squad Multipurpose Equipment Transport (SMET)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FB6: <i>Squad Multipurpose Equipment Transport (SMET)</i>	-	4.794	4.125	3.763	-	3.763	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small Multipurpose Equipment Transport (S-MET) will help to reduce Soldier loads by transporting mission specific equipment, resupply equipment, and supplies required for extended operations. The S-MET will be capable of carrying the equipment currently required to support Infantry and Engineer Platoons in the Infantry Brigade Combat Team (IBCT) for a 72 hour mission without resupply. The S-MET will reduce Soldier load, increase squad mobility during combat operations and dismounted maneuvers. S-MET will have open architectures, a remote control and support casualty evacuation, power generation/offload and reintegration of Modular Mission Payloads (MMP) and technical insertions.

FY 2022 RDTE funding in the amount of \$3.763 million supports the development, integration, and procurement of Technical Insertions, Engineering Change Proposals, and Modular Mission Payloads (MMP) to increase mission capabilities and address requirements in the Abbreviated Capability Development Document (A-CDD). FY2022 RDTE funding supports procurement of MMPs, integration to the SMET platform, testing, and development of logistics material required to support MMP efforts. Program support to include labor, travel and miscellaneous expenses in support of these RDTE efforts will also be funded.

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

	FY 2020	FY 2021	FY 2022
Title: S-MET	4.794	4.125	3.763
Description: Small Multipurpose Equipment Transport (S-MET)			
FY 2021 Plans: FY 2021 RDTE funding supports the production of test and logistic assets and the development, integration, test and procurement of Technical Insertions, Engineering Change Proposals (ECP) and Modular Mission Payloads (MMP) to increase mission capabilities to requirements in the Abbreviated Capability Development Document (A-CDD). FY 2021 RDTE funding supports the testing and development of logistics material required to support these efforts. Program support to include travel and miscellaneous expenses in support of these RDTE efforts will also be funded.			
FY 2022 Plans: FY 2022 RDTE funding in the amount of \$3.763 million supports the development, integration, and procurement of Technical Insertions, Engineering Change Proposals, and Modular Mission Payloads (MMP) to increase mission capabilities and address requirements in the Abbreviated Capability Development Document (A-CDD). FY2022 RDTE funds testing and development of			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB6 / <i>Squad Multipurpose Equipment Transport (SMET)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
logistics material required to support MMP efforts. Program support to include labor, travel and miscellaneous expenses in support of these RDTE efforts will also be funded.			
FY 2021 to FY 2022 Increase/Decrease Statement: RDTE funding has decreased in FY 2022 due to completion of system design and test, shifting focus to development integration test of ECPs and MMPs to base platform.			
Accomplishments/Planned Programs Subtotals	4.794	4.125	3.763

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• R12154: <i>Squad Multipurpose Equipment Transport (SMET)</i>	8.768	28.555	29.448	-	29.448	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The Small Multipurpose Equipment Transport (S-MET) Assessment effort was completed as part of the Robotics Development effort under the Tactical Unmanned Ground Vehicle (654641DV7) funding line in FY 2017. This Phase I Assessment supported a rapid start to establish an Other Transaction Authority (OTA) Acquisition Strategy supporting the Directed Requirement, signed 14 April 2017. The Phase I OTA awarded a five-day test event to 8 S-MET prototype solutions in FY 2017 as part of the Robotic Enhancement Program (REP) under the Tactical Unmanned Ground Vehicle (654641DV7) funding line. In FY 2018 Phase II down selected to 4 vendors awarded the Phase II OTA. This OTA provided system testing at Aberdeen Test Center (ATC) and issued systems to Soldiers for a 7 month Technology Demonstration. Twenty systems were purchased from each of the 4 vendors issued to IBCTs. This Technology Demonstration guided the development of the Abbreviated Capability Development Document (A-CDD) approved 29 July 2019 following the Army Requirements Oversight Council (AROC) decision on 19 July 2019.

Project Manager Force Projection (PM FP) received authority from the Army Acquisition Executive (AAE), on 13 Aug 2019, to pursue a Rapid Fielding pathway under Section 804 Middle Tier Acquisition (MTA) in accordance with Fiscal Year (FY) 2016 National Defense Authorization Act (NDAA). Under an approved Section 804 Rapid Fielding pathway, the PM down selected to one of the four prototypes and awarded refurbishment of Phase II systems, completion of safety testing, completion of logistics development to provide for an organic support strategy, and to proceed into production.

The FAR follow on contract for the Program Of Record (POR) production system was awarded on 30 Oct 2019 to General Dynamic Land Systems. Army Contracting Command - Detroit Arsenal received a Government Accountability Office (GAO) level protest on 14 Nov 2019. In response to the protest, the Government took corrective action and resolicited the requirement. The Request for Proposal (RFP) was released on 14 Feb 2020. The follow on contract was awarded on 15 Jul 2020. General Dynamic Land Systems is performing satisfactory under awarded contract. Critical Design Review (CDR) has been completed. Production of test and logistic assets has been initiated with delivery anticipated 01 Apr 2021. First Unit Equipped (FUE) will be in 1QFY22.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB6 / <i>Squad Multipurpose Equipment Transport (SMET)</i>

It is the Army's intent to maximize the use of an Open Systems Architecture (OSA), as well as the approved Unmanned Ground Vehicle (UGV) interoperability profiles (IOP) for S-MET. Data collected up to and during the Phase III Production Effort will be utilized to reduce development efforts and provide cost savings for future technical insertions, Engineering Change Proposals (ECP), and Modular Mission Payloads (MMP) into the Program of Record. Throughout the life of the program, the Army will continue to survey the marketplace to identify opportunities for technology insertions and required Modular Mission Payloads (MMP), relying on competition to drive down costs.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605053A / Ground Robotics				FB6 / Squad Multipurpose Equipment Transport (SMET)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Costs	MIPR	PM FP : Warren, MI	2.461	1.584	Oct 2019	1.408	Oct 2020	1.463	Oct 2021	-		1.463	0.000	6.916	-
Subtotal			2.461	1.584		1.408		1.463		-		1.463	0.000	6.916	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Directed Requirement Technology Demonstration	C/FFP	Year Long Excursion : TBD	12.528	-		-		-		-		-	0.000	12.528	-
Technical Insertions	C/FFP	TBD : TBD	3.000	0.162	Nov 2019	1.100	Feb 2021	1.000	Feb 2022	-		1.000	0.000	5.262	-
Modular Mission Payloads (MMP)	MIPR	Ft Benning : Ft Benning, GA	0.800	0.462	Jan 2020	0.600	Nov 2020	1.000	Jan 2022	-		1.000	0.000	2.862	-
Test / Logistic Assets	SS/FFP	General Dynamic Land Systems : London, ON	-	-		0.917	Jan 2021	-		-		-	0.000	0.917	-
Subtotal			16.328	0.624		2.617		2.000		-		2.000	0.000	21.569	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Cyber / Integration	MIPR	TBD : TBD	2.000	0.962	Oct 2019	-		0.050	Oct 2021	-		0.050	0.000	3.012	-
DOTMLPF Support / Analysis	MIPR	TBD : TBD	-	-		-		0.050	May 2022	-		0.050	0.000	0.050	-
Subtotal			2.000	0.962		-		0.100		-		0.100	0.000	3.062	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB6 / <i>Squad Multipurpose Equipment Transport (SMET)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
S-MET																												
S-MET Tech Insertions																												
<i>Tech Insertions</i>																												
S-MET Modular Mission Payloads (MMP)																												
<i>MMP</i>																												
S-MET DT / OT																												
<i>DT / OT</i>																												
S-MET Production Award																												
S-MET Program of Record Logistics Development																												
<i>PDR Logistics Development</i>																												
S-MET Conditional Materiel Release (CMR)																												
S-MET First Unit Equipped (FUE)																												
S-MET Full Materiel Release (FMR)																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB6 / <i>Squad Multipurpose Equipment Transport (SMET)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
S-MET	1	2018	4	2022
S-MET Tech Insertions	3	2018	4	2024
S-MET Modular Mission Payloads (MMP)	2	2019	4	2024
S-MET DT / OT	4	2018	3	2021
S-MET Phase II Logistics Development	3	2018	3	2019
S-MET Technology Demo	1	2019	3	2019
S-MET MMP Assessment	3	2019	3	2019
S-MET 804 MTA Approval	4	2019	4	2019
S-MET Production Award	4	2020	4	2020
S-MET Program of Record Logistics Development	4	2020	4	2021
S-MET Conditional Materiel Release (CMR)	4	2021	4	2021
S-MET First Unit Equipped (FUE)	4	2021	4	2021
S-MET Full Materiel Release (FMR)	4	2022	4	2022

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>				Project (Number/Name) FB9 / <i>MTRS Standardization</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FB9: <i>MTRS Standardization</i>	-	7.412	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Common Robotic System, Heavy (CRS(H)) is a modular large-sized system that provides enhanced protection to the Explosive Ordnance Disposal (EOD) Soldier in order to support the Joint Force Commander with the ability to identify, render safe and dispose of Explosive Ordnance (EO) and Improvised Explosive Devices (IEDs) in support of the Range of Military Operations (ROMO) and Home Land Defense (HLD) operations. CRS(H) will also enable EOD Soldiers to execute Defense Support of the Civil Authorities (DSCA) operations in response to requests from federal, state, local, and tribal authorities for domestic incidents, emergencies, disasters, designated law enforcement support and other activities. CRS(H) will support current and future missions for EOD units.

0605053A FB9 has no FY22 funding request.

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

	FY 2020	FY 2021	FY 2022
Title: CRS(H) IPT Matrix Support Salary Support	0.936	-	-
Description: CRS(H) RDTE funding to support engineering and various test efforts to include redesign of test articles, software, engineering test support staff salaries, and System Engineering Program Management (SEPM) costs.			
Title: CRS(H) Testing	1.937	-	-
Description: CRS(H) cyber security and performance testing efforts.			
Title: CRS(H) Test Article Refurbishment	0.336	-	-
Description: CRS(H) test article refurbishment for payloads.			
Title: CRS(H) Contract Data	2.937	-	-
Description: CRS(H) data required to support Materiel Release.			
Title: CRS(H) Payload Development	0.679	-	-
Description: CRS(H) payload development, integration, and testing activities.			
Title: CRS(H) Test Article	0.587	-	-
Accomplishments/Planned Programs Subtotals	7.412	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB9 / <i>MTRS Standardization</i>
--	--	---

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• W12001: <i>EOD Robotics Systems Recapitalization</i>	23.115	36.584	-	-	-	-	-	-	-	-	-

Remarks

This is a shared OPA line with Robotic Logistic Support Center (RLSC). Funding split is as follows:

Program	FY 2019	FY 2020	FY 2021
EOD (RLSC)	\$13,118	0	0
CRS(H)	\$4,618	\$23,115	\$36,584

D. Acquisition Strategy

The CRS-H acquisition strategy entered at Milestone C and awarded three Other Transaction Authority (OTA) agreements to conduct a dual phase fly-off. The CRS-H program used the fly-off results to down-select to one Original Equipment Manufacturer (OEM) and proceed directly into production in 1QFY20 and will field under a Conditional Materiel Release (CMR) utilizing Interim Logistics Support (ILS) in FY 2020. Full Rate Production (FRP) decision is also scheduled for FY20. The CRS-H program will complete all required engineering and logistics activities to support Full Materiel Release (FMR) under organic sustainment in FY 2021.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB9 / <i>MTRS Standardization</i>
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRS(H) Program Management costs	Various	Various : Multiple	-	0.936	Oct 2019	-		-		-		-	0.000	0.936	-
Subtotal			-	0.936		-		-		-		-	0.000	0.936	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRS(H) Payload Development	Various	Various : Multiple	-	0.679	Dec 2019	-		-		-		-	0.000	0.679	-
Subtotal			-	0.679		-		-		-		-	0.000	0.679	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRS(H) Contract data	C/FFP	TBD : TBD	-	2.937	Nov 2019	-		-		-		-	0.000	2.937	-
Subtotal			-	2.937		-		-		-		-	0.000	2.937	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRS(H) System Evaluation	Various	Various : Multiple	-	1.937	Nov 2019	-		-		-		-	0.000	1.937	-
CRS(H) Test Article refurbishment	SS/FFP	TBD : TBD	-	0.336	Nov 2019	-		-		-		-	0.000	0.336	-
CRS(H) Test Article	C/FP	FLIR : Chelmsford, MA	-	0.587	Jan 2020	-		-		-		-	0.000	0.587	-
Subtotal			-	2.860		-		-		-		-	0.000	2.860	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army										Date: May 2021	
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>			Project (Number/Name) FB9 / <i>MTRS Standardization</i>			
	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	-	7.412	0.000	-	-	-	0.000	7.412	N/A		

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date: May 2021**

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB9 / <i>MTRS Standardization</i>
--	--	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CRS(H) Logistics Development	[Redacted]				[Redacted]																							
CRS(H) LRIP production award	[Redacted]				[Redacted]																							
CRS(H) Conditional Material Release utilizing ILS	[Redacted]				[Redacted]																							
CRS(H) Production	[Redacted]				[Redacted]				[Redacted]																			
CRS(H) First Unit Equipped	[Redacted]				[Redacted]																							
CRS(H) Cyber Testing	[Redacted]				[Redacted]																							
CRS(H) Full Materiel Release (FMR) fielding under organic sustainment	[Redacted]				[Redacted]				[Redacted]																			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FB9 / <i>MTRS Standardization</i>
--	--	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Platform provided for Payload Test	2	2018	4	2018
OTA/Additive Manufacturing-3D Printing	2	2018	4	2019
VCTS Software Integration	2	2018	3	2018
VCTS Installation & Test	3	2018	3	2019
CRS(H) Capability Producton Document (CPD)	3	2018	3	2018
CRS(H) Request for Project Proposal (RPP) Release	3	2018	3	2018
CRS(H) Other Transactional Authority award #1	4	2018	4	2018
CRS(H) Milestone Decisions Document (MDD)	4	2018	4	2018
CRS(H) Fly-Off #1	4	2018	1	2019
CRS(H) Milestone C	2	2019	2	2019
CRS(H) Other Transactional Authority award #2	2	2019	2	2019
CRS(H) Logistics Development	2	2019	3	2021
CRS(H) Fly-Off #2	2	2019	3	2019
CRS(H) LRIP production award	1	2020	1	2020
CRS(H) Conditional Material Release utilizing ILS	4	2020	4	2020
CRS(H) Production	1	2020	1	2023
CRS(H) First Unit Equipped	1	2021	1	2021
CRS(H) Cyber Testing	2	2020	3	2020
CRS(H) Full Materiel Release (FMR) fielding under organic sustainment	3	2021	1	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605053A / Ground Robotics				Project (Number/Name) FG8 / Common Robotic Controller			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FG8: Common Robotic Controller	-	1.137	3.515	3.601	-	3.601	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Universal Robotics Control (URC) will provide the common operational software to run specific applications (Apps) for all battalion and below Robotic and Autonomous Systems (RAS). URC will provide multiple layers of situational awareness while reducing the Soldier's physical and cognitive load as well as the training burden. URC is both backwards compatible with existing Army RAS and forward compatible with emerging Army and Joint RAS. URC will integrate across all RAS programs for interoperability, network transport (radio wave forms), and the larger common Network. URC is a critical enabling capability for NGCV OMFV and RCV programs.

PEO Aviation will assess the technology readiness level of Universal Robotics Control (URC) in FY 21 and determine via analysis or prototype the acquisition pathway to fulfill the Capability Requirements outlined in the RAS ICD. The Prototype Demonstration and Data Analysis Framework will help determine if the URC should be a hardware-based program requiring a Capability Development Document (CDD), a software-based program requiring an Information System Capability Development Document (IS-CDD), or a Capability Needs Statement and User Agreement associated with a Software Acquisition Pathway. Will leverage RAS ICD, Navy Common Control System IS ICD, FUAS ICDs, RPUAS CPD, CRS-I CDD, OMFV, etc., will also be used in the analysis.

FY 2022 RDTE funding in the amount of \$3.614 million will be utilized for Systems Engineering and Program Management (SEPM) support in preparing the Contracts Requirements Package (CRP) for URC. This includes Statement of Work and System Specification preparation, as well as follow up from the FY22 prototype/ demonstration and analysis to further shape the acquisition strategy. FY22 funding will also be utilized for risk reduction activities to include using a government or contractor provider to further enhance the prototype product and inform the CRP process.

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

	FY 2020	FY 2021	FY 2022
Title: URC improves Soldier situational awareness while reducing cognitive load on Soldiers and the robotics portfolio logistics footprint	1.137	3.515	3.601
Description: The Universal Robotic Controller (URC) provides the capability to individually and/or concurrently control multiple Unmanned Systems (UxS) platforms and control/monitor a mesh network without having to obtain and/or carry separate Operator Control Unit (OCU)s for each system. A controlled UxS may be mobile or stationary, can be smart learning, and self-adaptive. Two URCs will be used to hand-off control of a system to a receiver, reducing hand-off time and the need for the UxSs to have multiple OCUs. The URC will also be capable of "hot swapping" batteries where one of its two batteries can be replaced without the system being shut down, halting mission progress, and use current or new Soldier power sources that will maximize its operational time and minimize the number of replacement batteries needed for most missions. The controller will also use haptic indicators inside the hand grips to give the user active feedback of the controlled system's movements if the UxS software is			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FG8 / <i>Common Robotic Controller</i>
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>programmed to use them. If and when the use of lethal systems on the URC is approved, the weaponized payloads will be controlled via several fail-safe mechanisms to prevent accidental discharge.</p> <p>FY 2021 Plans: FY 2021 RDTE funds will be utilized to continue test evaluation and Log product development under the CRS(I) contract, mature the Universal Robotic Controller to meet the requirements in the CDD and emerging programs of record, controller software, architecture, interface updates, risk mitigation activities, and integration and test the URC into other Unmanned Ground Vehicles (UGV) or Unmanned Aerial Vehicles (UAS) programs of record via an Engineering Change Proposal (ECP). This funding will also be used to establish a common software architecture for UGV and UAS moving forward. Supports development of IS CDD (AoA, C-BA).</p> <p>FY 2022 Plans: FY 2022 RDTE funding in the amount of \$3.614 million will be utilized for Systems Engineering and Program Management (SEPM) support in preparing the Contracts Requirements Package (CRP) for URC. This includes Statement of Work and System Specification preparation, as well as follow up from the FY22 prototype/demonstration and analysis to further shape the acquisition strategy. FY22 funding will also be utilized for risk reduction activities to include using a government or contractor provider to further enhance the prototype product and inform the CRP process.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Inflation rate adjustment.</p>			
Accomplishments/Planned Programs Subtotals	1.137	3.515	3.601

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• G99595: <i>Common Robotic System-Individual (CRS-I)</i>	2.285	1.154	1.141	-	1.141	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605053A / Ground Robotics				FG8 / Common Robotic Controller							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management support	C/TBD	Various : Multiple	0.187	0.537	Oct 2019	1.658	Mar 2021	2.871	Nov 2021	-		2.871	0.000	5.253	-
Subtotal			0.187	0.537		1.658		2.871		-		2.871	0.000	5.253	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Manufacturing & Development	C/CPFF	TBD : TBD	-	0.517	Feb 2020	-		-		-		-	0.000	0.517	-
Software support	Various	Various : Various	1.284	-		-		-		-		-	0.000	1.284	-
Prototyping	TBD	Various : Multiple	-	-		1.765	Mar 2021	-		-		-	0.000	1.765	-
Risk Reduction/ Engineering Studies	TBD	TBS : TBD	-	-		-		0.730	Feb 2022	-		0.730	0.000	0.730	-
Subtotal			1.284	0.517		1.765		0.730		-		0.730	0.000	4.296	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Log Manuals	Various	Various : Multiple	0.738	-		-		-		-		-	0.000	0.738	-
Subtotal			0.738	-		-		-		-		-	0.000	0.738	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor PQT	Various	Endeavor & QinetiQ : Massachusetts	0.660	-		-		-		-		-	0.000	0.660	-
Analysis of Alternatives	TBD	TBS : TBD	-	0.083		0.092	Mar 2021	-		-		-	0.000	0.175	-
Subtotal			0.660	0.083		0.092		-		-		-	0.000	0.835	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FG8 / <i>Common Robotic Controller</i>
--	--	--

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.869	1.137	3.515	3.601	-	3.601	0.000	11.122	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date: May 2021**

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FG8 / <i>Common Robotic Controller</i>
--	--	--

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
URC Prototyping and Planning																												
URC Prototyping and Planning																												
Prototype Lab Demo																												
Prototype Lab Demo																												
URC Demo at PC 21																												
URC Demo at PC 21																												
URC Acquisition Pathway Decision																												
URC Acquisition Pathway Decision																												
Capabilities Development Document AROC																												
Capabilities Development Document AROC																												
Prepare CRP																												
Prepare CRP																												
Issue Request for Proposal (RFP)																												
Issue Request for Proposal (RFP)																												
Vendor Awards																												
Vendor Awards																												
Evaluate Proposal																												
Evaluate Proposal																												
Contract Award																												
Contract Award																												
Minimum Viable Product																												
Minimum Viable Product																												
Minimum Viable Capability Release																												
Minimum Viable Capability Release																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605053A / <i>Ground Robotics</i>	Project (Number/Name) FG8 / <i>Common Robotic Controller</i>
--	--	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
URC Prototyping and Planning	4	2020	1	2022
Prototype Lab Demo	3	2021	4	2021
URC Demo at PC 21	1	2023	1	2023
URC Acquisition Pathway Decision	2	2022	2	2022
Capabilities Development Document AROC	2	2022	2	2022
Prepare CRP	4	2022	4	2022
Issue Request for Proposal (RFP)	4	2022	4	2022
Vendor Awards	3	2023	3	2023
Evaluate Proposal	3	2023	3	2023
Contract Award	3	2023	3	2023
Minimum Viable Product	3	2025	3	2025
Minimum Viable Capability Release	3	2026	3	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	36.146	294.366	254.945	-	254.945	-	-	-	-	-	-
FI3: <i>Rapid Capability Development and Maturation</i>	-	36.146	283.811	243.611	-	243.611	-	-	-	-	-	-
FL7: <i>Rapid Capability Support</i>	-	-	10.555	11.334	-	11.334	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Emerging Technology Initiatives funds prototyping and demonstration of selected technology enabled capabilities to defeat emerging threats against ground, aviation, command, control, communications & reconnaissance systems and equipment, precision weapons, and Soldier equipment. Funding facilitates maturation and demonstration of emerging technologies and systems in relevant varied environments and tactical/operational scenarios. The primary goal is to deliver experimental prototypes for residual combat capability through a collaborative and accelerated acquisition process for transition to a Program of Record in an Army or DoD Program Management Office. Technologies will be demonstrated in operational environments, performing tactical/operational scenarios. This Program Element also funds civilian personnel in support of these projects.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	37.696	294.739	239.640	-	239.640
Current President's Budget	36.146	294.366	254.945	-	254.945
Total Adjustments	-1.550	-0.373	15.305	-	15.305
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.550	-10.373			
• Adjustments to Budget Years	-	-	15.305	-	15.305

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

Project: FI3: *Rapid Capability Development and Maturation*

Congressional Add: *Program increase - counter UAS directed energy prototype*

	FY 2020	FY 2021
	-	10.000
Congressional Add Subtotals for Project: FI3	-	10.000
Congressional Add Totals for all Projects	-	10.000

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army Date: May 2021

Appropriation/Budget Activity
2040: *Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0605054A / *Emerging Technology Initiatives*

Change Summary Explanation

The program increase includes the adjustments required for the transformation of the Rapid Capabilities Office to the Rapid Capabilities and Critical Technologies Office's focus on strategic efforts directly related to the national defense priorities for hyper sonics and directed energy. The increase also includes additional capabilities in the innovation space that will be evaluated for inclusion in future programs. Transfers FY22 funding \$7.1M from SAG 432 612 Service Wide Communications and SAG 435 212 Other Service Support, to RDTE PE 0605054A / Emerging Technology Initiatives Project FI3 , to align resources for the Office of Chief Systems Engineer to the RDT&E appropriation.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>				Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
F13: <i>Rapid Capability Development and Maturation</i>	-	36.146	283.811	243.611	-	243.611	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds high-priority, threat-based projects with the intent to deliver an operationally effective capability in the near- and mid-terms. Efforts will include accelerated materiel development and prototyping based on anticipated and emerging threats and opportunities. Efforts include development, acquisition, assessment, maturation, and transition of prototype technologies to acquisition programs. Efforts include Directed Energy; Long Range Precision Fires; Air and Missile Defense; Cyber; Artificial Intelligence; Signals Intelligence (SIGINT); Unmanned Aerial Systems (UAS) and Counter UAS (C-UAS); Communications; Survivability; Robotics; Advanced Ground and Aviation Systems; and other high priority emerging threats and opportunities as designated by the RCCTO Board of Directors. Funds may also allow for acceleration of critical capabilities to counter urgent and emerging threats for transition to programs of record. Funding may also be used to acquire specialized expertise to execute an initiative.

The Army RCCTO expedites residual combat materiel capabilities to the Warfighter to provide critical capability in support of the Army modernization strategy and transitions the capability to an acquisition program for production and sustainment when it is an enduring need. The RCCTO assesses Commercial-Off-The Shelf (COTS), Government Off-The- Shelf (GOTS), and Non-Developmental Item (NDI) (non-standard equipment) solutions for modification and/or integration to address changes in contested environments with materiel solutions for forces deployed globally. The RCCTO engages with industry to identify innovative solutions to high priority problem sets and funds quick turn analysis, modeling and prototyping efforts through this project to demonstrate cross-cutting military utility.

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

	FY 2020	FY 2021	FY 2022
Title: Maturation, Prototyping, Assessment, and Integration of Emerging and Essential Technologies	36.146	273.811	-
Description: This effort selects technologies that show high promise for advancing and accelerating capabilities required under acquisition programs and develops and evaluates associated prototypes and architectures for accelerated identification, assessment, and transition to an acquisition program for production and fielding. It also demonstrates integrated technologies within a high fidelity and realistic operating environment and transitions them to a formal program of record on an accelerated basis. includes air and ground platform integration.			
FY 2021 Plans: These funds will be used to identify, develop, procure, modify, evaluate, and deliver prototypes providing capability prioritized by the Board of Directors (BOD) in the areas of Directed Energy; Long Range Precision Fires; Air and Missile Defense; Cyber; Artificial Intelligence; Signals Intelligence (SIGINT); Unmanned Aerial Systems (UAS) and Counter UAS (C-UAS); Communications; Survivability; and other critical capability gaps. Funding supports development and procurement of prototypes,			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>system modification, engineering support, platform integration, integration materials, field service representation, early acquisition documentation, training, and developmental and operational testing needed to initiate limited fielding and/or transition to a procurement ready solution for acquisition. This also funds RCCTO matrix and contractor labor, service contracts, travel, security, training, supplies, facilities, and Information Technology (IT) required to execute initiatives.</p> <p>Specifically, significant FY 2021 funds will be used to procure 3 Directed Energy prototype systems supporting the Maneuver-Short Range Air Defense (M-SHORAD) mission. Additionally, funds projects selected from RCCTO Innovation Days, an event that reviews innovative solutions that have the potential to reduce near and mid-term operational risk against near-peer adversaries and push traditional boundaries to deliver breakthrough prototypes with residual combat capability.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: In FY 2021, the DE M-SHORAD program is conducting a combat shoot-off, purchasing the materials to build three additional DE M-SHORAD prototypes, and conducting follow-on testing at WSMR. In FY 2022, the program decreases by \$57M as efforts change to sub-component integration efforts and preparation for delivery.</p>				
<p>Title: Directed Energy Maneuver - Short Range Air Defense</p> <p>Description: This effort matures, integrates, and demonstrates High Energy Laser technologies on Army Stryker vehicles to inform Maneuver- Short Range Air Defense (M-SHORAD) requirements and reduce risk for M-SHORAD. The goal is to protect maneuvering forces from Rocket, Artillery, and Mortar (RAM) and Unmanned Aerial System (UAS) threats.</p> <p>FY 2022 Plans: Will complete procurement and integration of system hardware, weapon fire control software, Forward Area Air Defense Command and Control (FAADC2), and Intelligence software for three additional DE M-SHORAD 50 kW laser weapon systems; conduct full system verification and acceptance testing for three additional DE M-SHORAD 50 kW laser weapon systems; prepare for and execute the delivery of four total DE M-SHORAD 50 kW laser weapon system platforms with residual combat capability to an Army Battery Level unit supporting the BCT ADA Operations.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Planned activities are broken out in additional detail for the program element in FY 2022.</p>		-	-	157.412
<p>Title: Wideband Selective Propagating Radar (WiSPR)</p> <p>Description: Prototyping effort to develop a ?Low Observable? Radar (60 GHZ) to detect incoming anti-armor rounds, communicate among vehicles, and provide a effect (high power microwave). This will be virtually undetectable RADAR and Communications enforced by physics (not assumptions of adversary capabilities) by providing a combined Low Probability to Detect/Low Probability to Intercept RADAR for Active Protection Systems and Communications for inter-vehicle.</p>		-	-	2.700

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021	
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021
<p>FY 2022 Plans: This funding will enable: (1) manufacturing of a wideband selective propagation radar aperture for ground combat vehicles as defined by the unit of action; (2) integration of the aperture into the selected platform.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Planned activities are broken out in additional detail for the program element in FY 2022.</p>			
<p>Title: Concept Prototyping</p> <p>Description: This effort funds innovative technology across the RCCTO portfolio. RCCTO hosts semi-annual industry days where industry competes to propose the most innovative projects to leaders across the Army, including the Program Executive Officers, Army Futures Command's Cross Functional Team Directors and Research and Development Center Directors, and other subject matter experts. This panel selects the most impactful projects to be prioritized for the RCCTO Board of Directors approval. Additionally, the RCCTO Board of Directors will provide directed efforts. Efforts are initiated by Army stakeholders to fill critical capability gaps in the areas of artificial intelligence, resilient communications, counter unmanned aerial systems, unmanned aerial sensors, advanced ground vehicle enhancements, advanced manned/unmanned aerial systems, weapon system cyber resiliency, advanced defensive and offensive cyber, quantum computing, security orchestration and automated response, multi-domain command and control, electronic warfare, autonomy & robotics, soldier borne sensors and capabilities, and modeling and simulations in support of these domain areas. These efforts provide the Army initial operational capability for future integration into a program of record and include market research, technology analysis, project planning and development, prototyping and testing requirements.</p> <p>FY 2022 Plans: Prototype, demonstrate and evaluate capabilities.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Planned activities are broken out in additional detail for the program element in FY 2022.</p>		-	-
<p>Title: Organizational Expenses</p> <p>FY 2022 Plans: Includes support agreements with the Garrisons (Fort Belvoir and Redstone Arsenal) for base operational support; subject matter expertise in acquisition, program management and law; IT Network support; IT Software Licenses; computers/mobile devices (new and refresh); supplies; training; travel.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>		-	-
		62.642	20.857

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Planned activities are broken out in additional detail for the program element in FY 2022.			
Accomplishments/Planned Programs Subtotals	36.146	273.811	243.611

	FY 2020	FY 2021
Congressional Add: Program increase - counter UAS directed energy prototype	-	10.000
FY 2021 Plans: Program increase supporting system development and demonstration on Counter-Unmanned Aerial Systems Directed Energy Prototype.		
The Counter-Unmanned Aerial Systems Directed Energy Prototype effort supports the development and testing of a high-efficiency fiber laser paired with advanced thermal and power management technology to achieve high-duty cycles and magazine depths, which is the basis of defeating multiple drones and drone swarms.		
This effort builds upon the ongoing Army initiated successful development of a Stryker based fiber laser systems, such as Directed Energy Maneuver-Short Range Air Defense (DE M-SHORAD) that continues to meet technical performance requirements needed for the development of a light tactical vehicle based Counter-Unmanned Aerial Systems (C-UAS) system.		
Work executed under the direction of the Rapid Capabilities and Critical Technologies Office.		
Congressional Adds Subtotals	-	10.000

C. Other Program Funding Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022	FY 2022	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Complete</u>	<u>Total Cost</u>
• OMA - 432612: <i>Logistic Automation Systems Sustainment</i>	-	-	-	-	-	-	-	-	-		
• OMA - 435212: <i>Other Service Support</i>	-	-	-	-	-	-	-	-	-		

Remarks
Transfers funding from SAG 432612 Service Wide Communications and SAG 435212 Other Service Support, to RDTE, BA 5, to align resources for the Office of Chief Systems Engineer to the RDT&E appropriation.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / Emerging Technology Initiatives	Project (Number/Name) F13 / Rapid Capability Development and Maturation

D. Acquisition Strategy

The Army RCCTO capitalizes on current and emerging technologies to provide near-term and mid-term solutions to address emerging threats and high impact capability opportunities for U.S. Army Forces deployed globally. This is accomplished in one of two ways: 1) adapting COTS/GOTS/NDI equipment to meet operational needs and 2) developing emerging deployable capability through research and development organizations, academia, and industry. The RCCTO uses streamlined acquisition methods, processes and techniques to rapidly acquire capability; these methods vary by project. The RCCTO has procurement authority and an in-house contracting staff, with the flexibility to use both traditional and non-traditional contracting approaches. To reach non-traditional vendors, RCCTO will use non-standard contracting methods, such as Other Transaction Authority agreements. Where practicable, prototypes will be acquired using competitive procedures. Soldier touchpoints will be conducted to provide feedback in support of Army requirements generation, prototype maturation, fielding residual combat capability to a unit of action, and future capability development. When designated by the RCCTO Board of Directors, projects will be transitioned to an approved acquisition program for production and sustainment.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Matrix, Contractor	Various	TBD : Various	-	6.999		27.275		14.391		-		14.391	0.000	48.665	-
Facilities, IT/Supplies, Travel, Training	Various	TBD : Various	-	4.991		5.010		6.466		-		6.466	0.000	16.467	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	1.550		-		-		-		-	0.000	1.550	-
Subtotal			-	13.540		32.285		20.857		-		20.857	0.000	66.682	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Emerging Technologies Development	Various	TBD : Various	22.378	9.658		205.530		53.283		-		53.283	0.000	290.849	-
DE M-SHORAD Procurement & Integration	C/Various	Kord Technologies : Huntsville, AL	-	-		-		109.602		-		109.602	0.000	109.602	-
Subtotal			22.378	9.658		205.530		162.885		-		162.885	0.000	400.451	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Emerging Technologies Engineering Support	TBD	TBD : Various	3.098	4.729		9.014		8.458		-		8.458	0.000	25.299	-
Subtotal			3.098	4.729		9.014		8.458		-		8.458	0.000	25.299	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Emerging Technologies Test & Evaluation	TBD	TBD : Various	6.000	8.219		36.982		24.011		-		24.011	0.000	75.212	-

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DE M-SHORAD Three Prototype System Production																												
DE M-SHORAD Combat Shoot Off									▲ 1																			
DE M-SHORAD 4x Prototype Delivery													▲ 2															
DE M-SHORAD Contractor Logistics Support																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) F13 / <i>Rapid Capability Development and Maturation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DE M-SHORAD Three Prototype System Production	1	2021	4	2022
DE M-SHORAD Combat Shoot Off	3	2021	3	2021
DE M-SHORAD 4x Prototype Delivery	4	2022	4	2022
DE M-SHORAD Contractor Logistics Support	1	2023	4	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>
--	--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>FL7: Rapid Capability Support</i>	-	-	10.555	11.334	-	11.334	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

RCCTO Core Labor funding transitioned from PE 0604798A.

A. Mission Description and Budget Item Justification

This project funds rapid prototyping and delivery of residual combat capability to enable the Army Modernization Priorities and the National Defense Strategy. These efforts include long range precision fires, air and missile defense, ground, aviation, Soldier, cyber, and command, control, communications, computers, intelligence, surveillance & reconnaissance (C4ISR) missions. The primary goal is to deliver experimental prototypes to a unit of action through a collaborative and accelerated acquisition process. Technologies will be demonstrated in relevant environments, performing tactical/operational scenarios. Efforts will focus on high-priority, threat-based projects with the intent to deliver an operationally effective capability in the near- and mid-terms. Efforts will include accelerated materiel development and competitive prototyping based on anticipated and emerging threats and opportunities. This Project provides the Army an improved mechanism to effectively confront emerging threats and advance America's military dominance in accordance with the National Defense Strategy. Efforts include development, acquisition, assessment, maturation, and transition of prototype technologies to acquisition programs in Directed Energy; Long Range Precision Fires; Air and Missile Defense; Cyber; Artificial Intelligence; Signals Intelligence (SIGINT); Unmanned Aerial Systems (UAS) and Counter UAS (C-UAS); Communications; Survivability; and other high priority emerging threats and opportunities as designated by the RCCTO Board of Directors. Funds may also allow for acceleration of critical Program of Record capabilities to counter urgent and emerging threats. Funding may also be used to acquire specialized expertise to execute an initiative.

The Army RCCTO expedites the fielding of critical combat materiel capabilities to the Warfighter to meet urgent needs and support the Army modernization strategy. The RCCTO assesses Commercial-Off-The Shelf (COTS), Government Off-The-Shelf (GOTS), and Non-Developmental Item (NDI) (non-standard equipment) solutions for modification and/or integration to address changes in contested environments with enduring materiel solutions for forces deployed globally. The RCCTO procures prototypes and evaluates solutions to field residual combat capability to a unit of action and transition the capability to an acquisition program for production and sustainment.

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

	FY 2020	FY 2021	FY 2022
Title: Core Labor	-	10.555	11.334
Description: Funding will be for Core Labor.			
FY 2021 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>These funds will be used for Core Labor in support of rapid prototyping and delivery of residual combat capability to enable long range precision fires, air and missile defense, ground, aviation, Soldier, cyber and C4ISR missions.</p> <p>FY 2022 Plans: These funds will be used for Core Labor in support of rapid prototyping and delivery of residual combat capability to enable long range precision fires, air and missile defense, ground, aviation, Soldier, cyber and C4ISR missions.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Increase due to cost of living increase.</p>			
Accomplishments/Planned Programs Subtotals	-	10.555	11.334

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army											Date: May 2021				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605054A / Emerging Technology Initiatives				Project (Number/Name) FL7 / Rapid Capability Support							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Core Labor	TBD	RCCTO : Fort Belvoir VA, Huntsville AL and APG	-	-		10.555		11.334		-		11.334	0.000	21.889	-
Subtotal			-	-		10.555		11.334		-		11.334	0.000	21.889	N/A
Project Cost Totals			-	-		10.555		11.334		-		11.334	0.000	21.889	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Core Labor																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605054A / <i>Emerging Technology Initiatives</i>	Project (Number/Name) FL7 / <i>Rapid Capability Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Core Labor	1	2021	4	2021

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605143A / <i>Biometrics Enabling Capability (BEC)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	4.326	-	4.326	-	-	-	-	-	-
BX5: <i>Biometrics Enabling Capability (BEC)</i>	-	-	-	4.326	-	4.326	-	-	-	-	-	-

Note

This is a new start in FY 2022.

A. Mission Description and Budget Item Justification

Biometrics Enabling Capability 1 (BEC 1), is a new start in FY22. BEC 1 provides 24/7 operational support enabling time sensitive missions requiring near real time biometrics identification of known and/or suspected threat actors worldwide in support of Joint all Domain Operations (JADO). The automated and manual biometrics matching allows the Warfighter to accurately identify and detain those responsible for conducting espionage, sabotage, terrorist operations and other coercive actions against US forces and partner nations across the globe.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	4.326	-	4.326
Total Adjustments	0.000	0.000	4.326	-	4.326
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	4.326	-	4.326

Change Summary Explanation

FY 2021 to FY 2022 Increase/Decrease Statement:

Increase from FY 2021 to FY 2022 reflects initiation of BEC 1 as a New Start in FY 2022.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605143A / <i>Biometrics Enabling Capability (BEC)</i>				Project (Number/Name) BX5 / <i>Biometrics Enabling Capability (BEC)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>BX5: Biometrics Enabling Capability (BEC)</i>	-	-	-	4.326	-	4.326	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

A. Mission Description and Budget Item Justification

Provides 24/7 operational support enabling time-sensitive missions requiring near real-time biometric identification of known and/or suspected threat actors worldwide in support of Joint-All-Domain-Operations (JADO). The automated and manual biometrics matching allows the Warfighter to accurately identify and detain those responsible for conducting espionage, sabotage, terrorist operations and other coercive actions against US forces and partner nations across the globe.

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

	FY 2020	FY 2021	FY 2022
Title: Initiate BEC 1 as a New Start in FY22; Support the development and integration of the Capability Drop #1 requirements; Moves capability to the Cloud and adds voice-matching capability	-	-	4.326
FY 2022 Plans: Initiate BEC 1 as a New Start in FY22; FY22 funding will support the development and integration of the Capability Drop #1 requirements; Moves capability to the Cloud and adds voice-matching capability; Improves scalability, flexibility, and cyber defenses.			
FY 2021 to FY 2022 Increase/Decrease Statement: Increase from FY 2021 to FY 2022 reflects initiation of BEC 1 as a New Start in FY 2022.			
Accomplishments/Planned Programs Subtotals	-	-	4.326

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605143A / <i>Biometrics Enabling Capabi</i> <i>lity (BEC)</i>	Project (Number/Name) BX5 / <i>Biometrics Enabling Capability (BEC)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Initiate BEC 1 as a New Start in FY22									■																							
BEC 1 MS B									■																							
BEC 1 Contract Award									■																							
BEC 1 Development																	■	■			■											
BEC 1 Sustainment																					■	■			■				■			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605143A / <i>Biometrics Enabling Capability (BEC)</i>	Project (Number/Name) BX5 / <i>Biometrics Enabling Capability (BEC)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Initiate BEC 1 as a New Start in FY22	1	2022	1	2022
BEC 1 MS B	1	2022	1	2022
BEC 1 Contract Award	2	2022	2	2022
BEC 1 Development	2	2022	1	2024
BEC 1 Sustainment	1	2024	4	2027

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605144A / <i>Next Generation Load Device - Medium</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	15.616	-	15.616	-	-	-	-	-	-
BY6: <i>Key Management Infrastructure Development</i>	-	-	-	15.616	-	15.616	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Next Generation Load Device - Medium funding line supports the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

Project BY6: This funding line supports COMSEC technologies within the Army to perform the systems integration and User Application Software (UAS) development for the Next Generation Load Device - Medium (NGLD-M) to conduct the Army's key fill mission by issuing, filling, and managing Cryptographic keys to both legacy and future Key Management Infrastructure (KMI) aware End-Cryptographic (ECUs). This technology requires RDT&E investment to meet the requirements outlined in the NGLD Capability Production Document (CPD). This effort is an Acquisition Category III (ACAT III) Program of Record (POR). COMSEC is governed by the Chairman of the Joint Chiefs of Staff Instruction (CJCSA) 6510. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to support modern cryptographic capabilities by implementing modern algorithms. These efforts are consistent with Strategic Planning Guidance (SPG).

Project BY6 FY 2022 Justification: FY2022 funding supports the initial award of the NGLD-M developmental effort to up to two vendors to begin development and testing of their hardware and software solutions.

Prior to FY2022, the NGLD-M development effort was funded under PE 0303140A, Project DV4. In FY2022 and out, PE 0303140A no longer includes funding associated with the NGLD-M Program. New PE 0303140A Project Code BY6 was established to clearly identify requirements for NGLD-M development and is not considered a new start effort.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605144A / <i>Next Generation Load Device - Medium</i>
--	---

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	15.616	-	15.616
Total Adjustments	0.000	0.000	15.616	-	15.616
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	15.616	-	15.616

Change Summary Explanation

New funding line established. FY21 funding for this effort was supported by the PE 0303140A, Project: DV4 RDTE line.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605144A / Next Generation Load Device - Medium				Project (Number/Name) BY6 / Key Management Infrastructure Development			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
BY6: Key Management Infrastructure Development	-	-	-	15.616	-	15.616	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As part of the Army's Key Management Infrastructure (KMI) implementation, the Next Generation Load Device - Medium (NGLD-M) is an Acquisition Category III (ACAT III) Program of Record (POR) and modernized load device that will replace legacy AN/PYQ-10A and AN/PYQ-10A(C) (Army), which is commonly referred to as the Simple Key Loader (SKL). The NGLD-M will receive, store, manage, and transfer electronic key through the network to be loaded into communication devices such as radios and satellites to secure the network. The NGLD-M requires RDT&E investment to develop and test the hardware and software solutions. Without this technology Warfighters are required to manually receive their cryptographic products by traveling to COMSEC account locations (which may not be co-located) and manually filling their devices.

FY2022 funding supports the initial award of the NGLD-M developmental effort to up to two vendors to begin development and testing of their hardware and software solutions.

Prior to FY2022, the NGLD-M development effort was funded under PE 0303140A, Project DV4. In FY2022 and out, PE 0303140A no longer includes funding associated with the NGLD-M Program. New PE 0303140A Project Code BY6 was established to clearly identify requirements for NGLD-M development and is not considered a new start effort.

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

	FY 2020	FY 2021	FY 2022
Title: NGLD-M Development and NSA Certification	-	-	13.680
Description: The Next Generation Load Device - Medium (NGLD-M) will conduct the Army's key fill mission by issuing, filling, and managing Cryptographic keys to both legacy and future KMI aware End-Cryptographic Units (ECUs). This technology requires RDT&E investment to meet the requirements outlined in the NGLD Capability Production Document (CPD).			
FY 2022 Plans: Conduct the NGLD-M development and the User Application Software (UAS) integration of up to two solutions to meet the CPD. The NGLD-M development will establish configuration items and allocate system functions and performance requirements to the configurations items through a Preliminary Design Review. Further NGLD-M development will finalize the physical and functional characteristics of the NGLD-M configuration items and establish Government configuration control of the design at the Critical Design Review (CDR). At CDR, The Government will receive pre-production development models to support Highly Accelerated			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605144A / Next Generation Load Device - Medium	Project (Number/Name) BY6 / Key Management Infrastructure Development		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Life Testing for system reliability testing, End Cryptographic Unit interoperability testing, and the Risk Management Framework Security Control Assessment. FY 2021 to FY 2022 Increase/Decrease Statement: FY21 funding for this effort was supported by the PE 0303140A, Project: DV4 RDTE line.				
Title: Program Management Support Description: PMO costs will be covered by OMA funding. This funds matrixed support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort. FY 2022 Plans: FY 2022 funds matrixed support to include Acquisition Program Manager (APM), and Software Engineer Program Management support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort. FY 2021 to FY 2022 Increase/Decrease Statement: FY21 funding for this effort was supported by the PE 0303140A, Project: DV4 RDTE line.		-	-	1.717
Title: Developmental Test & Evaluation Support Description: NGLD-M developmental test and evaluation support efforts. FY 2022 Plans: FY 2022 funds developmental test and evaluation support efforts to include End Cryptographic Unit (ECU) interoperability testing, environmental testing, Telecommunications Electronics Materials Protected from Emanating Spurious Transmissions (TEMPEST), and NSA Testing. FY 2021 to FY 2022 Increase/Decrease Statement: This is a new budget item in FY22, but other FY21 funding for NGLD-M effort was supported by the PE 0303140A, Project: DV4 RDTE line.		-	-	0.219
Accomplishments/Planned Programs Subtotals		-	-	15.616

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605144A / Next Generation Load Device - Medium	Project (Number/Name) BY6 / Key Management Infrastructure Development

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• 0303140A: <i>Information Systems Security Program</i>	25.710	28.270	15.720	-	15.720	-	-	-	-	-	-
• B96000: <i>Communications Security (COMSEC)</i>	147.097	159.400	126.273	-	126.273	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Aspects of the Next Generation Load Device - Medium (NGLD-M) may include commercially availability solutions and/or interfaces, but development is required to integrate these solutions into a device that meets the rigors of NSA certification and the Capability Production Document (CPD) requirements. There is no commercially driven market for NSA certified load devices that meet the requirements identified in the NGLD Family CPD. The NGLD-M Acquisition Strategy supports a multiple award contract strategy for development, production, and sustainment. These requirements ensure secure communications by requiring the NGLD-M to provide specific tamper protections, limit electromagnetic radiation to prevent adversarial detection of the system, among others outlined within the Information Assurance Security Requirements Document. The Milestone Decision Authority issued a Materiel Development Decision (MDD) Acquisition Decision Memorandum (ADM) on 14 March 2019 that designated the NGLD-M as an ACAT III Program of Record (PoR).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605144A / Next Generation Load Device - Medium	Project (Number/Name) BY6 / Key Management Infrastructure Development
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		-		1.717	Nov 2021	-		1.717	0.000	1.717	-
Subtotal			-	-		-		1.717		-		1.717	0.000	1.717	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NGLD-M Development	C/CPFF	CCDC C5ISR S&TCD, NIWC-Pacific : APG, MD; San Diego, CA	-	-		-		13.680	Nov 2021	-		13.680	0.000	13.680	-
Subtotal			-	-		-		13.680		-		13.680	0.000	13.680	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		-		0.219	Nov 2021	-		0.219	0.000	0.219	-
Subtotal			-	-		-		0.219		-		0.219	0.000	0.219	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	-	0.000	15.616	-	15.616	0.000	15.616	N/A

Remarks

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605144A / <i>Next Generation Load Device - Medium</i>	Project (Number/Name) BY6 / <i>Key Management Infrastructure Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NGLD-M Development	1	2022	4	2024
NGLD-M Testing	4	2023	4	2024
NGLD-M Development, Production, Sustainment Contract	1	2022	4	2031
NGLD-M Milestone C	3	2024	3	2024

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605145A / <i>Medical Products and Support Systems Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	0.919	0.962	-	0.962	-	-	-	-	-	-
CD6: <i>Medical Products and Support Systems Development</i>	-	-	0.919	0.962	-	0.962	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Civilian Authorized Salaries and other operational requirements for the non-Army Management Headquarters Activity (non-AMHA) Research, Development, Test, and Evaluation (RDTE) functions incident to the local operation and management of the Medical Command support at the United States (U.S.) Army Medical Research and Development Command (USAMRDC).

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.954	0.973	-	0.973
Current President's Budget	0.000	0.919	0.962	-	0.962
Total Adjustments	0.000	-0.035	-0.011	-	-0.011
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.035			
• Adjustments to Budget Years	-	-	-0.011	-	-0.011

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605145A / <i>Medical Products and Support Systems Development</i>				Project (Number/Name) CD6 / <i>Medical Products and Support Systems Development</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CD6: <i>Medical Products and Support Systems Development</i>	-	-	0.919	0.962	-	0.962	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for authorized civilian workforce performing medical research, development, acquisition management and oversight that support the medical research, development, test, and evaluation (RDTE) programs at the United States Army Medical Research and Development Command (USAMRDC), Fort Detrick, Maryland to: (1) perform planning, programming, and budgeting; (2) manage resources; and (3) ensure compliance with United States Food and Drug Administration (FDA) and other regulatory and safety requirements. It also provides for continued operations of contracting and acquisition management functions performed in support of the USAMRDC Medical RDTE Program.

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

	FY 2020	FY 2021	FY 2022
Title: Civilian Authorized Salaries and Other Operational Requirements	-	0.919	0.962
<p>Description: Funding is provided to the USAMRDC for Medical Research Development Acquisition (RDA) Management and Oversight to include the payroll of civilians as well as nominal operating expense. Expertise helps establish and maintain the capabilities that Army medicine needs to sustain life, limb, and eyesight for our warfighters. Civilian labor performs centralized management of Medical RDA (many areas required by law and/or regulation) including animal & human research protections, health and safety compliance, environmental management, and U.S. Food and Drug Administration (FDA) regulatory compliance, legal support (including intellectual property protection), quality assurance, contracting services, personnel management, and planning, programming, and budgeting, and execution management. Funding also supports the Army's portion of the Special Immunization Program that protects individuals engaged in infectious disease research if exposed to pathogens or toxins.</p> <p>FY 2021 Plans: Fund authorized civilian salaries and associated expenses (supplies, equipment, travel, etc.) at USAMRDC and the United States Army Medical Research Acquisition Activity (USAMRAA). Also provides regulatory, clinical monitoring and data support for the SIP. This program provides non-licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases.</p> <p>FY 2022 Plans: Will fund civilian salaries and associated management and administrative expenses (support contracts, supplies, equipment, travel, etc.) at USAMRDMC. Also, will provide regulatory, clinical monitoring and data support for the Special Immunization</p>			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605145A / <i>Medical Products and Support Systems Development</i>	Project (Number/Name) CD6 / <i>Medical Products and Support Systems Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Program as necessary. This program will provide non licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases. <i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Funding change reflects planned lifecycle of this effort.				
Accomplishments/Planned Programs Subtotals		-	0.919	0.962
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy N/A				

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605145A / <i>Medical Products and Support Systems Development</i>	Project (Number/Name) CD6 / <i>Medical Products and Support Systems Development</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Civilian Salary and Other Requirements																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605145A / <i>Medical Products and Support Systems Development</i>	Project (Number/Name) CD6 / <i>Medical Products and Support Systems Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Civilian Salary and Other Requirements	1	2021	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	54.972	-	54.972	-	-	-	-	-	-
BY5: <i>Tactical Intelligence Targeting Access Node EMD</i>	-	-	-	54.972	-	54.972	-	-	-	-	-	-

Note

Program Element 0605148A Tactical Intel Targeting Access Node (TITAN) EMD transitioned from PE 0305208A in FY2022.

A. Mission Description and Budget Item Justification

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.

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.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	54.972	-	54.972
Total Adjustments	0.000	0.000	54.972	-	54.972
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	54.972	-	54.972

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>	
<u>Change Summary Explanation</u> TITAN Ground Station funding transitioned from Program Element 0305208A to PE 0605148A Tactical Intel Targeting Access Node (TITAN) EMD in FY22.		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>				Project (Number/Name) BY5 / <i>Tactical Intelligence Targeting Access Node EMD</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
BY5: <i>Tactical Intelligence Targeting Access Node EMD</i>	-	-	-	54.972	-	54.972	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element 0605148A Tactical Intel Targeting Access Node (TITAN) EMD transitioned from PE 0305208A in FY2022.

A. Mission Description and Budget Item Justification

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 system is postured to provide the fighting force with improved capacity and capability to "stimulate, see, and strike the enemy."

The FY22 funds in the amount of \$54.972M will fund the initial Development, Integration, and Testing of four production-representative TITAN prototype systems. Integrate high altitude, aerial and terrestrial sensor data feeds. Integrate TENCAP-developed Space-Ground Component Kit (SGCK). Fund updates, integration, accreditation, & testing of new capabilities resulting from new sensor feeds and emerging technologies. Includes Developmental and Operational Testing activities and soldier touchpoints to test-fix-test capabilities.

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

	FY 2020	FY 2021	FY 2022
Title: Project Management	-	-	4.872
Description: Funds needed to execute system development and integration activities, deliver acquisition and logistics documentation, perform system cyber security, accreditation and Human Systems Integration (HSI) efforts.			
FY 2022 Plans: Funds program support for initial Development and Integration of four production-representative TITAN prototype systems. Funds updates, integration, and accreditation of new capabilities resulting from new sensor feeds and emerging technologies			
FY 2021 to FY 2022 Increase/Decrease Statement: Program Element 0605148A Tactical Intel Targeting Access Node (TITAN) EMD transitioned from PE 0305208A in FY2022.			
Title: System Development and Integration	-	-	46.243

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>	Project (Number/Name) BY5 / <i>Tactical Intelligence Targeting Access Node EMD</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: Funds development and integration activities of up to four production-representative TITAN prototype systems. Integrates system SW baseline and HW system architecture and interfaces. Integrates high altitude, aerial and terrestrial data feeds onto TITAN platform. Integration of TENCAP's SGCK to allow access to commercial, National and Tactical Space Layer capabilities. Funds integration of S&T efforts such as SHOT and Prometheus into TITAN SW baseline.</p> <p>FY 2022 Plans: Funds initial Development, Integration, of four production-representative TITAN prototype systems. Integrates high altitude, aerial and terrestrial sensor data feeds. Integrates space ground component kit. Funds updates, integration, and accreditation of new capabilities resulting from new sensor feeds and emerging technologies</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Program Element 0605148A Tactical Intel Targeting Access Node (TITAN) EMD transitioned from PE 0305208A in FY2022.</p>			
<p>Title: Test Activities</p> <p>Description: Supports Developmental and Operational Testing activities for four production-representative TITAN prototype systems in support of system production decision. Funds all T&E events required by Army Test Community, including multiple soldier touch points.</p> <p>FY 2022 Plans: Funds initial Testing of four production-representative TITAN prototype systems. Funds testing of new capabilities resulting from new sensor feeds and emerging technologies.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Program Element 0605148A Tactical Intel Targeting Access Node (TITAN) EMD transitioned from PE 0305208A in FY2022.</p>	-	-	3.857
Accomplishments/Planned Programs Subtotals	-	-	54.972

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• BY4: <i>Tactical Intelligence Targeting Access Node</i>	-	-	28.347	-	28.347	-	-	-	-	-	-
Remarks	PE 0305208A is being leveraged for FY20 (\$715K) and FY21 activities (\$18,000K).										

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>	Project (Number/Name) BY5 / <i>Tactical Intelligence Targeting Access Node EMD</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Funds realigned from Program Element 0305208A in FY22.											

D. Acquisition Strategy

The TITAN program acquisition strategy is to leverage Section 804 Middle-Tier Acquisition (MTA) policy for rapid prototyping program (RPP). This RPP rapidly develops and fields a capability that address multi-domain operations gap that can be demonstrated in an operational environment informing a decision point to transition to Rapid Fielding effort or traditional Milestone C for production. TITAN ground station fielding will be accelerated with this approach while providing increased intelligence capabilities, additional sensor data and processing throughput over time. The MTA decision point is scheduled for the fourth quarter of FY21.

An Other Transaction Authority (OTA) contract will be pursued under the 10 U.S.C. 2371b and the 2016 National Defense Authorization Act (NDAA), Section 815, for TITAN Rapid Prototype and Production. This innovative approach will enable acceleration of the TITAN Ground Station capabilities to the Warfighter. The proposed TITAN acquisition is being solicited on an open competition, best value competition basis.

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.

Phase I, Ground Station Modernization, is a competitive effort in FY21 between two vendors to build system-level designs and mature a SW baseline. At the conclusion of Phase I, a Tech Demo and Critical Design Review (CDR) will inform up-select to one vendor for Phase 2. Phase 2 will be executed starting in FY22 and encompass efforts such as prototyping and development of TITAN critical technologies identified during Phase I, and inform the later Phase 3 (additional Echelon build and integration) and 4 (enhancements and scalability builds) activities. The OTA allows the flexibility for each phase to be executed either in parallel or sequentially.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605148A / Tactical Intel Targeting Access Node (TITAN) EMD				BY5 / Tactical Intelligence Targeting Access Node EMD							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management	C/FP	Various : APG and Contractor Facility (TBD)	-	-		-		4.872	Dec 2021	-		4.872	Continuing	Continuing	Continuing
Subtotal			-	-		-		4.872		-		4.872	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Development and Integration	C/FP	Various : APG, Ft. Bragg, JBLM,, YPG, CTR FAC (TBD)	-	-		-		46.243	Oct 2021	-		46.243	Continuing	Continuing	Continuing
Subtotal			-	-		-		46.243		-		46.243	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Activities	C/FP	Various : APG, YPG, WSMR (OT Location TBD)	-	-		-		3.857	Jan 2022	-		3.857	Continuing	Continuing	Continuing
Subtotal			-	-		-		3.857		-		3.857	Continuing	Continuing	N/A
Project Cost Totals			-	-		0.000		54.972		-		54.972	Continuing	Continuing	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>	Project (Number/Name) BY5 / <i>Tactical Intelligence Targeting Access Node EMD</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MDD		▲1																										
Analysis of Alternatives			■																									
AoA SAG					▲2																							
AROC							▲3																					
MTA								▲4																				
OTA Phase 1: Modernization					■																							
Phase 1 Technology Demonstrations/Design Reviews					■																							
CDR									▲5																			
OTA Phase 2: Prototyping, Integration and Test									■																			
Phase 2 Testing (Multiple DT Events/OA)									■																			
OT Complete															▲6													
OTA Phase 3: Tailoring by Echelon													■															
Phase 3 Testing (Multiple DT Events/OA)													■															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>	Project (Number/Name) BY5 / <i>Tactical Intelligence Targeting Access Node EMD</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
OTA Phase 4: Joint Sensor Integration/Continuous Integration and Updates.																												
Production Decision													7															
Production Contract																												
Follow-on OTA Contract																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605148A / <i>Tactical Intel Targeting Access Node (TITAN) EMD</i>	Project (Number/Name) BY5 / <i>Tactical Intelligence Targeting Access Node EMD</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDD	2	2020	2	2020
Analysis of Alternatives	3	2020	1	2021
AoA SAG	1	2021	1	2021
AROC	3	2021	3	2021
MTA	4	2021	4	2021
OTA Phase 1: Modernization	1	2021	1	2022
Phase 1 Technology Demonstrations/Design Reviews	1	2021	1	2022
CDR	1	2022	1	2022
OTA Phase 2: Prototyping, Integration and Test	1	2022	2	2023
Phase 2 Testing (Multiple DT Events/OA)	1	2022	2	2023
OT Complete	2	2023	2	2023
OTA Phase 3: Tailoring by Echelon	4	2022	2	2024
Phase 3 Testing (Multiple DT Events/OA)	4	2022	2	2024
OTA Phase 4: Joint Sensor Integration/Continuous Integration and Updates.	3	2023	2	2025
Production Decision	4	2023	4	2023
Production Contract	1	2024	4	2024
Follow-on OTA Contract	1	2025	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605203A / <i>Army System Development & Demonstration</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	184.410	150.201	122.175	-	122.175	-	-	-	-	-	-
BR3: <i>Army System Development & Demonstration</i>	-	184.410	150.201	122.175	-	122.175	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Army System Development & Demonstration budget line includes multiple efforts across the Army's Battlefield Operational Systems necessary to support projects in engineering and manufacturing development for use on programs that have not received approval for full-rate. System performance is near or at planned operational system levels.

Projects are characterized by mature system development, integration, demonstration to support Milestone C decisions, conducting live fire test and evaluation, and initial operational test and evaluation of production representative articles.

Selected programs within this budget line will exhibit a logical progression of program phases, development and production funding within the FYDP, consistent with the Department's full funding policy.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	184.410	150.201	133.311	-	133.311
Current President's Budget	184.410	150.201	122.175	-	122.175
Total Adjustments	0.000	0.000	-11.136	-	-11.136
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-11.136	-	-11.136

Change Summary Explanation

Funding transitioned for proper execution

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605205A / Small Unmanned Aerial Vehicle (SUAV) (6.5)
---	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	5.780	2.275	-	2.275	-	-	-	-	-	-
BR7: Small Unmanned Aircraft System (6.5)	-	-	5.780	2.275	-	2.275	-	-	-	-	-	-

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). FoSUAS will utilize existing RQ-11 in a system of systems fielding concept, with Short Range Reconnaissance (SRR) and Long Range Reconnaissance (LRR) options under development.

Justification: FY 2022 Research, Development, Test, and Evaluation (RDTE) Base funding of \$2.275 million to meet Capabilities Production Document (CPD) Increment II Block II related requirements. Specifically, to conduct SRR Tranche 2 system development, integration, testing and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	5.999	2.407	-	2.407
Current President's Budget	0.000	5.780	2.275	-	2.275
Total Adjustments	0.000	-0.219	-0.132	-	-0.132
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.219			
• Adjustments to Budget Years	-	-	-0.132	-	-0.132

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605205A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.5)</i>				Project (Number/Name) BR7 / <i>Small Unmanned Aircraft System (6.5)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
BR7: <i>Small Unmanned Aircraft System (6.5)</i>	-	-	5.780	2.275	-	2.275	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding has been reprogrammed to Budget Activity (BA) 5 Program Element (PE) 0605205A Small Unmanned Aerial Vehicle (SUAV) (6.5) Project BR7 Small Unmanned Aircraft System (6.5) from BA 7 PE 0305232A RQ-11 UAV Project RA7 RQ-11 Raven (MIP) starting in Fiscal Year (FY) 2021.

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). FoSUAS will utilize existing RQ-11 in a system of systems fielding concept, with SRR and LRR options under development.

Justification: FY 2022 Research, Development, Test, and Evaluation (RDT&E) Base funding of \$2.275 million to meet Capabilities Production Document (CPD) Increment II Block II related requirements. Specifically, to conduct SRR Tranche 2 system development, integration, testing and evaluation.

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

	FY 2020	FY 2021	FY 2022
Title: Systems Engineering Program Management	-	0.603	0.120
Description: Systems Engineering Program Management support for SRR development and demonstration efforts.			
FY 2021 Plans: Systems Engineering and Program Management support for SRR development and demonstration efforts.			
FY 2022 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605205A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.5)</i>	Project (Number/Name) BR7 / <i>Small Unmanned Aircraft System (6.5)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Systems Engineering and Program Management support for SRR development and demonstration efforts. FY 2021 to FY 2022 Increase/Decrease Statement: SRR Tranche 2 is nearing completion.			
Title: System Development and Integration Description: SRR Development Engineering efforts. FY 2021 Plans: Efforts to conduct SRR development and integration to support CPD requirements. FY 2022 Plans: Efforts to conduct SRR development and integration to support CPD requirements. FY 2021 to FY 2022 Increase/Decrease Statement: SRR Tranche 2 is nearing completion.	-	3.972	1.331
Title: Developmental Test and Evaluation Description: Test and Evaluation efforts for SRR Component Development. FY 2021 Plans: Efforts to conduct testing and evaluation of mature SRR prototype system. FY 2022 Plans: Efforts to conduct testing and evaluation of mature SRR prototype system. FY 2021 to FY 2022 Increase/Decrease Statement: SRR Tranche 2 is nearing completion.	-	1.205	0.824
Accomplishments/Planned Programs Subtotals	-	5.780	2.275

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• A00010: <i>SMALL UNMANNED AIRCRAFT SYSTEM</i>	21.420	16.551	16.005	-	16.005	-	-	-	-	-	-
• BR6: <i>Small Unmanned Aircraft System (6.4)</i>	-	1.328	0.926	-	0.926	-	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605205A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.5)</i>	Project (Number/Name) BR7 / <i>Small Unmanned Aircraft System (6.5)</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RA7: RQ-11 Raven	3.218	-	-	-	-	-	-	-	-	-	-

Remarks
 Funding has been reprogrammed to BA 5 PE 0605205A Small Unmanned Aerial Vehicle (SUAV) (6.5) Project BR7 Small Unmanned Aircraft System (6.5) from BA 7 PE 0305232A RQ-11 UAV Project RA7 RQ-11 Raven (MIP) starting in FY 2021.

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605205A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.5)</i>	Project (Number/Name) BR7 / <i>Small Unmanned Aircraft System (6.5)</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering Program Management (SEPM)	Various	Various : Various	-	-		0.603		0.120		-		0.120	Continuing	Continuing	Continuing
Subtotal			-	-		0.603		0.120		-		0.120	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Engineering	Various	ACC Redstone : Redstone Arsenal	-	-		3.972	Jun 2021	1.331	Jun 2022	-		1.331	Continuing	Continuing	Continuing
Subtotal			-	-		3.972		1.331		-		1.331	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	Various	ACC Redstone : Redstone Arsenal	-	-		1.205	Aug 2021	0.824	Aug 2022	-		0.824	Continuing	Continuing	Continuing
Subtotal			-	-		1.205		0.824		-		0.824	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	5.780	2.275	-	2.275	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605205A / <i>Small Unmanned Aerial Vehicle (SUAV) (6.5)</i>	Project (Number/Name) BR7 / <i>Small Unmanned Aircraft System (6.5)</i>

Schedule Details

Events	Start		End	
	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	2024
SRR Tranche I Other Transactional Agreements (OTA) Award	3	2019	3	2019
SRR Tranche I Prototyping	3	2019	4	2020
Test and Evaluation	4	2018	4	2024
SRR/(HGCS) Integration	2	2018	4	2020
SRR Tranche I End User Assessment	4	2020	4	2020
SRR Tranche I Full Rate Production (FRP) Decision	3	2021	3	2021
SRR Tranche II OTA Award	4	2021	4	2021
SRR Tranche II Prototyping	4	2021	4	2022
SRR Tranche II End User Assessment	4	2022	4	2022
SRR Tranche II FRP Decision	1	2023	1	2023
SRR Tranche III	1	2023	4	2024
LRR OTA Award (Component)	4	2023	4	2024
LRR Prototyping (System)	4	2024	1	2026
LRR/HGCS Integration	4	2024	4	2026
LRR End User Assessment	3	2026	3	2026
LRR FRP Decision	2	2027	2	2027

Note

Schedule events shown prior to Fiscal Year (FY) 2021 are for informational purposes only. Funding has transitioned to Budget Activity (BA) 5 Program Element (PE) 0605205A Small Unmanned Aerial Vehicle (SUAV) (6.5) Project BR7 Small Unmanned Aircraft System (6.5) from BA 7 PE 0305232A RQ-11 UAV Project RA7 RQ-11 Raven (MIP) starting in Fiscal Year (FY) 2021.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605224A / Multi-Domain Intelligence
---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	9.313	-	9.313	-	-	-	-	-	-
CK4: Intelligence Apps and Integration (MIP)	-	-	-	9.313	-	9.313	-	-	-	-	-	-

Note

Funds are realigned from PE 0305208A to PE 0605224A. This is not a new start.

A. Mission Description and Budget Item Justification

The Intelligence Applications and Integration (Intel Apps) Program is a software-centric ACAT III Program that will provide the Next Generation intelligence capabilities aligned to the National Defense Strategy and Multi-Domain Operations by enabling intelligence professionals to work through the intelligence cycle with increased speed, precision and accuracy. The Intel Apps Program will synchronize applications (including All Source, Information Collection, Weather effects, and Intelligence Support to Targeting) to be integrated into the Command Post Computing Environment (CPCE) architecture thus eliminating redundant, stove-piped, and resource-intensive applications. The Intel Apps program will also support the modernization of Geospatial capabilities currently being used in the Army by purchasing the latest and most effective hardware and software available. The emphasis for adding these and all future Intel Apps capabilities to the Army will be by leveraging commercial items to the maximum extent possible. The Army will leverage proven technology as a means of providing capabilities in the fastest and most efficient means possible.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	9.313	-	9.313
Total Adjustments	0.000	0.000	9.313	-	9.313
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	9.313	-	9.313

Change Summary Explanation

Funds are realigned from PE 0305208A to PE 0605224A.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605224A / <i>Multi-Domain Intelligence</i>				Project (Number/Name) CK4 / <i>Intelligence Apps and Integration (MIP)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CK4: <i>Intelligence Apps and Integration (MIP)</i>	-	-	-	9.313	-	9.313	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funds are realigned from PE 0305208A to PE 0605224A. This is not a new start.

A. Mission Description and Budget Item Justification

The Intelligence Applications and Integration (Intel Apps) Program is a software-centric ACAT III Program that will provide the Next Generation intelligence capabilities aligned to the National Defense Strategy and Multi-Domain Operations by enabling intelligence professionals to work through the intelligence cycle with increased speed, precision and accuracy. The Intel Apps Program will synchronize applications (including All Source, Information Collection, Weather effects, and Intelligence Support to Targeting) on top of the Command Post Computing Environment (CPCE) architecture, thus eliminating redundant, stove-piped, and resource-intensive applications.

The FY22 funds in the amount of \$9.313 million will focus on the development of All Source and Intelligence Support to Targeting applications, as well as the necessary Market Research combined with live demonstrations of other intelligence applications (e.g., Information Collection, Weather Effects) that will eventually integrate onto the CPCE architecture in the following years.

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

	FY 2020	FY 2021	FY 2022
Title: Intelligence Applications and Integration	-	-	9.313
Description: Provide Next Generation intelligence capabilities. Initiate activities for All Source and Intelligence Support, Market Research and intelligence applications.			
FY 2022 Plans: Development of All Source and Intelligence Support to Targeting applications and the necessary Market Research.			
FY 2021 to FY 2022 Increase/Decrease Statement: Funds realignment from PE 0305208A.			
Accomplishments/Planned Programs Subtotals	-	-	9.313

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605224A / <i>Multi-Domain Intelligence</i>	Project (Number/Name) CK4 / <i>Intelligence Apps and Integration (MIP)</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BZ6111: <i>INTELLIGENCE APPS</i>	-	-	20.095	-	20.095	-	-	-	-	-	-

Remarks

Funds are realigned from PE 0305208A to PE 0605224A.

D. Acquisition Strategy

The acquisition strategy is to acquire the Mission Command Intelligence (MCI) applications by leveraging capabilities from Agencies' and Functional Managers' standard software, matured intelligence capabilities from Science and Technology initiatives, and/or procuring commercial products available from the market place for integration into the CPCE environment.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0605224A / Multi-Domain Intelligence				CK4 / Intelligence Apps and Integration (MIP)								
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management	Option/CPFF	QED : APG, MD	-	-		-		0.745	Dec 2021	-		0.745	0.000	0.745	-	
Subtotal			-	-		-		0.745		-		0.745	0.000	0.745	N/A	
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
System Engineering/SME Support	Option/CPFF	BOOZ ALLEN HAMILTON : APG, MD	-	-		-		3.968	Dec 2021	-		3.968	0.000	3.968	-	
Information Assurance/Risk Management	Option/CPFF	BOOZ ALLEN HAMILTON : APG, MD	-	-		-		0.500	Dec 2021	-		0.500	0.000	0.500	-	
Subtotal			-	-		-		4.468		-		4.468	0.000	4.468	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Training Development	RO	C5ISR : APG, MD	-	-		-		0.900	Dec 2021	-		0.900	0.000	0.900	-	
Integration effort into CPCE	RO	C5ISR : APG, MD	-	-		-		1.950	Dec 2021	-		1.950	0.000	1.950	-	
Subtotal			-	-		-		2.850		-		2.850	0.000	2.850	N/A	
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Test and Evaluation	MIPR	ATEC : APG, MD	-	-		-		1.250	Jun 2022	-		1.250	0.000	1.250	-	
Subtotal			-	-		-		1.250		-		1.250	0.000	1.250	N/A	

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605224A / <i>Multi-Domain Intelligence</i>	Project (Number/Name) CK4 / <i>Intelligence Apps and Integration (MIP)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Matériel Development Decision					▲ 1																							
Milestone B Decision					▲ 2																							
All Source Applications Development									■																			
All Source Applications Integration													■															
All Source Fielding													■															
Intel Support to Targeting Applications Development													■															
Intel Support to Targeting Applications Integration													■															
Intel Support to Targeting Fielding																	■											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605224A / <i>Multi-Domain Intelligence</i>	Project (Number/Name) CK4 / <i>Intelligence Apps and Integration (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Materiel Development Decision	2	2021	2	2021
Milestone B Decision	3	2021	3	2021
All Source Applications Development	2	2022	3	2022
All Source Applications Integration	2	2022	3	2023
All Source Fielding	3	2022	3	2023
Intel Support to Targeting Applications Development	2	2022	3	2022
Intel Support to Targeting Applications Integration	2	2022	3	2022
Intel Support to Targeting Fielding	3	2022	3	2023

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605225A / <i>SIO Capability Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	22.713	-	22.713	-	-	-	-	-	-
CB7: <i>SIO Capability Development</i>	-	-	-	22.713	-	22.713	-	-	-	-	-	-

Note

Fiscal Year (FY) 2022 increase of \$22.713 Million. New Program Element (PE) established to resolve Army Cyber Command (ARCYBER) concerns over limited visibility and access to the use of historical highly classified PE. This PE does not represent a new start program. Previous PE not listed here due to classification.

A. Mission Description and Budget Item Justification

Program provides critical classified, continuous, rapid evolutionary development of offensive cyberspace capabilities intended to project power in and through the cyberspace domain. Capabilities also provide deliberate, authorized, response actions which are taken external to the DODIN to defeat ongoing or imminent threats. Authorities are provided under Title 10, United States Code Section 394. In FY20 and FY21, the details of this program were reported in accordance with Title 10, United States Code, Section 119(a)(1). In FY22, the transition to an evolved set of technical solutions, controlled at appropriate security classification levels, will enable application against a broader set of Title 10 operational needs and requirements for the program.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	22.713	-	22.713
Total Adjustments	0.000	0.000	22.713	-	22.713
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	22.713	-	22.713

Change Summary Explanation

Fiscal Year (FY) 2022 indicates an increase of \$22.713 Million for Army Cyber Command (ARCYBER) activities.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605225A / SIO Capability Development				Project (Number/Name) CB7 / SIO Capability Development			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CB7: SIO Capability Development	-	-	-	22.713	-	22.713	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Fiscal Year (FY) 2022 increase of \$115.183 Million. New Program Elements (PE) established to resolve Army Cyber Command (ARCYBER) concerns over limited visibility and access to the use of historical highly classified PE. This PE does not represent a new start program.

A. Mission Description and Budget Item Justification

Program provides critical classified, continuous, rapid evolutionary development of offensive cyberspace capabilities intended to project power in and through cyberspace. Capabilities also provide deliberate, authorized, response actions which taken external to the DODIN to defeat ongoing or imminent threats. Authorities are provided under Title 10, United States Code Section 394. In FY20 and FY21, the details of this program were reported in accordance with Title 10, United States Code, Section 119(a)(1). The transition from Title 10 allows for a broader set of requirements for the program.

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

	FY 2020	FY 2021	FY 2022
Title: Special Information Operations	-	-	22.713
FY 2022 Plans: Continues to provide funds to specified Army Programs of Record (POR) and Quick Reaction Capabilities (QRC) for Title 10 classified cyber capability development and integration efforts, ensuring their congruence with Army Cyber Command (ARCYBER) and United States Cyber Command (USCYBERCOM) requirements and initiatives to include but not limited to operational cyber infrastructure platforms, rapid cyber development environments, tools, cyber surveillance and reconnaissance, and additional ARCYBER priorities as directed as elements in the Joint Cyber Warfighting Architecture (JCWA).			
FY 2021 to FY 2022 Increase/Decrease Statement: Fiscal Year (FY) 2022 indicates an increase of \$22.713 Million. This new Program PE has been established in FY22 to resolve Army Cyber Command (ARCYBER) concerns over limited visibility and access to the use of historical highly classified PEs. This PE does not represent a new start program.			
Accomplishments/Planned Programs Subtotals	-	-	22.713

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

N/A

Remarks

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army Date: May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605225A / SIO Capability Development	Project (Number/Name) CB7 / SIO Capability Development
--	--	--

D. Acquisition Strategy

Special Information Operations (SIO) funds provide for agile development, integration, and ongoing Army capability testing of advanced technologies and systems to pace the rapidly evolving cyber threat environment during Joint All Domain Operations and support multi-domain soldier test points. The Army Capability Manager-Cyber manages validated Army requirements for operationally relevant capabilities, which are refined and driven by an annual Commanding General (CG) Army Cyber Command prioritization memorandum. Program Executive Office Intelligence, Electronic Warfare & Sensors (PEO IEW&S) then uses Budget Activity (BA) 6.5 RDT&E to manage evolution of these required efforts through classified system development and integration into Army Programs of Record (POR)s and Quick Reaction Capabilities (QRC)s. This strategy ensures these capabilities remain viable and operationally focused through multiple budget cycles, significantly increasing successful transitions to recipient Army Cyber warfighting forces.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605225A / SIO Capability Development	Project (Number/Name) CB7 / SIO Capability Development
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineers and Technical Assistance	Option/CPFF	MAG Aerospace : Aberdeen, MD	-	-		-		12.713	Jul 2022	-		12.713	0.000	12.713	-
Subtotal			-	-		-		12.713		-		12.713	0.000	12.713	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DA Gov Travel, Office Costs	TBD	USACE : Baltimore, MD	-	-		-		1.000		-		1.000	0.000	1.000	-
Program Support Costs	TBD	Multiple MIPRS and Functional Support Agreements : Hanover, MD	-	-		-		5.000	Jun 2022	-		5.000	0.000	5.000	-
Subtotal			-	-		-		6.000		-		6.000	0.000	6.000	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Special Information Operations Cyber Capability Testing	TBD	Various : Multiple	-	-		-		4.000	Jan 2022	-		4.000	0.000	4.000	-
Subtotal			-	-		-		4.000		-		4.000	0.000	4.000	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	-	0.000	22.713	-	22.713	0.000	22.713	N/A

Remarks
 Fiscal Year (FY) 2022 indicates an increase of \$115.183 Million; actual change from existing classified FY21 Program Element (PE) is a decrease of \$1.970 Million. This new PE has been established in FY22 to resolve Army Cyber Command (ARCYBER) concerns over limited visibility and access to the use of historical highly classified PEs. This PE does not represent a new start program.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605225A / SIO Capability Development	Project (Number/Name) CB7 / SIO Capability Development
--	--	--

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Classified Cyber Capabilities Development																												
Classified Cyber Capabilities Testing																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605225A / SIO Capability Development	Project (Number/Name) CB7 / SIO Capability Development
--	--	--

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Classified Cyber Capabilities Development	3	2020	3	2025
Classified Cyber Capabilities Testing	2	2021	3	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605231A / <i>Precision Strike Missile (PrSM)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	188.452	-	188.452	-	-	-	-	-	-
CO3: <i>Precision Strike Missile (PrSM)</i>	-	-	-	188.452	-	188.452	-	-	-	-	-	-

Note

Starting in Fiscal Year (FY) 2022 all funds for this program were restructured from PE 0607134A to PE 0605231A.. PE 0605231A is a continuation of the existing PrSM program.

A. Mission Description and Budget Item Justification

Precision Strike Missile (PrSM) is the Army's next generation surface-to-surface missile that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities. The mission of the PrSM System is to attack/ neutralize/suppress/destroy targets using missile delivered indirect precision fires. PrSM will provide Joint Force Commanders with a 24/7, all-weather capability to attack critical and time sensitive area and point targets including threat air defense, missile launchers, command and control centers, assembly/staging areas and high payoff targets at all depths of the multi-domain battlefield. PrSM will counter the enemy's ability to conduct combat maneuver and air defense operations.

PrSM requirements include: max range of greater than 400 kilometers (km), specified lethality against the designated target set, a Launch Pod Missile Container (LPMC) that holds two missiles, survivability in a threat environment, and compatibility with the existing launcher platforms (M270A2 Multiple Launch Rocket System (MLRS) and M142 High Mobility Artillery Rocket System (HIMARS)). PrSM will meet cluster and insensitive munition requirements and is being designed with an open system architecture that provides the capability for future growth to counter new and emerging threats. Increment 2 of PrSM will include the ability to attack mobile or relocatable ground and maritime targets. Future PrSM increments will provide increased lethality against hardened targets and extend range capability to 650km.

FY 2022 base dollars in the amount of \$188.452 million supports the continuation of PrSM Increment 1 Engineering and Manufacturing Development (EMD) and efforts toward Increment 2. Increment 1 EMD activities in FY 2022 include system level ground and safety testing, Government launcher software integration, model and simulation verification and validation and missile system build up in support of FY 2023 Production Qualification flight testing. Increment 2 activities involve coordinating with seeker developer to finalize prototype design ahead of 4QFY22 Preliminary Design Review and ordering of materials for initial system integration. The prime contractor will continue integration studies and refactoring efforts to package the final Land-Based Anti-Ship Missile (LBASM) seeker solution into the PrSM missile prior to system level prototype flight testing.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605231A / <i>Precision Strike Missile (PrSM)</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	188.452	-	188.452
Total Adjustments	0.000	0.000	188.452	-	188.452
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	188.452	-	188.452

Change Summary Explanation

Starting in Fiscal Year (FY) 2022 all funds for this program were restructured from PE 0607134A to PE 0605231A.. PE 0605231A is a continuation of the existing PrSM program.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605231A / Precision Strike Missile (PrSM)				Project (Number/Name) CO3 / Precision Strike Missile (PrSM)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CO3: Precision Strike Missile (PrSM)	-	-	-	188.452	-	188.452	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Starting in Fiscal Year (FY) 2022 all funds for this program were restructured from PE 0607134A to PE 0605231A.. PE 0605231A is a continuation of the existing PrSM program.

A. Mission Description and Budget Item Justification

Precision Strike Missile (PrSM) is the Army's next generation surface-to-surface missile that replaces and improves upon Army Tactical Missile System (ATACMS) capabilities. The mission of the PrSM System is to attack/ neutralize/suppress/destroy targets using missile delivered indirect precision fires. PrSM will provide Joint Force Commanders with a 24/7, all-weather capability to attack critical and time sensitive area and point targets including threat air defense, missile launchers, command and control centers, assembly/staging areas and high payoff targets at all depths of the multi-domain battlefield. PrSM will counter the enemy's ability to conduct combat maneuver and air defense operations.

PrSM requirements include: max range of greater than 400 kilometers (km), specified lethality against the designated target set, a Launch Pod Missile Container (LPMC) that holds two missiles, survivability in a threat environment, and compatibility with the existing launcher platforms (M270A2 Multiple Launch Rocket System (MLRS) and M142 High Mobility Artillery Rocket System (HIMARS)). PrSM will meet cluster and insensitive munition requirements and is being designed with an open system architecture that provides the capability for future growth to counter new and emerging threats. Increment 2 of PrSM will include the ability to attack mobile or relocatable ground and maritime targets. Future PrSM increments will provide increased lethality against hardened targets and extend range capability to 650km.

FY 2022 base dollars in the amount of \$188.452 million supports the continuation of PrSM Increment 1 Engineering and Manufacturing Development (EMD) and efforts toward Increment 2. Increment 1 EMD activities in FY 2022 include system level ground and safety testing, Government launcher software integration, model and simulation verification and validation and missile system build up in support of FY 2023 Production Qualification flight testing. Increment 2 activities involve coordinating with seeker developer to finalize prototype design ahead of 4QFY22 Preliminary Design Review and ordering of materials for initial system integration. The prime contractor will continue integration studies and refactoring efforts to package the final Land-Based Anti-Ship Missile (LBASM) seeker solution into the PrSM missile prior to system level prototype flight testing.

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

	FY 2020	FY 2021	FY 2022
Title: Engineering and Manufacturing Development (EMD)	-	-	132.347
Description: EMD activities to develop the Army's next generation missile capability that doubles volume of fire, meets range requirements by exceeding 400km, provides required lethality for both point and area targets, ensures survivability, meets cluster			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / <i>Precision Strike Missile (PrSM)</i>	Project (Number/Name) CO3 / <i>Precision Strike Missile (PrSM)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>munition policy requirements, and provides an open system architecture. PrSM provides field artillery units with a deep-strike capability while supporting Brigade, Division, Corps, Army, Theater, Joint and Coalition forces in full, limited or expeditionary operations.</p> <p>FY 2022 Plans: Continue EMD efforts awarded in FY 2021. Subsequent to receipt of hardware items procured in FY 2021 for system level qualification the contractor will build test articles for delivery to the Government to conduct system level ground and safety production qualification testing. Examples of this hardware include type D (electronic) missiles with mass simulant energetics and type B (energetic) missiles with simulant electronics. The Type D missiles will support Electromagnetic Interference testing and the Type B missile will support insensitive munition (Fast Cook-off and Sympathetic Detonation), 40ft drop, and Explosive Disposal safety testing. Assembly of (14) flight test articles to include installation of flight termination system in support of FY 2023 Production Qualification flight tests. Procurement of tactical representative targets in support of FY 2023 Production Qualification Test (PQT) testing. Finalize integration of Government missile/ launcher fire control system software and hardware interfaces utilizing an Engineering Release of Advanced Field Artillery Tactical Data System (AFATDS) to assess ballistic algorithms and world-wide conditions in preparation for FY 2023 HIMARS Software Integration Testing (SIT), Limited User Test (LUT), and EOC fielding. Continued Government Survivability testing and analysis to ensure that missile capabilities remain survivable against emerging threat systems.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increase due to funding that was restructured from PE 0607134A to PE 0605231A.</p>				
<p>Title: Increment 2</p> <p>Description: Activities to integrate Land-Based Anti-Ship Missile (LBASM) Science and Technology (S&T) efforts into PrSM Increment 1 will result in an Increment 2 missile.</p> <p>FY 2022 Plans: FY 2022 funding supports purchasing RF/Infrared Labor/lab assets and hardware from the LBASM seeker developer, Combat Capabilities Development Command (CCDC), to facilitate Increment 2 Prototype flight testing activities in FY 2024. Begin development and integration activities with prime contractor to refactor the LBASM seeker technology into the PrSM missile. Coordinate with stakeholders to identify test and target requirements, range availability, lethality studies. Establish model and simulation algorithms to reduce test costs.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>		-	-	56.105

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / Precision Strike Missile (PrSM)	Project (Number/Name) CO3 / Precision Strike Missile (PrSM)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
FY 2022 funding represents an increase in Increment 2 efforts due to additional program development and integration activities to integrate the LBASM seeker into the baseline, Increment 1 PrSM missile.			
Accomplishments/Planned Programs Subtotals	-	-	188.452

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 0607134A: Long Range Precision Fires (LRPF)	149.455	100.146	-	-	-	-	-	-	-	-	-
• C29600: PRECISION STRIKE MISSILE (PRSM)	-	49.941	166.130	-	166.130	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

PrSM follows the Major Capability Acquisition pathway. A 6 NOV 2013 Materiel Development Decision Acquisition Decision Memorandum designated PrSM as a Pre-Major Defense Acquisition Program. An AoA supporting the MS A decision was completed by U.S. Army Training and Doctrine Command (TRADOC) Analysis Center White Sands Missile Range (TRAC-WSMR), with an Office of the Secretary of Defense (OSD) letter of sufficiency issued in September 2015. In 4Q FY 2016, the Army awarded 9 month risk reduction, trade study and initial design development agreements to two contractors. The effort resulted in development of initial baseline designs presented during final technical reviews that resulted in a seamless transition into the TMRR phase. Subsequent to MS A, on 31 March 2017, the Army awarded competitive Other Transaction Agreements to two contractors with planned down-select following the conclusion of system level prototype flight testing in FY 2020.

In FY 2018, the Army in response to immediate near-peer threats and the requirement to engage targets with a precision guided missile at ranges beyond 400km the Army directed acceleration of PrSM Early Operational Capability (EOC) with planned fielding in FY 2023. The PrSM acquisition approach was updated to include follow on competitive TMRR effort, Enhanced TMRR (E-TMRR). A successful system level prototype flight test was the entry criteria for award of the E-TMRR agreement.

In FY 2019 both contractors completed a Preliminary Design Review (PDR), conducted component level Design Verification Testing (DVT) on PrSM sub-assemblies prior to system level prototype flight tests. During DVT, one PrSM contractor experienced a catastrophic rocket motor failure.

In FY 2020 The Army decided not to fund the contractor's additional cost growth and the contractor chose not to fund internally. The period of performance expired on this effort in March 20, 2020 leaving only one contractor to continue development activities. The remaining contractor conducted prototype flights in 1-3QFY2020 and was solely awarded E-TMRR on 12 JUN 2020 through MAR 2022 (2QFY 2022).

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / <i>Precision Strike Missile (PrSM)</i>	Project (Number/Name) CO3 / <i>Precision Strike Missile (PrSM)</i>
<p>PrSM acquisition approach is incremental. The modular systems Improvements will occur via technology insertions that increase the capabilities of the base missile. Increment 2 will transition from S&T to the Program Office after the design has been fully integrated into the PrSM Increment 1 form factor and upon successful completion of initial flight testing. During E-TMRR the contractor will finalize tactical designs, build additional missiles for system level EDT flight tests, begin subsystem qualification, and establish a production capability for EOC missiles. These risk reduction activities inform Milestone B decision and transition to EMD. EMD Phase begins 4Q FY 2021 following the MS B approval. The EMD phase will include assembly of PQT flight test articles in parallel with completion of ground and system qualification, tactical software integration on the HIMARS and M270A2 launchers and production planning efforts. Also, the program will refine critical missile survivability assessments to ensure the selected EMD design will successfully meet PrSM's kinetic, electro-magnetic spectrum, cyber, environmental, nuclear requirements. On 3 FEB 2021 Army Futures Command, Commanding General signed a Directed Requirement for initial quantities of PrSM EOC. FY21-24 MIPA funds will initially support an EOC and then transition to Full Rate Production and achieve Initial Operational Capability in FY 2025. EOC production begins in FY 2021 with fielding occurring in FY 2023.</p> <p>PrSM program will develop nascent capability and support Army demonstration and test initiatives to increase integrated offensive and defensive capability across warfighter functions and multiple domains. Development, integration, and testing of PrSM systems solutions, including test planning to support an annual PEO MS-led Multi-Domain Operations test/demonstration event beginning in FY23, to include biennial Survivability Resiliency/Cyber-Electromagnetic Activities exercises with an event planned in FY22.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / Precision Strike Missile (Pr SM)	Project (Number/Name) CO3 / Precision Strike Missile (PrSM)
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Program Management	MIPR	Various : RSA, AL	-	-		-		5.442	Apr 2022	-		5.442	0.000	5.442	-
Subtotal			-	-		-		5.442		-		5.442	0.000	5.442	N/A

Remarks
 RSA - Redstone Arsenal, Alabama

In FY 2022, funding in the amount of \$1.675 million for manpower was realigned to Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments.

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PrSM Increment 1 EMD - 1 Vendor (Lockheed Martin)	SS/FPIS	LMMFCS : Grand Prairie, TX	-	-		-		114.068	Jan 2022	-		114.068	0.000	114.068	-
PrSM Increment 2 - 1 Vendor (Lockheed Martin)	SS/CPIF	LMMFCS : Grand Prairie, TX	-	-		-		27.703	Oct 2021	-		27.703	0.000	27.703	-
PrSM Increment 2 Seeker Development	MIPR	CCDC AvMC : RSA, AL	-	-		-		22.134	Dec 2021	-		22.134	0.000	22.134	-
Development Engineering Support	MIPR	AMCOM/CCDC AvMC : RSA, AL	-	-		-		5.134	Nov 2021	-		5.134	0.000	5.134	-
Software Development	MIPR	S3I : RSA, AL	-	-		-		5.252	Feb 2022	-		5.252	0.000	5.252	-
Subtotal			-	-		-		174.291		-		174.291	0.000	174.291	N/A

Remarks
 AMCOM - Aviation and Missile Command; CCDC AvMC - Combat Capabilities Development Center Aviation & Missile Command; LMMFCS - Lockheed Martin Missiles and Fire Control System; RSA - Redstone Arsenal, Alabama; S3I - Systems Simulation, Software and Integration; TX - Texas

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / Precision Strike Missile (PrSM)	Project (Number/Name) CO3 / Precision Strike Missile (PrSM)
--	---	---

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Quality, Safety, SETA Support, and Analysis	SS/T&M	Various; Competitive SETA Contract Award in Aug 2021 : RSA, AL	-	-		-		4.169	Dec 2021	-		4.169	0.000	4.169	-
Subtotal			-	-		-		4.169		-		4.169	0.000	4.169	N/A

Remarks
RSA - Redstone Arsenal, AL; SETA - Systems Engineering and Technical Assistance

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	MIPR	WSMR; RTC : WSMR,NM; RSA, AL	-	-		-		4.550	Dec 2021	-		4.550	0.000	4.550	-
Subtotal			-	-		-		4.550		-		4.550	0.000	4.550	N/A

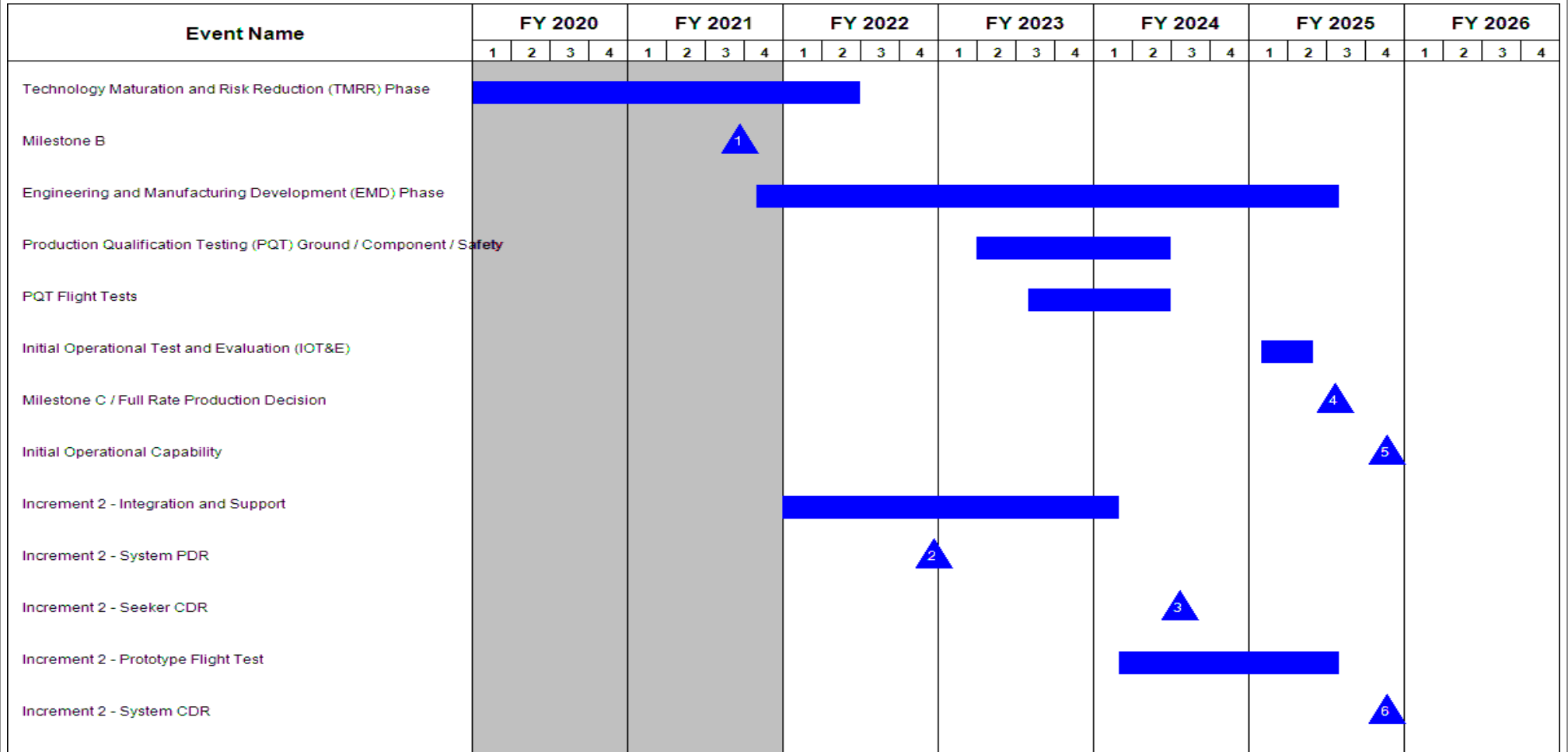
Remarks
RTC - Redstone Test Center; RSA - Redstone Arsenal, Alabama; WSMR, NM - White Sands Missile Range, New Mexico

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	-	0.000	188.452	-	188.452	0.000	188.452	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / Precision Strike Missile (PrSM)	Project (Number/Name) CO3 / Precision Strike Missile (PrSM)



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / <i>Precision Strike Missile (PrSM)</i>	Project (Number/Name) CO3 / <i>Precision Strike Missile (PrSM)</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Increment 2 - ATEC User Demo																									7			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605231A / <i>Precision Strike Missile (PrSM)</i>	Project (Number/Name) CO3 / <i>Precision Strike Missile (PrSM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technology Maturation and Risk Reduction (TMRR) Phase	1	2020	2	2022
Milestone B	3	2021	3	2021
Engineering and Manufacturing Development (EMD) Phase	4	2021	3	2025
Production Qualification Testing (PQT) Ground / Component / Safety	2	2023	2	2024
PQT Flight Tests	3	2023	2	2024
Initial Operational Test and Evaluation (IOT&E)	1	2025	2	2025
Milestone C / Full Rate Production Decision	3	2025	3	2025
Initial Operational Capability	4	2025	4	2025
Increment 2 - Integration and Support	1	2022	1	2024
Increment 2 - System PDR	4	2022	4	2022
Increment 2 - Seeker CDR	3	2024	3	2024
Increment 2 - Prototype Flight Test	1	2024	3	2025
Increment 2 - System CDR	4	2025	4	2025
Increment 2 - ATEC User Demo	3	2026	3	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	111.473	-	111.473	-	-	-	-	-	-
HX2: <i>Hypersonic Weapon (LRHW)</i>	-	-	-	111.473	-	111.473	-	-	-	-	-	-

Note

Funds BA5 activities managed by the Program Executive Office Missiles and Space (PEO MS) under Program Element (PE) 0605232A, in preparation for the FY24 transition of the BA4 activities from the Rapid Capabilities and Critical Technologies Office (RCCTO) under PE 0604182A, and establishes a Long Range Hypersonic Weapon (LRHW) program of record.

A. Mission Description and Budget Item Justification

PE 0605232A / Hypersonics EMD funds the PEO MS hypersonic effort. Project HX2 Long Range Hypersonic Weapon (LRHW) funds analyses and assessments that may inform future design maturation of the LRHW prototype. The LRHW system will provide the Army a 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. LRHW is common with other Department of Defense (DoD) hypersonic programs using the Common Hypersonic Glide Body (CHGB) and the Navy 34.5 inch booster. The LRHW system consists of the CHGB with the Navy 34.5 inch booster, a Battery Operations Center (BOC) for Communications and Control (C2), and the Transporter Erector Launcher (TEL). Each TEL holds 2 canisterized rounds per launcher. Each LRHW Battery contains eight (8) All Up Rounds (AUR) with canister (AUR+C), one (1) BOC and four (4) TELs. Additionally, the LRHW will use an existing C2 network, the Advanced Field Artillery Tactical Data System (AFATDS).

FY 2022 Base dollars in the amount of \$111.473 million will support analysis for investment determination required to produce data required for program of record (POR) documentation for fielded equipment. Supports initial Non-Recurring Engineering (NRE) associated with these capability upgrades required to field additional LRHW batteries and, if required, retrofit of the first battery to the POR configuration. Purchases two live rounds (i.e., CHGBs, thermal protection systems (TPS), and canisters) and two training canisters to support training, evaluation, and certification; and initiates establishment of a LRHW Project Office under PEO MS.

Prior development effort was funded in PE 0604182A.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	111.473	-	111.473
Total Adjustments	0.000	0.000	111.473	-	111.473
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	111.473	-	111.473

Change Summary Explanation

FY 2022 Base increase of \$111.473 million funds BA5 activities managed by the PEO MS under Program Element (PE) 0605232A, in preparation for the FY24 transition of the BA4 activities from the RCCTO under PE 0604182A, and establishes a LRHW program of record.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605232A / Hypersonics EMD				Project (Number/Name) HX2 / Hypersonic Weapon (LRHW)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
HX2: Hypersonic Weapon (LRHW)	-	-	-	111.473	-	111.473	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funds BA5 activities managed by the Program Executive Office Missiles and Space (PEO MS) under Program Element (PE) 0605232A, in preparation for the FY24 transition of the BA4 activities from the Rapid Capabilities and Critical Technologies Office (RCCTO) under PE 0604182A, and establishes a Long Range Hypersonic Weapon (LRHW) program of record.

A. Mission Description and Budget Item Justification

PE 0605232A / Hypersonics EMD funds the PEO MS hypersonic effort. Project HX2 Long Range Hypersonic Weapon (LRHW) funds analyses and assessments that may inform future design maturation of the LRHW prototype. The LRHW system will provide the Army a 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. LRHW is common with other Department of Defense (DoD) hypersonic programs using the Common Hypersonic Glide Body (CHGB) and the Navy 34.5 inch booster. The LRHW system consists of the CHGB with the Navy 34.5 inch booster, a Battery Operations Center (BOC) for Communications and Control (C2), and the Transporter Erector Launcher (TEL). Each TEL holds 2 canisterized rounds per launcher. Each LRHW Battery contains eight (8) All Up Rounds (AUR) with canister (AUR+C), one (1) BOC and four (4) TELs. Additionally, the LRHW will use an existing C2 network, the Advanced Field Artillery Tactical Data System (AFATDS).

FY 2022 Base dollars in the amount of \$111.473 million will support analysis for investment determination required to produce data required for program of record (POR) documentation for fielded equipment. Supports initial Non-Recurring Engineering (NRE) associated with these capability upgrades required to field additional LRHW batteries and, if required, retrofit of the first battery to the POR configuration. Purchases two live rounds (i.e., CHGBs, thermal protection systems (TPS), and canisters) and two training canisters to support training, evaluation, and certification; and initiates establishment of a LRHW Project Office under PEO MS.

Prior development effort was funded in PE 0604182A.

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

	FY 2020	FY 2021	FY 2022
Title: Development Engineering/Studies	-	-	5.484
Description: Continues analysis for investment determination required to produce data required for program of record (POR) documentation for fielded equipment.			
FY 2022 Plans:			
FY22 Base funds initiate transition efforts for the LRHW prototype battery from RCCTO to PEO MS as a POR. Initiates project office planning efforts, supports further development and demonstration of LRHW training, and performs logistics analysis and			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>	Project (Number/Name) HX2 / <i>Hypersonic Weapon (LRHW)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
assessments on delivered equipment to further mature the LRHW prototype design. Includes development engineering for LRHW hardware components and systems engineering support to modify the battery configuration delivered by RCCTO. FY 2021 to FY 2022 Increase/Decrease Statement: Initial year of funding under the PEO MS PE 0605232A.			
Title: Training/Evaluation/Certification Hardware - Live AUR+C and Training Canisters Description: Purchase live AUR+C components and training canisters to support LRHW training, evaluation, and certification efforts. FY 2022 Plans: FY22 Base funds support the purchase of two live AUR+C rounds (includes purchase of glide bodies and thermal protection systems, as well as U.S. Navy integration of this equipment with the booster and canister) and two training canisters. FY 2021 to FY 2022 Increase/Decrease Statement: Initial year of funding under the PEO MS PE 0605232A.	-	-	105.989
Accomplishments/Planned Programs Subtotals	-	-	111.473

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0604182A: <i>Hypersonics</i>	394.619	832.166	300.928	-	300.928	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
The acquisition strategy for LRHW will complete design maturation of the LRHW prototype in support of future program of record (POR) battery fielding as part of the Strategic Fires Battalion in support of Multi-Domain Operations (MDO). Fielding is projected for no later than FY27. A combination of Other Transaction Authority (OTA), the Navy CPS contract with Lockheed Martin, and future FAR-based contracts will be utilized.

The Army designated PEO MS as the Office of Primary Responsibility for LRHW as a program of record. PEO MS will establish a LRHW project office in FY22. To support continuous production of the AUR+C and the Army's fielding schedule, training/certification rounds are funded in FY22 to support JFC-5 in FY24. JFC-5 will be a Soldier-operated event and will validate the configuration of the AUR+C for fielding the Army's second LRHW battery in FY25. PEO MS will begin contracting efforts to support the production efforts for batteries 2 (fielding NLT 4QFY25) and 3 (fielding NLT 4QFY27), with reloads (fielding FY28-FY29), as part of the Strategic Fires Battalion in support of Multi-domain Operations. Additionally, PEO MS will begin planning follow-on contracting efforts for contractor logistics support (CLS) beginning FY25 for all fielded Batteries. The purchase of two live rounds and two training canisters is required two years prior to delivery, resulting in funding in FY22 to meet the

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
2040 / 5	PE 0605232A / <i>Hypersonics EMD</i>	HX2 / <i>Hypersonic Weapon (LRHW)</i>

FY24 manufacturing and delivery requirement. A SETA contract provides support to the Government Project Office. The personnel will build the embedded PEO MS transition team, to ensure an efficient transition in FY24 as a POR.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>	Project (Number/Name) HX2 / <i>Hypersonic Weapon (LRHW)</i>
--	--	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering/ Program Management	TBD	Various : Various	-	-		-		5.484	Dec 2021	-		5.484	0.000	5.484	-
Subtotal			-	-		-		5.484		-		5.484	0.000	5.484	N/A

Remarks
Includes the Government PM's office (civilian, SETA, and matrix personnel) to support RDT&E efforts. This encompasses overall planning, direction, and control of the definition, development, and production of the system/program, including functions of logistics engineering and integrated logistics support.

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Engineering/ Studies	C/TBD	Various : Various	-	-		-		4.881	Jan 2022	-		4.881	0.000	4.881	-
Development Engineering/ Hardware	TBD	Various : Various	-	-		-		101.108	Mar 2022	-		101.108	0.000	101.108	-
Subtotal			-	-		-		105.989		-		105.989	0.000	105.989	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	0.000	111.473	-	111.473	0.000	111.473	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>	Project (Number/Name) HX2 / <i>Hypersonic Weapon (LRHW)</i>
--	--	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AAE Approval of LRHW Funds Execution under PEO MS									▲ 1																			
LRHW Project Office Establishment																												
Purchase Training/Certification/Evaluation Rounds																												
Purchase Training Canisters																												
Development Engineering																												
Section 804 MTA ADM Approval													▲ 2															
Transition LRHW from RCCTO to PEO MS																												
Training/Certification/Evaluation Rounds Delivery #1																												
Training Canister Delivery #1																												
JFC 5																												
Training/Certification/Evaluation Rounds Delivery #2																												
Training Canister Delivery #2																												
JFC 6																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>	Project (Number/Name) HX2 / <i>Hypersonic Weapon (LRHW)</i>
--	--	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Training/Certification/Evaluation Rounds Delivery #3 JFC 7																									9			
																									1			

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605232A / <i>Hypersonics EMD</i>	Project (Number/Name) HX2 / <i>Hypersonic Weapon (LRHW)</i>
--	--	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AAE Approval of LRHW Funds Execution under PEO MS	1	2022	1	2022
LRHW Project Office Establishment	1	2022	4	2028
Purchase Training/Certification/Evaluation Rounds	1	2022	4	2028
Purchase Training Canisters	1	2022	4	2028
Development Engineering	1	2022	4	2028
Section 804 MTA ADM Approval	1	2023	1	2023
Transition LRHW from RCCTO to PEO MS	1	2024	4	2024
Training/Certification/Evaluation Rounds Delivery #1	4	2024	4	2024
Training Canister Delivery #1	4	2024	4	2024
JFC 5	4	2024	4	2024
Training/Certification/Evaluation Rounds Delivery #2	4	2025	4	2025
Training Canister Delivery #2	4	2025	4	2025
JFC 6	4	2025	4	2025
Training/Certification/Evaluation Rounds Delivery #3	4	2026	4	2026
JFC 7	4	2026	4	2026
Training/Certification/Evaluation Rounds Delivery #4	4	2027	4	2027
Training Canister Delivery #3	4	2027	4	2027
JFC 8	4	2027	4	2027
Training/Certification/Evaluation Rounds Delivery #5	4	2028	4	2028

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	18.790	-	18.790	-	-	-	-	-	-
CP8: <i>Accessions Information Environment (AIE)</i>	-	-	-	18.790	-	18.790	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Accessions Information Environment (AIE): In FY22, PE 0605233A is a new setup. Previous year, AIE was established within PE0605013A (FL9). AIE supports the Army's Accessions Enterprise (AE). AIE aligns authorities, responsibilities, and resources, for Total Army accessions. It provides the Army's strength through its four missions: (1) Enlist Soldiers, (2) Commission Officers, (3) Fulfill In-Service requirements, and (4) Support and sustain. AIE will replace 11 legacy systems with 33 modules of the current legacy Accessions IT systems which have experienced frequent outages and unstable performance, directly impairing the Army's ability to make its recruiting mission. Successful implementation is of utmost priority for the enterprise. AIE is a critical Army modernization effort to re-engineer the business processes for Army Accessions and to ensure the Army can acquire the best qualified talent, meet manning requirements and readiness objectives. Ultimately, the delivery of AIE will provide an enterprise level capability for recruiting Army Soldiers across all components, enabling transparent and efficient workforce accessions. AIE is a COTS-based information technology (IT) software system that will modernize the AE. Key AIE functions / core capabilities include: lead generation & management, prospecting, interviewing, processing, pay & incentives, intelligence, marketing, training / leader development. This effort will ultimately ensure the accessions workforce has the information needed to engender commitments, lead future Soldiers, and engage communities in direct contact with young Americans.

April 2019 the Program awarded an Other Transaction Authority (OTA) Firm Fixed Price agreement with defined milestone payments based on technical performance achievements. Configuration of core capabilities expand over 36 months ultimately being deployed to 24,000+ end users. Through fact of life changes and performance of the solution provider, in September 2020 the configuration of the OTA was extended over 51 months keeping the funding requirements the same but adding schedule. The foundational and Wave 1 capabilities, cloud networking capabilities, lead generation and management, prospecting, interviewing, and processing, will be delivered 4QFY21. The FY 2022 requested budget amounts support the program prototyping efforts for the Wave 2 and Wave 3 design, development, testing, and deployment. Additionally, the budget supports software licensing, cloud hosting applications, data storage, and deploying additional functionality to Wave 1 capabilities, pay and incentives, intelligence, and marketing capabilities.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>
--	---

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	18.790	-	18.790
Total Adjustments	0.000	0.000	18.790	-	18.790
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	18.790	-	18.790

Change Summary Explanation

In FY2021, AIE was established within PE 0605013A / Information Technology Development / FL9 / Army Accessioning IT Development. With the fact of life changes in FY2020, the program found efficiencies and tradeoffs to maintain its funding requirements for the configuration of the AIE Solution in whole. The program execution in FY2022 will utilize the planned funding for requirements planned with the onset of the program and planned funding for FY2022. The difference between the original FY2021 & FY2022 planned requirements is the core of development for capabilities were to shift towards Development Complete in FY2022. Through the fact of life changes and contractor performance, Development Complete will occur in FY2023.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>				Project (Number/Name) CP8 / <i>Accessions Information Environment (AIE)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CP8: <i>Accessions Information Environment (AIE)</i>	-	-	-	18.790	-	18.790	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Accessions Information Environment (AIE): In FY22, PE 0605233A is a new setup. Previous year, AIE was established within PE0605013A (FL9). AIE supports the Army's Accessions Enterprise (AE). AIE aligns authorities, responsibilities, and resources, for Total Army accessions. It provides the Army's strength through its four missions: (1) Enlist Soldiers, (2) Commission Officers, (3) Fulfill In-Service requirements, and (4) Support and sustain. AIE will replace 11 legacy systems with 33 modules of the current legacy Accessions IT systems which have experienced frequent outages and unstable performance, directly impairing the Army's ability to make its recruiting mission. Successful implementation is of utmost priority for the enterprise. AIE is a critical Army modernization effort to re-engineer the business processes for Army Accessions and to ensure the Army can acquire the best qualified talent, meet manning requirements and readiness objectives. Ultimately, the delivery of AIE will provide an enterprise level capability for recruiting Army Soldiers across all components, enabling transparent and efficient workforce accessions. AIE is a COTS-based information technology (IT) software system that will modernize the AE. Key AIE functions / core capabilities include: lead generation & management, prospecting, interviewing, processing, pay & incentives, intelligence, marketing, training / leader development. This effort will ultimately ensure the accessions workforce has the information needed to engender commitments, lead future Soldiers, and engage communities in direct contact with young Americans.

April 2019 the Program awarded an Other Transaction Authority (OTA) Firm Fixed Price agreement with defined milestone payments based on technical performance achievements. Configuration of core capabilities expand over 36 months ultimately being deployed to 24,000+ end users. Through fact of life changes and performance of the solution provider, in September 2020 the configuration of the OTA was extended over 51 months keeping the funding requirements the same but adding schedule. The foundational and Wave 1 capabilities, cloud networking capabilities, lead generation and management, prospecting, interviewing, and processing, will be delivered 4QFY21. The FY 2022 requested budget amounts support the program prototyping efforts for the Wave 2 and Wave 3 design, development, testing, and deployment. Additionally, the budget supports software licensing, cloud hosting applications, data storage, and deploying additional functionality to Wave 1 capabilities, pay and incentives, intelligence, and marketing capabilities.

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

	FY 2020	FY 2021	FY 2022
Title: Accessions Information Environment (AIE)	-	-	18.790
Description: AIE will provide a fully integrated enterprise level COTS-based capability enabling transparency, efficiency and effectiveness of the accessions workforce to acquire the best-qualified talent to meet Army recruiting and accessions requirements. It will ultimately replace the current legacy Accessions IT systems that have been in existence for over 30 years, and which have experienced frequent outages and unstable performance since FY 2018.			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>	Project (Number/Name) CP8 / <i>Accessions Information Environment (AIE)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>April 2019 the Program awarded an Other Transaction Authority (OTA) Firm Fixed Price agreement with defined milestone payments based on technical performance achievements. Configuration of core capabilities expand over 36 months ultimately being deployed to 24,000+ end users. Through fact of life changes and performance of the solution provider, in September 2020 the configuration of the OTA was extended over 51 months keeping the funding requirements the same but adding schedule. The foundational and Wave 1 capabilities, cloud networking capabilities, lead generation and management, prospecting, interviewing, and processing, will be delivered 4QFY21.</p> <p>FY 2022 Plans: In FY 2022, prototyping efforts will be at the height of work efforts under the DoD 5000.75 Acquisition, Testing and Deployment phase for Wave 2 and Wave 3 design, development, testing, software licensing, cloud hosting applications, and data storage to add additional functionality to Wave 1 capabilities, pay and incentives, intelligence, and marketing.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The difference between the original FY2021 & FY2022 planned requirements is the core of development for capabilities were to shift towards Development Complete in FY2022. Through the fact of life changes and contractor performance, Development Complete will occur in FY2023.</p>			
Accomplishments/Planned Programs Subtotals	-	-	18.790

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• B45015: <i>ACCESSIONS INFORMATION ENVIRONMENT</i>	-	-	44.635	-	44.635	-	-	-	-	-	-
• FL9: <i>Army Accessioning IT Development</i>	29.992	36.986	5.436	-	5.436	-	-	-	-	-	-
• BE4164: <i>PERSONNEL AUTOMATION SYSTEMS</i>	55.650	69.290	43.229	-	43.229	-	-	-	-	-	-
• OMA - OMA/331715000/AIE: <i>Sustainment Support & CivPay</i>	-	-	14.596	-	14.596	-	-	-	-	-	-

Remarks
 Note: Items referenced above correspond to the following data points:
 1) B45015 represents new OPA line for planned execution FY22 - FY26 to support fielding efforts, Commercial off the Shelf (COTS) Software Licenses and Training.
 2) FL9 - RDTE/0605013A represents prior planned execution within (FY20 & FY21). Data listed in FY22 and beyond does not belong to AIE.
 3) BE4164 - OPA2/BD300/BE4164 represents prior planned execution within (FY20: \$8.873, FY21: \$33.366). Data listed in FY22 and beyond does not belong to AIE.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>	Project (Number/Name) CP8 / <i>Accessions Information Environment (AIE)</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
4) OMA/33171500/AIE represents Other, Maintenance Army (OMA) execution FY22 - FY26.											

D. Acquisition Strategy

Accessions Information Environment (AIE):

AIE is following the tailored Acquisition process for Defense Business Systems (DBS) in accordance with DoD 5000.75 and is currently designated as a Business System Category (BCAT) I program. AIE is acquiring a COTS solution (application hosting) to support the Army's Accessions Enterprise requirements. A competitive prototype contract was awarded on 30 April 2019 to execute the pilot phase. The prototyping efforts will result in capability to be delivered in waves:

Infrastructure & Application Pilot (Wave 1): (FY2020-FY2021) Includes foundational operational capabilities (commercial cloud & network capabilities, initial data migration from legacy systems, critical interfaces, and defined data models) and provides initial functional capability (Lead Generation/Management, Prospecting, Interviewing, and Processing) to up to 344 Early Adopters as well as 717 operational users at 4 sites

Wave 2: (FY2022) Provides additional capability (Pay & Incentives and Intelligence) to an additional 1942 users at 15 additional locations Wave 3: (FY2022) Provides additional capability (Marketing) to an additional 6466 users at 35 additional locations

Wave 4: (FY2023) Provides additional capability (Training/Leader Development) to an additional 8238 users at 43 additional locations

Wave 5: (FY2023) Provides full capability to all remaining users (7373) at all remaining locations (47)

At the completion of each Wave, new capabilities will be made available to all previously fielded users through the use of Delta training packages sent to the commands.

At the conclusion of all Waves, AIE will deliver the Lead Generation & Management, Prospecting, Interviewing, Processing, Pay & Incentives, Intelligence, Marketing, and Training /Leader Development capabilities to support the Army's Accessions mission. Capabilities will be delivered using an agile methodology.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605233A / Accessions Information Environment (AIE)				CP8 / Accessions Information Environment (AIE)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AIE - Management Services	C/FFP	Chenega Decision Services : Lorton, VA	-	-		-		1.383	Jun 2022	-		1.383	0.000	1.383	7.288
Subtotal			-	-		-		1.383		-		1.383	0.000	1.383	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AIE - COTS Based Solution Configuration and Development	C/FFP	Booz Allen Hamilton : Herdon, VA	-	-		-		13.848	Apr 2022	-		13.848	0.000	13.848	75.510
Subtotal			-	-		-		13.848		-		13.848	0.000	13.848	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AIE - Cybersecurity - RMF, FedRAMP, ATO (IA/RMF Support)	TBD	TBD : TBD	-	-		-		1.579	Oct 2021	-		1.579	0.000	1.579	3.861
Subtotal			-	-		-		1.579		-		1.579	0.000	1.579	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AIE - Testing, Operational and Developmental Support (ATEC/JITC)	MIPR	ATEC/JITC : Various	-	-		-		1.980	Jan 2022	-		1.980	0.000	1.980	15.929
Subtotal			-	-		-		1.980		-		1.980	0.000	1.980	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army								Date: May 2021			
Appropriation/Budget Activity 2040 / 5			R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>				Project (Number/Name) CP8 / <i>Accessions Information Environment (AIE)</i>				
	Prior Years	FY 2020	FY 2021		FY 2022 Base	FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	0.000		18.790	-		18.790	0.000	18.790	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>	Project (Number/Name) CP8 / <i>Accessions Information Environment (AIE)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AIE - Requirments & Acq Planning/AIE Infrastructure & Application	Pilot Wave 1																											
AIE - Acquisition, Testing and Deployment																												
AIE - Limited Deployment ATP (LD ATP)													1 LD ATP															
AIE - Full Deployment (FD)													2 FD															
AIE - Capability Support ATP (CS ATP)													3 Capability Support ATP															
AIE - Capability Support & Enhancements																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605233A / <i>Accessions Information Environment (AIE)</i>	Project (Number/Name) CP8 / <i>Accessions Information Environment (AIE)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AIE - Requirments & Acq Planning/AIE Infrastructure & Application Pilot (Wave 1)	3	2019	4	2021
AIE - Acquisition, Testing and Deployment	4	2021	3	2023
AIE - Limited Deployment ATP (LD ATP)	2	2022	2	2022
AIE - Full Deployment (FD)	2	2023	2	2023
AIE - Capability Support ATP (CS ATP)	3	2023	3	2023
AIE - Capability Support & Enhancements	3	2023	3	2033

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)
---	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	6.314	7.566	2.134	-	2.134	-	-	-	-	-	-
JAGM: Joint Air-To-Ground Missile (JAGM)	-	6.314	7.566	2.134	-	2.134	-	-	-	-	-	-

Program MDAP/MAIS Code: 355

A. Mission Description and Budget Item Justification

The JAGM program is an Army-led, Acquisition Category (ACAT) 1C Major Defense Acquisition Program (MDAP) with joint interest with the Navy, Marine Corps, and Air Force. JAGM is the next generation, multi-mode, air-to-ground munition replacing legacy HELLFIRE (HF) and HF Longbow munitions. JAGM will be used for destruction of high-value land and maritime targets, moving or stationary, and is capable of being fired from any platform currently firing HF from a US Army-issued M299 launcher. JAGM utilizes a HF back-end (propulsion, warhead and control system) with a new-design, Millimeter Wave (MMW) and Semi-Active Laser (SAL), multi-mode guidance section. The multi-mode capability provides fire-and-forget and precision-point targeting as well as unique, blended modes of each, for improved capability over legacy munitions.

The Fiscal Year (FY) 2022 dollars in the amount of \$2.134 million will continue the objective platform review, analysis, and threat management and complete development and test and evaluation of Captive Air Training Missile (CATM).

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	6.585	8.891	2.161	-	2.161
Current President's Budget	6.314	7.566	2.134	-	2.134
Total Adjustments	-0.271	-1.325	-0.027	-	-0.027
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-1.000	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.271	-0.325	-	-	-
• Adjustments to Budget Years	-	-	-0.027	-	-0.027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)				Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
JA6: Joint Air-To-Ground Missile (JAGM)	-	6.314	7.566	2.134	-	2.134	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Air-to-Ground Missile (JAGM) program is an Army-led, Acquisition Category (ACAT) IC Major Defense Acquisition Program (MDAP) with joint interest with the United States (U.S.) Air Force, U.S. Marine Corps (USMC), and U.S. Navy. The JAGM is the next generation of aviation-launched, fire and forget missiles to replace the HELLFIRE Laser and Longbow radar missiles. JAGM will be used by joint service aircraft for destruction of high value stationary, moving, and relocatable land and maritime targets from standoff range in day, night, adverse weather, and obscured battlefield conditions.

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

	FY 2020	FY 2021	FY 2022
<p>Title: Full Rate Production (FRP) Decision Preparation</p> <p>Description: The Air-to-Ground Missile Systems (AGMS) Product Office and Other Government Agencies (OGAs) will confirm that JAGM is producible, as well as operable, safe, and logistically supportable.</p> <p>FY 2022 Plans: Confirm documentation to support a March FY22 FRP decision.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increase from FY21 to FY22 due to Full Rate Production Decision Review rescheduled from June 2020 to March 2022.</p>	0.241	-	0.284
<p>Title: Integration and Counter Measure/Threat Management</p> <p>Description: The Air-to-Ground Missile Systems (AGMS) Product Office and Other Government Agencies (OGAs) will continue objective platform review, analysis, and threat management. The AGMS Product Office and OGAs will perform technical assessments, concept studies, prepare documentation, and perform demonstrations and risk reduction efforts.</p> <p>FY 2021 Plans: Continue software testing and review and analysis of objective Army platforms.</p> <p>FY 2022 Plans: Continue software testing and review and analysis of objective Army platforms.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>	3.631	3.789	0.161

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)	Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Funding decreased from FY 2021 to FY2022 due to reprioritization of efforts.			
Title: Captive Air Training Missile (CATM) Development Description: The CATM is used for captive flight training and for qualification of aircrews to employ tactical missiles in combat. The Air-to-Ground Missile Systems (AGMS) Product Office will develop an inert missile configuration that will meet training needs. FY 2021 Plans: Continue JAGM CATM development of hardware and software. FY 2022 Plans: Complete JAGM CATM development. FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased from FY 2021 to FY2022 due to completion of Captive Air Training Missile (CATM) development.	2.442	1.335	0.486
Title: Captive Air Training Missile (CATM) Testing Description: The Air-to-Ground Missile Systems (AGMS) Product Office and Other Government Agencies (OGAs) will continue development testing and qualification of the JAGM CATM; achieve air worthiness on threshold platforms. FY 2021 Plans: Continue Test and Evaluation and develop documentation for Air Worthiness Release. FY 2022 Plans: Verify AH-64E Software Integration through captive carry and environmental testing. FY 2021 to FY 2022 Increase/Decrease Statement: Funding decreased from FY 2021 to FY2022 due to completion of Captive Air Training Missile (CATM) testing.	-	2.442	1.203
Accomplishments/Planned Programs Subtotals	6.314	7.566	2.134

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C70302: Joint Air-to-Ground MSLS (JAGM)	199.295	196.548	152.177	-	152.177	-	-	-	-	-	-
• NAVY - 0605450M: Navy JAGM Missile RDT&E	13.427	12.713	0.357	-	0.357	-	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)	Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)
--	--	--

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• NAVY - 0206138M: Navy JAGM Missile Procurement	75.729	43.647	49.702	-	49.702	-	-	-	-	-	-
• AF - 0201109F: Air Force Missile Procurement	15.000	-	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The JAGM Production and Deployment (PD) Acquisition Strategy (AS) was approved at Milestone C on 15 June 2018. Three Low-Rate Initial Production (LRIP) contract options were awarded in August, September, and December 2018. Initial Operational Capability (IOC) of 96 missiles was achieved in March 2019. Initial Operational Testing was completed in May 2019. On 22 June 2020, the Army Acquisition Executive (AAE) was informed the JAGM program would not execute its Full Rate Production (FRP) decision. Integration challenges on the Navy AH-1Z Viper threshold platform delayed completion of Initial Operational Test and Evaluation (IOT&E) until Sep 2021, and the program does not meet the statutory requirement for FRP until IOT&E is complete. In response, the AAE extended Low Rate Initial Production (LRIP) and issued an Acquisition Decision Memorandum (ADM) authorizing additional LRIP quantities in support of Service and Foreign Military Sales (FMS) requirements until IOT&E is complete and a FRP decision is made. There are no impacts to FY22 funding or quantities, and the FY22 contract award will be made after the FRP decision in 2QFY22. Missile performance and missile tests to date have been successful. There are no significant software-related issues with the JAGM missile at this time. Integration issues are with the Navy AH-1Z Viper Attack Helicopter platform. There are no issues with JAGM specific resources or execution and the program will still provide the required capability on time and with the same planned production quantities. The Services maintain their commitments to the program and continue to address the Navy AH-1Z platform integration challenges.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605450A / Joint Air-to-Ground Missile (JAGM)				JA6 / Joint Air-To-Ground Missile (JAGM)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Eng/ Project Management	C/LH	Various : Performers	84.931	0.241	Nov 2019	-		0.180	Jul 2020	-		0.180	Continuing	Continuing	Continuing
Subtotal			84.931	0.241		-		0.180		-		0.180	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development Prime Contract	C/FFP	TD : Prime Contract	371.319	-		-		-		-		-	0.000	371.319	-
Rocket Motor Insensitive Munition (IM) Qualification	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	39.731	-		-		-		-		-	0.000	39.731	-
Electro-Mechanical Control Actuator System (EMCAS)	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	4.033	-		-		-		-		-	0.000	4.033	-
Integrated Warhead	C/CPFF	Defense Ordnance Technology Consortium (DOTC) : Picatinny Arsenal, NJ	2.982	-		-		-		-		-	0.000	2.982	-
EMD Long Lead Contract (Backends)	SS/FFP	Lockheed Martin : Orlando, FL	8.082	-		-		-		-		-	0.000	8.082	-
Development Engineering	C/LH	Various : Performers	21.648	-		-		-		-		-	0.000	21.648	-
EMD Prime Contract	C/FPIF	Lockheed Martin : Orlando, Florida	70.256	-		-		-		-		-	0.000	70.256	-
Apache Indefinite Delivery/ Indefinite Quantity (IDIQ) Contract	C/CPFF	Boeing Company : Mesa, AZ	19.100	-		-		-		-		-	0.000	19.100	-
JAGM Engineering Services	SS/CPFF	Lockheed Martin : Orlando, FL	-	3.602	Mar 2020	5.152	Mar 2021	1.125	Mar 2021	-		1.125	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)	Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)
--	--	--

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			537.151	3.602		5.152		1.125		-		1.125	Continuing	Continuing	N/A

Remarks
 (C / FFP) - Competitive/Firm Fixed Price
 (C / CPFF) - Competitive/Cost-Plus Fixed Fee
 (C / LH) - Competitive/Labor Hour
 (SS / FFP) - Sole Source/Firm Fixed Price
 (C / FPIF) - Competitive/Fixed Price Incentive (Firm Target)

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Gov Agencies	C/LH	Various : Performers	130.888	2.471	Nov 2019	2.414	Nov 2020	0.829	Nov 2021	-		0.829	Continuing	Continuing	Continuing
Subtotal			130.888	2.471		2.414		0.829		-		0.829	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	752.970	6.314	7.566	2.134	-	2.134	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / Joint Air-to-Ground Missile (JAGM)	Project (Number/Name) JA6 / Joint Air-To-Ground Missile (JAGM)

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Full Rate Production (FRP) Decision									▲ 1																							
CATM Development																																
CATM Testing																																
Integration and Counter Measure/Threat Management																																

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605450A / <i>Joint Air-to-Ground Missile (JAGM)</i>	Project (Number/Name) JA6 / <i>Joint Air-To-Ground Missile (JAGM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EMD	4	2015	3	2018
Army System & Integration Testing	4	2015	3	2018
Limited User Testing (LUT)	2	2018	2	2018
MS C Decision	3	2018	3	2018
IOC	2	2019	2	2019
IOT&E	3	2019	3	2019
Full Rate Production (FRP) Decision	2	2022	2	2022
CATM Development	1	2020	1	2022
CATM Testing	1	2021	3	2022
Integration and Counter Measure/Threat Management	1	2019	4	2025

Note

MS: Milestone
 IOC: Initial Operational Capability
 IOT&E: Initial Operational Test & Evaluation
 CATM: Captive Air Training Missile
 HW: Hardware
 SW: Software

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605457A / <i>Army Integrated Air and Missile Defense (AIAMD)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	211.634	206.850	157.873	-	157.873	-	-	-	-	-	-
S40: <i>Army Integrated Air and Missile Defense</i>	-	211.634	206.850	157.873	-	157.873	-	-	-	-	-	-

Program MDAP/MAIS Code: 205

A. Mission Description and Budget Item Justification

The Army Integrated Air and Missile Defense (AIAMD) program is a designated Major Defense Acquisition Program (MDAP).

The AIAMD program is a direct response to the U.S. Army Air and Missile Defense (AMD) Concept and Operational and Organizational (O&O) Plan for the Future Force, the AIAMD System of Systems (SoS) Capabilities Development Document (CDD) and the AMD Task Force Concept of Operations (CONOPS). The AIAMD Program is uniquely structured to enable the development of an overarching SoS capability with all participating Department of Defense (DoD) Air Defense Artillery (ADA) components functioning interdependently to provide total operational capabilities not achievable by the individual element systems. The AIAMD program achieves this objective by establishing the AIAMD architecture and developing (1) the IAMD Battle Command Systems (IBCS) Engagement Operations Center (EOC) that provides the common Mission Command capability, (2) the Integrated Fire Control Relay capability for fire control connectivity and distributed operations, and (3) the common Plug and Fight (P&F) Kits that network-enable multiple sensor components, weapon components, and the IBCS EOC.

The AIAMD Program provides advanced capabilities to the Army through agile software development and a network-centric SoS capability (also referred to as "Plug and Fight") that integrates AMD sensors and weapons with the IBCS EOC. The AIAMD SoS architecture enables extended range and non-line-of-sight engagements, to include joint kill chain engagements across the full spectrum of aerial threats, providing fire control quality data to the most appropriate weapon to complete the mission successfully. Further, it mitigates the coverage gaps and single points of failure that have plagued AMD design in the past. The AIAMD program provides the user with the ability to train on a single C2 system, resulting in overall training savings. The AIAMD program also provides the Army with the ability to procure components that interface with the Integrated Fire Control Network (IFCN), alleviating the cost of procuring total system capabilities in the future.

AIAMD IOC will be delivered through the fielding of the IBCS-based AIAMD architecture including the IBCS EOC, Integrated Fire Control Network (IFCN) Relay, Sentinel A3, and PATRIOT components working in an integrated manner through the IFCN connection. The government controlled open architecture enables integration of beyond IOC capabilities to meet emerging threats and fielding to include Enduring Indirect Fire Protection Capability (IFPC), Air Defense Airspace Management (ADAM) Cells, ADA Brigade, Army Air and Missile Defense Command (AAMDC), and Terminal High Altitude Area Defense (THAAD).

Funding in FY 2022 supports agile software development and integration, developmental and operational testing, and Initial Operational Test and Evaluation (IOT&E) in support of Initial Operational Capability. Specific test efforts include: developmental testing and requirements verification of the latest agile SW build; IOT&E flight tests; conducting collective training and integration activities for integrated fires capabilities including Lower Tier Air and missile Defense Sensor (LTAMDS) and IFPC.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605457A / <i>Army Integrated Air and Missile Defense (AIAMD)</i>
--	--

Funding in FY 2022 also supports the beginning of Remote Interceptor Guidance-360 (RIG-360) development and integration efforts, which will ultimately provide integration of an independent, adapted Uplinker into IBCS to support 360 degree PAC-3 Missile Segment Enhancement (MSE) engagements outside the coverage of the current PATRIOT Radar.

AIAMD is a critical component of the Army's Air and Missile Defense strategy and is a top AMD Cross Functional Team modernization priority program.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	208.638	193.929	63.678	-	63.678
Current President's Budget	211.634	206.850	157.873	-	157.873
Total Adjustments	2.996	12.921	94.195	-	94.195
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	20.000			
• Congressional Directed Transfers	10.963	-			
• Reprogrammings	-7.967	-			
• SBIR/STTR Transfer	-	-7.079			
• Adjustments to Budget Years	-	-	94.195	-	94.195

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

Project: S40: *Army Integrated Air and Missile Defense*

Congressional Add: *Counter Emerging Threat*

	FY 2020	FY 2021
	15.000	20.000
Congressional Add Subtotals for Project: S40	15.000	20.000
Congressional Add Totals for all Projects	15.000	20.000

Change Summary Explanation

FY 2022 increase of \$94.195 million was to address the independent cost assessment to fund the Milestone C Army Cost Position.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)				Project (Number/Name) S40 / Army Integrated Air and Missile Defense			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
S40: Army Integrated Air and Missile Defense	-	211.634	206.850	157.873	-	157.873	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army Integrated Air and Missile Defense (AIAMD) program is a designated Major Defense Acquisition Program (MDAP).

The AIAMD program is a direct response to the U.S. Army Air and Missile Defense (AMD) Concept and Operational and Organizational (O&O) Plan for the Future Force, the AIAMD System of Systems (SoS) Capabilities Development Document (CDD) and the AMD Task Force Concept of Operations (CONOPS). The AIAMD Program is uniquely structured to enable the development of an overarching SoS capability with all participating Department of Defense (DoD) Air Defense Artillery (ADA) components functioning interdependently to provide total operational capabilities not achievable by the individual element systems. The AIAMD program achieves this objective by establishing the AIAMD architecture and developing (1) the IAMD Battle Command Systems (IBCS) Engagement Operations Center (EOC) that provides the common Mission Command capability, (2) the Integrated Fire Control Relay capability for fire control connectivity and distributed operations, and (3) the common Plug and Fight (P&F) Kits that network-enable multiple sensor components, weapon components, and the IBCS EOC.

The AIAMD Program provides advanced capabilities to the Army through agile software development and a network-centric SoS capability (also referred to as "Plug and Fight") that integrates AMD sensors and weapons with the IBCS EOC. The AIAMD SoS architecture enables extended range and non-line-of-sight engagements, to include joint kill chain engagements across the full spectrum of aerial threats, providing fire control quality data to the most appropriate weapon to complete the mission successfully. Further, it mitigates the coverage gaps and single points of failure that have plagued AMD design in the past. The AIAMD program provides the user with the ability to train on a single C2 system, resulting in overall training savings. The AIAMD program also provides the Army with the ability to procure components that interface with the Integrated Fire Control Network (IFCN), alleviating the cost of procuring total system capabilities in the future.

AIAMD IOC will be delivered through the fielding of the IBCS-based AIAMD architecture including the IBCS EOC, Integrated Fire Control Network (IFCN) Relay, Sentinel A3, and PATRIOT components working in an integrated manner through the IFCN connection. The government controlled open architecture enables integration of beyond IOC capabilities to meet emerging threats and fielding to include Enduring Indirect Fire Protection Capability (IFPC), Air Defense Airspace Management (ADAM) Cells, ADA Brigade, Army Air and Missile Defense Command (AAMDC), and Terminal High Altitude Area Defense (THAAD).

Funding in FY 2022 supports agile software development and integration, developmental and operational testing, and Initial Operational Test and Evaluation (IOT&E) in support of Initial Operational Capability. Specific test efforts include: developmental testing and requirements verification of the latest agile SW build; IOT&E flight tests; conducting collective training and integration activities for integrated fires capabilities including Lower Tier Air and missile Defense Sensor (LTAMDS) and IFPC.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense
--	---	---

Funding in FY 2022 also supports the beginning of Remote Interceptor Guidance-360 (RIG-360) development and integration efforts, which will ultimately provide integration of an independent, adapted Uplinker into IBCS to support 360 degree PAC-3 Missile Segment Enhancement (MSE) engagements outside the coverage of the current PATRIOT Radar.

AIAMD is a critical component of the Army's Air and Missile Defense strategy and is a top AMD Cross Functional Team modernization priority program.

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

	FY 2020	FY 2021	FY 2022
<p>Title: Product Development</p> <p>Description: Product development in support of agile software development.</p> <p>FY 2021 Plans: Agile software development in Program Increment (PI) 5-8 supports IOC, with required changes for IOT&E, and beyond-IOC capabilities. The exact composition of the software build is determined based on agile development concepts, directed in the FY 2019 National Defense Authorization Act (NDAA), in which the user determines the priorities from the backlog in a Capabilities Review and PI planning sessions prior to the start of each PI. Anticipated changes for IOC include software changes to defeat emerging threats, user-identified suitability requirements, and corrections for issues identified in the Limited User Test (LUT). Continued contract requirements supporting the IOC capability addressed: hardware issues identified in LUT, reliability improvements, software requirements verification in PI 1-4 , logistics product updates, test support, Information Assurance/Cyber Security support, and integration of PATRIOT Ground Equipment to include corrective actions for LINK hardware and software from LUT. Government Systems Engineering and Logistics support continued with latest agile software build, Technical Data Package (TDP) updates for hardware obsolescence and engineering change proposals (ECPs); along with programmatic and logistics support.</p> <p>FY 2022 Plans: The AIAMD Systems Engineering and Integration provides support for developmental and operational test activities; to include software integration testing and preparation/conduct of the Initial Operational Test and Evaluation flight tests. Agile software development continues to support enduring development efforts and includes software fixes and improvements to counter emerging threats and incorporate emerging technology. Enduring capabilities require modeling and simulation Government Furnished Equipment of adapting weapon systems to develop and integrate with IBCS.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease is due to the transition from EMD to enduring development efforts to counter emerging threats and maintain agile development. Funding is reflective of the Milestone C Army Cost Position.</p>	156.302	80.864	55.415
<p>Title: Test and Evaluation</p>	40.332	38.960	35.483

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Description: Test and Evaluation support for modeling and simulation, developmental test activities and Initial Operational Test and Evaluation (IOT&E).</p> <p>FY 2021 Plans: Provides for continuation of Modeling and Simulation efforts at the Government Systems Integration Lab, Joint Interoperability Test Support, Army Test and Evaluation Center and White Sands Missile Range test support for developmental and operational test activities. Provides for preparation and conduct of the IOT&E. Specific test efforts include: developmental testing and software requirements verification in PI 1-8; delta qualification testing; interoperability certification; procurement of targets for IOT&E; events leading up to IOT&E including Logistics Demonstration, New Equipment Training, Collective Training, and test planning; and the start of IOT&E.</p> <p>FY 2022 Plans: Provides for continuation of Modeling and Simulation efforts at the Government Systems Integration Lab, Joint Interoperability Test Support, Army Test and Evaluation Center and White Sands Missile Range test support for developmental and operational test activities. Provides for preparation and conduct of the IOT&E flight tests and Full Rate Production Decision in third quarter FY 2022. Specific test efforts include: developmental testing and requirements verification of the latest agile software build; collective training with LTAMDS; OT&E with LTAMDS and Enduring IFPC.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease is due to the transition from EMD to enduring development efforts to counter emerging threats and maintain agile development. Funding is reflective of the Milestone C Army Cost Position.</p>				
<p>Title: Product Development - Beyond Initial Operational Capability (IOC)</p> <p>Description: Product development in support of agile software development and integration efforts for additional capability beyond that fielded at IOC.</p> <p>FY 2021 Plans: Agile software development in PI 5-8 supports IOC and also includes beyond-IOC capabilities. As part of the DoD Section 873 pilot, as directed in Section 869 of the FY 2019 National Defense Authorization Act (NDAA), IAMD is using Agile development processes to develop additional capabilities to meet Warfighter requirements above and beyond those delivered at IOC. The exact composition of the software build is determined based on agile development concepts in which the user determines the priorities from the backlog and PI planning sessions prior to the start of each PI. As part of the Agile process, the user will prioritize and direct the requirements/capabilities within the development cycle as guided by a user-prioritized roadmap. The specific requirements to be developed in FY 2021 include: convergence of integrated fires capability; integration of LTAMDS; integration of other user directed sensors; and other requirements from the backlog. Additional efforts include systems</p>		-	60.395	50.526

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>engineering and integration, software requirements verification, logistics product updates, contractor test support, Information Assurance /Cyber Security support, integration support from prime contractors of integrated systems, Technical Data Package (TDP) updates for hardware obsolescence and engineering change proposals (ECPs); and government systems engineering and programmatic support.</p> <p>FY 2022 Plans: Funding is provided for initial Remote Interceptor Guidance-360 (RIG-360) development and integration efforts, which will ultimately provide integration of an independent, adapted Uplinker into IBCS to support 360 degree PAC-3 Missile Segment Enhancement (MSE) engagements outside the coverage of the current PATRIOT radar. Funding also supports agile software development for beyond IOC Capabilities including LTAMDS and IFPC.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding is reflective of the Milestone C Army Cost Position.</p>				
<p>Title: Test and Evaluation - Beyond IOC Capability</p> <p>Description: Test and Evaluation support for modeling and simulation, developmental test, and follow-on operational test events for additional capability beyond that fielded at IOC.</p> <p>FY 2021 Plans: Provides for continuation of Modeling and Simulation efforts at the Government Systems Integration Lab, Joint Interoperability Test Support, Army Test and Evaluation Center and White Sands Missile Range test support for developmental test activities. Specific test efforts include: software requirements verification in PI 5-8, interoperability certification, cyber testing, and test planning of future developmental and operational tests.</p> <p>FY 2022 Plans: Provides for continuation of Modeling and Simulation efforts at the Government Systems Integration Lab, Joint Interoperability Test Support, Army Test and Evaluation Center, Orange Flag, Project Convergence, Joint All-Domain Command and Control, and White Sands Missile Range test support for developmental test activities. Specific test efforts include: software development and software requirements verification in PI 9-12, cyber testing, and test planning of future developmental and operational tests.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Funding increase is a result of increased testing for beyond IOC capabilities, to meet Warfighter requirements.Funding is reflective of the Milestone C Army Cost Position.</p>		-	6.631	16.449
Accomplishments/Planned Programs Subtotals		196.634	186.850	157.873

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense
--	---	---

	FY 2020	FY 2021
Congressional Add: Counter Emerging Threat	15.000	20.000
<p>FY 2020 Accomplishments: FY20 efforts were built upon prior years' funding to identify processes, tools, and techniques needed to transform development and integration of networked sensors to keep pace with emerging threats. Specifically, efforts included: traded development and modeling and simulation for future integration efforts; executed a Kill Chain Architecture Trade Study; and continued implementing a synthetic environment designed to support future, collaborative digital engineering efforts across Program Offices, government labs, and industry and academia partners.</p> <p>FY 2021 Plans: \$20M Add to develop a System of Systems (SoS) Integration framework of standards, processes, techniques and tools to digital-engineer capability and design requirements for systems, subsystems, and components that are part of the IAMD enterprise.</p>		
Congressional Adds Subtotals		
	15.000	20.000

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C53101: MSE Missile	702.437	678.148	776.696	-	776.696	-	-	-	-	-	-
• EF9: System Integration and Test	93.743	-	0.182	-	0.182	-	-	-	-	-	-
• EX2: Lower Tier Air Missile Defense (LTAMD) Capability	364.154	308.805	327.690	-	327.690	-	-	-	-	-	-
• C50016: System Integration and Test Procurement	107.157	-	-	-	-	-	-	-	-	-	-
• EY7: IFPC Increment 2 - Block 1	186.369	153.362	233.512	-	233.512	-	-	-	-	-	-
• C62002: IFPC INC 2-1 BLOCK 1 SYSTEM	9.337	62.461	25.253	-	25.253	-	-	-	-	-	-
• E10: Sentinel	91.782	105.271	127.919	-	127.919	-	-	-	-	-	-
• BZ5075: IAMD Battle Command System	29.629	198.587	301.872	-	301.872	-	-	-	-	-	-
• 146: Air & Msl Defense Planning Control Sys	12.135	8.085	2.877	-	2.877	-	-	-	-	-	-
• AD5070: AIR & MSL Defense Planning & Control Sys	39.061	62.517	67.193	-	67.193	-	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense
--	---	---

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 149: Counter-Rockets, Artillery & Mortar	6.084	0.875	-	-	-	-	-	-	-	-	-
• 0604403A: Future Interceptor	1.918	-	7.895	-	7.895	-	-	-	-	-	-
• 0604117A: Maneuver - Short Range Air Defense (M-SHORAD)	41.690	4.813	39.376	-	39.376	-	-	-	-	-	-
• C14300: M-SHORAD - Procurement	233.300	517.287	331.575	-	331.575	-	-	-	-	-	-

Remarks

This program is an integral part of the Army Integrated Air and Missile Defense (AIAMD) architecture. It provides for development of a common Integrated Fire Control System through a government controlled open architecture approach allowing for integration of Air Defense Artillery (ADA) components as they become available. This approach enables the AIAMD program to maintain its baseline program independent of fluctuation of other programs.

D. Acquisition Strategy

The AIAMD acquisition strategy delivers an Initial Operational Capability (IOC) in FY 2022. The capabilities are delivered through the fielding of the IAMD Battle Command System (IBCS) based AIAMD architecture including the IBCS Engagement Operations Center (EOC), Sentinel A3, and PATRIOT (through a Radar Interface Unit (RIU)) components connected via an Integrated Fire Control Relay, working in an integrated manner while also incorporating the insertion of emerging technology. Future capabilities include the incorporation of IBCS functionality into Enduring Indirect Fire Protection Capabilities (IFPC), Lower Tier Air and Missile Defense Sensor (LTAMDS), Terminal High Altitude Area Defense (THAAD) batteries, and other Army and Joint weapon systems using an agile development process.

Key principles of the AIAMD acquisition approach are the following:

- Migrate from system-based acquisition to competitive, component-based acquisition using agile development/operations methodology IAW FY 2019 National Defense Authorization Act direction.
- Use system-of-systems acquisition approach with collaboration among AIAMD, PEO MS, PEO C3T, and Brigade Combat Team (BCT) Modernization Component Project Offices, Missile Defense Agency (MDA), and other Service Project Offices to network-enable weapons and sensor components.
- Develop and procure a common Army IBCS EOC that replaces seven weapon system unique Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) components.
- Establish product lines used to evaluate and select, modify and integrate modular open systems hardware and software common configuration items
- Conduct architecture-based System Engineering, Integration and Test (SEI&T) activities for an incrementally fielded configuration of the AIAMD Integrated Fire Control Network-compatible IBCS EOC, weapons and sensor system components to include testing of resiliency and survivability in a denied environment.

Beginning in FY 2019, AIAMD is included in the DoD Section 873 Agile Development pilot as directed in Section 869 of the FY 2019 National Defense Authorization Act. As part of this pilot, the AIAMD government team will take on additional responsibilities for software development and will initially implement activities under an

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / <i>Army Integrated Air and Missile Defense (AIAMD)</i>	Project (Number/Name) S40 / <i>Army Integrated Air and Missile Defense</i>
<p>Other Transaction Authority (OTA) agreement through second quarter FY 2022. Following the initial OTA, a competitive contract with multiple vendors (to include non-traditional defense contractors) is planned for award in second quarter FY 2022.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)				S40 / Army Integrated Air and Missile Defense							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Program Management	MIPR	Various : Huntsville, AL	35.528	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			35.528	-		-		-		-		-	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Air Space and Missile Defense (ASMD) System of Systems (SOS) Hardware-in-the- Loop Testbed	C/CPFF	Various : Huntsville, AL and multiple other locations	17.697	-		-		-		-		-	0.000	17.697	-
AIAMD System Engineering & Integration	C/CPFF	Various : Huntsville, AL	200.408	16.356	Oct 2019	21.006	Oct 2020	14.343	Oct 2021	-		14.343	Continuing	Continuing	Continuing
IAMD Engineering Manufacturing and Development	SS/ Various	Northrop Grumman, Raytheon, Lockheed Martin and Other : Huntsville, AL and Various other locations	1,508.184	118.266	Oct 2019	104.425	Oct 2020	56.572	Oct 2021	-		56.572	Continuing	Continuing	Continuing
Government Furnished Equipment	MIPR	Various : Multiple	29.356	9.144	Oct 2019	4.883	Oct 2020	2.755	Oct 2021	-		2.755	Continuing	Continuing	Continuing
Government Systems Engineering and Logistics	Various	Various : Huntsville, AL	103.604	12.536	Oct 2019	10.945	Oct 2020	12.271	Oct 2021	-		12.271	Continuing	Continuing	Continuing
Advanced Electronic Protection Enhancement (AEPE)	Various	Various : TBD	21.000	-		-		-		-		-	0.000	21.000	-
Cyber Security	Various	Huntsville, AL : TBD	68.000	-		-		-		-		-	0.000	68.000	-
Counter Emerging Threat	Various	AMRDEC/Torch Technologies : Huntsville, AL	70.000	15.000		20.000		-		-		-	0.000	105.000	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense
--	---	---

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RIG-360 Development and Integration	SS/ Various	Lockheed Martin : Huntsville, AL and Various other locations	-	-		-		20.000		-		20.000	0.000	20.000	-
Subtotal			2,018.249	171.302		161.259		105.941		-		105.941	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Test Activities/ Army Evaluation Center/ Developmental Test Command/Operational Test Command	MIPR	Various : Multiple Locations	74.483	19.564	Oct 2019	18.933	Oct 2020	16.966	Oct 2021	-		16.966	Continuing	Continuing	Continuing
Modeling & Sim/Joint Interoperability Test Spt	MIPR	SED : Huntsville, AL	215.705	7.803	Oct 2019	15.728	Oct 2020	18.281	Oct 2021	-		18.281	Continuing	Continuing	Continuing
Range Support	MIPR	WSMR : White Sands, NM	59.380	12.965	Oct 2019	10.930	Oct 2020	16.685	Oct 2021	-		16.685	Continuing	Continuing	Continuing
Subtotal			349.568	40.332		45.591		51.932		-		51.932	Continuing	Continuing	N/A

Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract			
Project Cost Totals			2,403.345	211.634	206.850	157.873	-	157.873	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Modeling and Simulation	[Blue bar spanning all quarters from FY 2020 to FY 2025]																															
EMD DT Continuation	[Blue bar]																															
v4.5.0 Software (SW) Development	[Blue bar]																															
v4.5.0 Developmental Ground/Flight Testing	[Blue bar]																															
v4.5.1 Agile SW Development	[Blue bar]																															
v4.5.1 SW Developmental Ground/Flight Testing					[Blue bar]																											
v4.5.1 Agile SW HWIL Integration Testing and Reqmts Verification					[Blue bar]																											
Software Version 4.6.0 Capabilities Review																																
Limited User Test																																
v4.6.0 Agile SW Development (IOT&E SW/PI-7)									[Blue bar]																							
v4.6.0 Agile SW HWIL Integration Testing and Reqmts Verification (IOTE SW/PI-7)									[Blue bar]																							
Milestone C Decision																																
V4.6.0 Developmental Ground/Flight Testing (IOTE SW/PI-7)									[Blue bar]																							

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Software Version 4.6.1 Capabilities Review					▲ 3																							
IOT&E (OTRR 2, Sustained Ops, M&S, Live Fire Test)																												
v4.6.1 Agile SW Development																												
v4.6.1 Agile SW HWIL Integration Testing and Requirements Verification																												
V4.6.1 Developmental Ground/Flight Testing																												
Initial Operational Capability													▲ 4															
v4.6.2 Agile SW Development																												
Full Rate Production Decision Review																	▲ 5											
v4.6.2 Agile SW HWIL Integration Testing and Requirements Verification																												
V4.6.2 Developmental Ground/Flight Testing																												
Delta Qualification Testing																												
Future Capability Agile SW Development and Test																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / Army Integrated Air and Missile Defense (AIAMD)	Project (Number/Name) S40 / Army Integrated Air and Missile Defense

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Modeling and Simulation	1	2013	4	2025
EMD Developmental Test (DT)	4	2014	1	2017
Product Readiness Review (PRR)	4	2016	4	2016
EMD DT Continuation	1	2018	1	2020
v4.5.0 Software (SW) Development	2	2018	1	2020
v4.5.0 Developmental Ground/Flight Testing	3	2019	1	2020
v4.5.1 Agile SW Development	1	2020	4	2020
v4.5.1 SW Developmental Ground/Flight Testing	2	2020	2	2021
v4.5.1 Agile SW HWIL Integration Testing and Reqmts Verification	2	2020	1	2021
Software Version 4.6.0 Capabilities Review	3	2020	3	2020
Limited User Test	4	2020	4	2020
v4.6.0 Agile SW Development (IOT&E SW/PI-7)	1	2021	4	2021
v4.6.0 Agile SW HWIL Integration Testing and Reqmts Verification (IOTE SW/PI-7)	1	2021	4	2021
Milestone C Decision	2	2021	2	2021
V4.6.0 Developmental Ground/Flight Testing (IOTE SW/PI-7)	2	2021	1	2022
Software Version 4.6.1 Capabilities Review	3	2021	3	2021
IOT&E (OTRR 2, Sustained Ops, M&S, Live Fire Test)	4	2021	2	2022
v4.6.1 Agile SW Development	1	2022	4	2022
v4.6.1 Agile SW HWIL Integration Testing and Requirements Verification	1	2022	1	2023
V4.6.1 Developmental Ground/Flight Testing	2	2022	2	2023
Initial Operational Capability	3	2022	3	2022
v4.6.2 Agile SW Development	1	2023	4	2023

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605457A / <i>Army Integrated Air and Missile Defense (AIAMD)</i>	Project (Number/Name) S40 / <i>Army Integrated Air and Missile Defense</i>
--	--	--

Events	Start		End	
	Quarter	Year	Quarter	Year
Full Rate Production Decision Review	1	2023	1	2023
v4.6.2 Agile SW HWIL Integration Testing and Requirements Verification	1	2023	1	2024
V4.6.2 Developmental Ground/Flight Testing	2	2023	2	2024
Delta Qualification Testing	2	2023	4	2023
Future Capability Agile SW Development and Test	1	2024	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration
---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	33.386	-	33.386	-	-	-	-	-	-
CQ7: C-sUAS Joint New Capabilities	-	-	-	27.698	-	27.698	-	-	-	-	-	-
CQ8: C-sUAS Joint Enabling Capabilities	-	-	-	5.688	-	5.688	-	-	-	-	-	-

Note

This is a new start in FY 2022.

Prior year funding executed from PE 0604741A FG5

A. Mission Description and Budget Item Justification

The Counter- small Unmanned Aircraft Systems (C-sUAS) effort is in response to the Department of Defense's (DoD) Joint Requirements Oversight Council Memorandum (JROC-M) requirement for identification, development, testing, evaluation, and integration of technologies to defeat small Unmanned Aircraft System threats across the DoD. The C-sUAS efforts provide warfighters the ability to comprehensively detect, track, identify, and defeat enemy Group 1, 2 and 3 UAS platforms. The efforts will be joint development efforts to provide integrated solutions to meet the needs of the Military Services and DoD Agencies against emerging threats.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	33.386	-	33.386
Total Adjustments	0.000	0.000	33.386	-	33.386
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	33.386	-	33.386

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	Project (Number/Name) CQ7 / C-sUAS Joint New Capabilities
--	---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CQ7: C-sUAS Joint New Capabilities	-	-	-	27.698	-	27.698	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

This is a new start in FY 2022.

Prior year funding executed from PE 0604741A FG5

A. Mission Description and Budget Item Justification

The Counter- small Unmanned Aircraft Systems (C-sUAS) new joint capability efforts develop new technologies and programs to enable joint acquisition programs to counter Groups 1-3 s UAS threats. These developments are aligned with the Joint Requirements Oversight Council Memorandum 078-20 Operational Requirements. Joint solutions will address Fixed Site / Semi-Fixed Site, Mobile, and Dismounted required by the Joint Forces. Efforts include development, test and evaluation, and integration sufficient for transition to fieldable capabilities.

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

	FY 2020	FY 2021	FY 2022
<p>Title: Counter-small Unmanned Aircraft Development Defeat</p> <p>Description: Development, integration, and test of new technologies to defeat sUAS.</p> <p>FY 2022 Plans: Execute development, integration, and test of new technologies to defeat sUAS. Technologies such as Low Collateral Effectors, High Power Microwave technology, and other defeat mechanisms will be developed for transition into production.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: New joint program element to support joint development</p>	-	-	18.730
<p>Title: Counter-small Unmanned Aircraft Development Command and Control</p> <p>Description: Development, integration, and test of new technologies to improve command and control for C-sUAS.</p> <p>FY 2022 Plans: Development, integration and test of new technologies to reduce operator burden, increase situational awareness, automate/ autonomy for decision making, and improve interoperability of C-sUAS system.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>	-	-	6.018

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / <i>Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration</i>	Project (Number/Name) CQ7 / <i>C-sUAS Joint New Capabilities</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
New joint program element to support joint development			
Title: Counter-small Unmanned Aircraft Development Detection and Identification	-	-	2.950
Description: Development, integration, and test of new technologies to improve detection and identification of C-sUAS threats.			
FY 2022 Plans: Development, integration and test of new technologies to detect and identify C-sUAS threats at greater distance and accuracy.			
FY 2021 to FY 2022 Increase/Decrease Statement: New joint program element to support joint development			
Accomplishments/Planned Programs Subtotals	-	-	27.698

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

N/A

Remarks

D. Acquisition Strategy

The Joint C-sUAS new capability 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 development effort to meet identified gap and the joint capability will be funded under this Program Element. The Joint Counter-sUAS Office will identify modifications to existing systems or identify new technologies within industry and Government S&T organization. Programs will 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. Upon completion, Services will utilize a common procurement contract to meet the needs of the Military Services and DoD Agencies.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	Project (Number/Name) CQ7 / C-sUAS Joint New Capabilities
--	---	---

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Low Collateral Effects Interceptor Development and Integration	TBD	Air Force Research Laboratory : Rome, NY	-	-		-		13.260		-		13.260	Continuing	Continuing	Continuing
High Power Microwave Development and Integration	TBD	Army Rapid Capabilities and Critical Technologies Office : Ft Belvoir, VA	-	-		-		1.700		-		1.700	Continuing	Continuing	Continuing
Windtalker Development and Integration	TBD	Air Force Research Laboratory : Rome, NY	-	-		-		2.968		-		2.968	Continuing	Continuing	Continuing
High Level Data Fusion	TBD	Naval Surface Warfare Center Crane : Crane, IN	-	-		-		3.000		-		3.000	Continuing	Continuing	Continuing
Cross Domain Solution	TBD	Naval Surface Warfare Center Crane : Crane, IN	-	-		-		2.000		-		2.000	Continuing	Continuing	Continuing
Subtotal			-	-		-		22.928		-		22.928	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Low Collateral Effects Interceptor Capabilities and Limitations	TBD	Air Force Research Laboratory : Rome, NY	-	-		-		2.970		-		2.970	Continuing	Continuing	Continuing
High Power Microwave Development and Integration	TBD	Army Rapid Capabilities and Critical Technologies Office : Ft. Belvoir, VA	-	-		-		0.800		-		0.800	Continuing	Continuing	Continuing
Cross Domain Solution	TBD	Naval Surface Warfare Center Crane : Crane, IN	-	-		-		1.000		-		1.000	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration	Project (Number/Name) CQ7 / C-sUAS Joint New Capabilities

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Low Collateral Effects Interceptor Integration and testing																												
Low Collateral Effects Interceptor Engineering and final integration																												
Low Collateral Effects Interceptor Production Transition																												
Windtalker data schema and software development																												
Windtalker Software Development Kits Delivery																												
High Power Microwave Interceptor Development																												
C2 Decision Aid - High Level Data Fusion Development																												
C2 Decision Aid - High Level Data Fusion Transition																												
C2 Decision Aid - Cross Domain Solutions Development																												
C2 Decision Aid - Cross Domain Solution Transition																												
C2 Decision Aids - Cross Domain Solutions Cyber / IA Updates																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / <i>Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration</i>	Project (Number/Name) CQ7 / <i>C-sUAS Joint New Capabilities</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Low Collateral Effects Interceptor Integration and testing	4	2021	3	2022
Low Collateral Effects Interceptor Engineering and final integration	3	2022	1	2023
Low Collateral Effects Interceptor Production Transition	2	2023	2	2023
Windtalker data schema and software development	1	2022	4	2022
Windtalker Software Development Kits Delivery	4	2022	4	2022
High Power Microwave Interceptor Development	1	2022	1	2023
C2 Decision Aid - High Level Data Fusion Development	1	2022	4	2022
C2 Decision Aid - High Level Data Fusion Transition	4	2022	4	2022
C2 Decision Aid - Cross Domain Solutions Development	1	2022	3	2022
C2 Decision Aid -Cross Domain Solution Transition	3	2022	3	2022
C2 Decision Aids - Cross Domain Solutions Cyber / IA Updates	3	2022	4	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration				Project (Number/Name) CQ8 / C-sUAS Joint Enabling Capabilities			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CQ8: C-sUAS Joint Enabling Capabilities	-	-	-	5.688	-	5.688	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

Prior year funding executed from PE 0604741A FG5

A. Mission Description and Budget Item Justification

The Counter- small Unmanned Aircraft Systems (C-sUAS) effort is in response to the Department of Defense's (DoD) response to the Joint Requirements Oversight Council Memorandum (JROC-M) to support identification, development, testing, evaluation, and integration of technologies to provide capability to defeat small Unmanned Aircraft System 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. Accomplishments/Planned Programs (\$ in Millions)

	FY 2020	FY 2021	FY 2022
Title: Common Data Repository Development	-	-	5.688
Description: Provide a joint multi-classification platform to provide cross collaboration C-sUAS data and analytic eco-system for Class 1-3 small Unmanned Aircraft Systems. Data repository will consume disparate data sources across the Department of Defense to include intelligence data, commercial data, and Military Service developed data to support acquisition and deployed C-sUAS systems.			
FY 2022 Plans: Continue development operations of Common Data Repository to address emerging requirements and maintain technology to support the data analytics and populate data repository with intelligence organization sUAS threat characterization and signature development.			
FY 2021 to FY 2022 Increase/Decrease Statement: New joint program element to address joint requirements			
Accomplishments/Planned Programs Subtotals	-	-	5.688

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / <i>Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration</i>	Project (Number/Name) CQ8 / <i>C-sUAS Joint Enabling Capabilities</i>

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

Remarks

D. Acquisition Strategy

The Joint C-sUAS enabling efforts 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 JCO will establish a Common Data Repository for all Military Services and DoD Agencies to access current and relevant data for future C-sUAS system development and support to currently fielded systems. The JCO will draw from the intelligence community, academia, commercial, and Military Service databases to ensure consistency in datasets. This will eliminate redundant efforts for systems specific threat databases for use by all the Military Services and DoD Agencies. The Army Rapid Capabilities and Critical Technology Office (RCCTO) will provide acquisition support to the JCO to execute these efforts. Funding for these efforts will be sourced from this line and MIPRed to Government Agencies in support.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration				Project (Number/Name) CQ8 / C-sUAS Joint Enabling Capabilities								
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Common Data Repository Development	TBD	Army IC5ISR Center : Aberdeen Proving Ground, MD	-	-		-		2.998		-		2.998	Continuing	Continuing	Continuing	
Electro Optical / Infrared Imagery	TBD	National Ground Intelligence Center : Charlottesville, VA	-	-		-		1.610		-		1.610	Continuing	Continuing	Continuing	
Subtotal			-	-		-		4.608		-		4.608	Continuing	Continuing	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Intelligence Community Database Linkages	TBD	Air Force Research Laboratory : Rome, NY	-	-		-		1.080		-		1.080	Continuing	Continuing	Continuing	
Subtotal			-	-		-		1.080		-		1.080	Continuing	Continuing	N/A	
			Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	-		0.000		5.688		-		5.688	Continuing	Continuing	N/A	
Remarks																

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605531A / Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration		Project (Number/Name) CQ8 / C-sUAS Joint Enabling Capabilities	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Common Data Repository Development Operations																												
Common Data Repository Initial Operational Capability																												
Common Data Repository Full Operational Capability																												
Intelligence Community Database Linkages and threat characterization																												
Electro-Optical Imagery development																												
Common Data Repository Development Operations																												
Common Data Repository Initial Operational Capability																												
Common Data Repository Full Operational Capability																												
Intelligence linkages and threat characterization																												
Electro-Optical Imagery development																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605531A / <i>Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration</i>	Project (Number/Name) CQ8 / <i>C-sUAS Joint Enabling Capabilities</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Common Data Repository Development Operations	4	2020	4	2026
Common Data Repository Initial Operational Capability	3	2021	3	2021
Common Data Repository Full Operational Capability	1	2022	1	2022
Intelligence Community Database Linkages and threat characterization	1	2022	4	2024
Electro-Optical Imagery development	1	2022	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	197.304	171.890	225.106	-	225.106	-	-	-	-	-	-
CF6: <i>Next Generation Combat Vehicle (OMFV)</i>	-	197.304	171.890	225.106	-	225.106	-	-	-	-	-	-

Note

FY 2020 Congressional Rescission \$130,415. PB 2020 is now \$66,889.

A. Mission Description and Budget Item Justification

The Optionally Manned Fighting Vehicle (OMFV), as part of an Armored Brigade Combat Team (ABCT), will replace the Bradley Infantry Fighting Vehicle to provide the capabilities required to defeat a future near-peer competitor's force. The Army is seeking a transformational increase in warfighting capability, not simply another incremental improvement over the current Bradley Fighting Vehicle. The OMFV is a purpose built manned platform that maneuvers Soldiers to a point of positional advantage to engage in close combat. It is designed to operate with and may operate without a crew and Soldiers under armor based on the commander's decision. It delivers decisive lethality during the execution of combined arms maneuver while also controlling maneuver robotics and semi-autonomous systems. The platform will be optimized for Life Cycle Environmental Profiles both natural and induced to remain safe, suitable and effective and with significantly reduced logistical burdens. The vehicle will include an architecture to allow for increased capability and growth margin. In close combat, the OMFV will deliver decisive lethality during the execution of combined arms maneuver. The changing character of warfare drives changes in how the Army delivers, operates, and sustains future combat capabilities.

As part of an ABCT, the OMFV will not fight alone, but rather as part of a section, platoon, and company of mechanized infantry. These companies will execute cross-domain maneuver and defeat pacing threats in the close area while maneuvering Soldiers to tactical objectives. Once the unit has transitioned to an integrated mounted and dismounted fight, the OMFV supports our Soldiers with advanced sensors, lethality, protection, and mission command.

This program supports the Next Generation Combat Vehicle Cross Functional Team.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	205.620	327.732	426.892	-	426.892
Current President's Budget	197.304	171.890	225.106	-	225.106
Total Adjustments	-8.316	-155.842	-201.786	-	-201.786
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-143.880			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-8.316	-11.962			
• Adjustments to Budget Years	-	-	-201.786	-	-201.786

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

Project: CF6: *Next Generation Combat Vehicle (OMFV)*

Congressional Add: *Tactical Communications (Congressional Add)*

Congressional Add Subtotals for Project: CF6

Congressional Add Totals for all Projects

	FY 2020	FY 2021
	3.500	-
	3.500	-
	3.500	-

Change Summary Explanation

The decrease from FY 2021 to FY 2022 is reflective of the change in strategy for the OMFV program.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle				Project (Number/Name) CF6 / Next Generation Combat Vehicle (OMFV)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CF6: Next Generation Combat Vehicle (OMFV)	-	197.304	171.890	225.106	-	225.106	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Optionally Manned Fighting Vehicle (OMFV), as part of an Armored Brigade Combat Team (ABCT), will replace the Bradley Infantry Fighting Vehicle to provide the capabilities required to defeat a future near-peer competitor's force. The Army is seeking a transformational increase in warfighting capability, not simply another incremental improvement over the current Bradley Fighting Vehicle. The OMFV is a purpose built manned platform that maneuvers Soldiers to a point of positional advantage to engage in close combat. It is designed to operate with and may operate without a crew and Soldiers under armor based on the commander's decision. It delivers decisive lethality during the execution of combined arms maneuver while also controlling maneuver robotics and semi-autonomous systems. The platform will be optimized for Life Cycle Environmental Profiles both natural and induced to remain safe, suitable and effective and with significantly reduced logistical burdens. The vehicle will include an architecture to allow for increased capability and growth margin. In close combat, the OMFV will deliver decisive lethality during the execution of combined arms maneuver. The changing character of warfare drives changes in how the Army delivers, operates, and sustains future combat capabilities.

As part of an ABCT, the OMFV will not fight alone, but rather as part of a section, platoon, and company of mechanized infantry. These companies will execute cross-domain maneuver and defeat pacing threats in the close area while maneuvering Soldiers to tactical objectives. Once the unit has transitioned to an integrated mounted and dismounted fight, the OMFV supports our Soldiers with advanced sensors, lethality, protection, and mission command.

This program supports the Next Generation Combat Vehicle Cross Functional Team.

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

	FY 2020	FY 2021	FY 2022
Title: Government Engineering & Program Management	8.412	12.899	22.348
Description: Provides Government System Engineering and Program Management support. Funding will cover the costs of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage Project Management Office, Maneuver Combat Systems (PM MCS).			
FY 2021 Plans: Provides Government System Engineering and Program Management support. This funding will include the cost of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage the PM MCS program.			
FY 2022 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>	Project (Number/Name) CF6 / <i>Next Generation Combat Vehicle (OMFV)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Provides Government System Engineering and Program Management support. Costs include matrix and SETA contractors within PM MCS as well as SSEB expense for the detailed design contracts. This funding will include the cost of government and direct support contractor labor, travel, training, supplies, equipment and facilities to effectively manage the PM MCS program.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase from FY 2021 to FY 2022 is due to an increase in PM Support and inflation.</p>				
<p>Title: Product Development</p> <p>Description: Costs include the continuation of Concept Design efforts including System Functional Review (SFR) and development towards PDR. Contractor efforts include Development Engineering, Producibility Engineering and Planning, Development Tooling, System Engineering and Program Management, Data and Special Equipment.</p> <p>FY 2021 Plans: This funding includes the award of up to 5 vendors at decision point one after the SSEB has been conducted. The cost includes initial OMFV development costs for up to 5 vendors to mature design. The efforts include, but not limited to; hardware and software development, producibility engineering and planning, development tooling, system engineering and program management, initial logistics data and product development, and data and support equipment. The insertion point will be for mature/quick win technology sprints if the technologies are meeting the OMFV objectives.</p> <p>FY 2022 Plans: Costs include the remaining funding for the contract award of up to 5 vendors. These costs include the continuation of concept design efforts including System Readiness Review (SRR) and development towards System Functional Review (SFR). Contractor efforts include development engineering, producibility engineering and planning, development tooling, system engineering, initial logistics data and product development, and data and special equipment.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase in funding from FY 2021 to FY 2022 include the development towards the critical design review and award of the contracts.</p>		-	136.471	175.000
<p>Title: Modeling Simulation & Analysis</p> <p>Description: Government Modeling, Simulation and Analysis in support of requirements analysis and concept refinement.</p> <p>FY 2021 Plans: The modeling and simulation analysis of the digital designs for up to 5 vendors as they begin their digital design, modeling simulation begins for sub-system tests, using emulators, software coding and they will continue throughout development.</p> <p>FY 2022 Plans:</p>		-	6.100	3.571

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>	Project (Number/Name) <i>CF6 / Next Generation Combat Vehicle (OMFV)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Costs include government modeling, simulation, and analysis in support of requirements analysis and concept refinement, includes but not limited to activities that provide results on mobility, lethality, survivability, human cognitive performance, and human systems integration.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The decrease cost from FY 2021 to FY 2022 is due to the decrease in modeling and simulation testing.</p>				
<p>Title: Other Support Cost</p> <p>Description: OMFV studies and research which includes the completion of the AoA, completion of milestone documentation development, and detailed trade space studies and analysis.</p> <p>FY 2021 Plans: This cost includes OMFV studies and research which includes the completion of the AoA, SBIR/STTR/FFRDC, and completion of milestone documentation development.</p> <p>FY 2022 Plans: Costs includes continued OMFV studies and research, completion of milestone documentation development, and detailed trade space studies, analysis, and subsystem studies in critical areas.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase from FY 2021 to FY 2022 is due to the increase in documentation development & studies.</p>		8.962	4.320	18.886
<p>Title: Government Architecture</p> <p>Description: Develop the USG baseline architecture by enhancing PEO GCS Common Infrastructure Architecture (GCIA) based on Modular Open Systems Approach (MOSA) to guide the OMFV system development. The effort is directed by the Army Acquisition Executive to achieve transformational capabilities for OMFV via Modular, Open and Scalable Architecture, and by using applicable open standards. The effort will be executed by PEO GCS, PM MCS, and ASA (ALT)?s Chief Technology Officer teams cohort with applicable CCDC and ARL teams, and industry consortium</p> <p>FY 2021 Plans: Guide the development of MOSA compliant open OMFV system; A common hardware (aka vetronics) and software infrastructure; Enable platform upgrades to a more autonomous system To facilitate shared data to the AI based systems and other capabilities which will assist in avoiding costly long-term vendor-lock; Intent is to reduce future integration cost and development effort; Enable efficient testing and qualification procedures that will optimize on validations, qualifications and test (Cost, Schedule and efforts).</p> <p>FY 2022 Plans:</p>		-	12.100	5.301

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle	Project (Number/Name) CF6 / Next Generation Combat Vehicle (OMFV)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Costs include the continued development of the Common Infrastructure Architecture to guide the development of the OMFV, including, but not limited to, digital modeling, Architecture Integration Laboratory, and the Architectural Description. FY 2021 to FY 2022 Increase/Decrease Statement: Government Architecture is a new initiative to develop Common Infrastructure Architecture.			
Title: XM-913 Description: This cost includes the XM913, ammunition and the PM MAS EMD requirements.	35.039	-	-
Title: Sub System Studies Description: Inform the A-CDD and P-Spec by working directly with sub-system providers to understand current levels of technology, challenges to integration, cost/benefit to technologies. It is also a risk mitigation for areas that may not be CDRL deliveries as part of Phase 2 RFP.	10.976	-	-
Title: Congressional Rescission Description: FY 2020 Congressional Rescission \$130,415. PB 2020 is now \$66,889.	130.415	-	-
Accomplishments/Planned Programs Subtotals	193.804	171.890	225.106

	FY 2020	FY 2021
Congressional Add: Tactical Communications (Congressional Add) FY 2020 Accomplishments: Initiate integration of a Unified Voice Management System (UVMS), to include wireless crew intercommunications, across the Army ground combat fleet. The effort will include the development of a common set of requirements, laboratory-based evaluations, and System Integration Lab-based demonstrations to outline key system characteristics. To further development an acquisition-ready solution, the effort will mature the Simplified Acquisition Management Plan, construct a provisioning plan, and create technical data packages and interface control documents.	3.500	-
Congressional Adds Subtotals	3.500	-

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

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle	Project (Number/Name) CF6 / Next Generation Combat Vehicle (OMFV)

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

Remarks

In FY 2022, funding in the amount of \$0.365 million for manpower was realigned to Operations and Maintenance. Program support costs have been accurately updated to reflect the realignments.

D. Acquisition Strategy

The Optionally Manned Fighting Vehicle (OMFV) is a Middle Tier Acquisition - Rapid Prototyping Program and is designed to maneuver Soldiers in the Forward Operating Environment to a position of advantage to engage in close combat and deliver decisive lethality during the execution of combined arms maneuver. The OMFV must exceed current capabilities while overmatching similar threat class systems. It must be optimized for urban and rural terrain areas, while also defeating pacing threats, and be characterized by the ability to spiral in advanced technologies as they mature. The capabilities desired focus to improve lethality, protection, mobility, range, survivability.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0605625A / Manned Ground Vehicle				CF6 / Next Generation Combat Vehicle (OMFV)								
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Other Support Costs	TBD	TBD : TBD	-	8.962	Jun 2020	4.320	Mar 2021	18.886	Jan 2022	-		18.886	0.000	32.168	-	
XM-913	MIPR	PM MAS : Picatinny, NJ	-	35.039	Mar 2020	-		-		-		-	0.000	35.039	-	
Product Development	TBD	TBD : TBD	-	-		136.471	Jul 2021	175.000	Jan 2022	-		175.000	0.000	311.471	-	
Government Architecture	TBD	TBD : TBD	-	-		12.100	Jul 2021	5.301	Jun 2022	-		5.301	0.000	17.401	-	
Sub System Studies	TBD	TBD : TBD	-	10.976	Sep 2020	-		-		-		-	0.000	10.976	-	
Tactical Communications	TBD	TBD : TBD	-	3.500	Aug 2020	-		-		-		-	0.000	3.500	-	
Subtotal			-	58.477		152.891		199.187		-		199.187	0.000	410.555	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Government Engineering & Program Management	MIPR	Warren, MI : TBD	-	8.412	Mar 2020	12.899	Jun 2021	22.348	Mar 2022	-		22.348	0.000	43.659	-	
Congressional Rescission	TBD	TBD : TBD	-	130.415	Dec 2020	-		-		-		-	0.000	130.415	-	
Subtotal			-	138.827		12.899		22.348		-		22.348	0.000	174.074	N/A	
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Modeling Simulation & Analysis	TBD	TBD : TBD	-	-		6.100	Jun 2021	3.571	May 2022	-		3.571	0.000	9.671	-	
Subtotal			-	-		6.100		3.571		-		3.571	0.000	9.671	N/A	
Project Cost Totals			-	197.304		171.890		225.106		-		225.106	0.000	594.300	N/A	

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army							Date: May 2021			
Appropriation/Budget Activity 2040 / 5			R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>			Project (Number/Name) CF6 / <i>Next Generation Combat Vehicle (OMFV)</i>				

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
--	-------------	---------	---------	--------------	-------------	---------------	------------------	------------	--------------------------

Remarks									

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / Manned Ground Vehicle	Project (Number/Name) CF6 / Next Generation Combat Vehicle (OMFV)

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Request for Proposal development	[Redacted] RFP Development																											
Request for Proposal Release					▲ 1 RFP release																							
Decision Point #1									▲ 2 Contract award up to 5 OEMs																			
A-CDD									■ A-CDD																			
Concept Design (5 OEMs)									[Redacted] Concept Design (5 OEMs)																			
Request for Proposal Development #2									[Redacted] RFP Development #2																			
Request for Proposal Release #2									▲ 3 RFP Release																			
Decision Point #2													▲ 4 Contract award up to 3 OEMs															
Detailed Design (3 OEMs)													[Redacted] Detailed Design (3 OEMs)															
Preliminary Design Review													▲ 5 PDR															
Critical Design Review																	▲ 6 CDR											
CDD																	■ CDD											
Outcome Determination Milestone B																					▲ 7 MS B							

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605625A / <i>Manned Ground Vehicle</i>	Project (Number/Name) CF6 / <i>Next Generation Combat Vehicle (OMFV)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Request for Proposal development	2	2020	1	2021
Request for Proposal Release	1	2021	1	2021
Decision Point #1	4	2021	4	2021
A-CDD	1	2022	2	2022
Concept Design (5 OEMs)	4	2021	1	2023
Request for Proposal Development #2	1	2022	3	2022
Request for Proposal Release #2	3	2022	3	2022
Decision Point #2	2	2023	2	2023
Detailed Design (3 OEMs)	2	2023	4	2024
Preliminary Design Review	4	2023	4	2023
Critical Design Review	4	2024	4	2024
CDD	1	2024	2	2024
Outcome Determination Milestone B	4	2024	4	2024

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	7.835	7.670	14.454	-	14.454	-	-	-	-	-	-
BV3: <i>Technical Intel Targeting Access Node (TITAN)</i>	-	-	-	5.729	-	5.729	-	-	-	-	-	-
DX9: <i>National Integration To Tactical Systems</i>	-	4.490	4.219	2.796	-	2.796	-	-	-	-	-	-
EX7: <i>Air Vigilance System Development</i>	-	3.345	3.451	5.929	-	5.929	-	-	-	-	-	-

Note

Project BV3 is not a new start. BV3 continues work funded by Projects 907 and DX9 in prior fiscal years on Legacy systems, i.e. AMDAS, ADV/RGT, with funds realigned into Project BV3 for TITAN (space-ground sensor) Prototype in FY2022.

A. Mission Description and Budget Item Justification

National Integration to Tactical Systems provides centralized monitoring and synchronization by the Army's Tactical Exploitation of National Capabilities (TENCAP) office, for the transition and integration of proven advanced technologies, prototypes and standards developed by the National Intelligence Community (IC) into Army systems and Programs of Record. This Program Element includes funding for System Development, Integration and Testing for the Tactical Intelligence Targeting Access Node (TITAN) providing Assured access to Space Intelligence, Surveillance, and Recognizance (ISR): National, Commercial and Theater sensors. In addition, this PE includes System Development and Integration funds for the Air Vigilance Program of Record (POR). It also enables efficient use and oversight of system development funds for final stage integration, development, and testing of successful technologies and prototypes to advance, or make compliant, Army systems and Programs of Record that have or use National capabilities.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	7.835	7.670	11.671	-	11.671
Current President's Budget	7.835	7.670	14.454	-	14.454
Total Adjustments	0.000	0.000	2.783	-	2.783
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	2.783	-	2.783

Change Summary Explanation

BV3 is not a new start. Project BV3 'TITAN Prototype' efforts were previously funded in Projects 907 'TENCAP' and DX9 'National Integration to Tactical Systems'.
Adjustment to FY 2022 due to internal Army realignments to priority efforts.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>				Project (Number/Name) BV3 / <i>Technical Intel Targeting Access Node (TITAN)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
BV3: <i>Technical Intel Targeting Access Node (TITAN)</i>	-	-	-	5.729	-	5.729	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All funding is in support of the ACTIVE COMPONENT. This is not a new start. BV3 continues work funded by Project DX9 in prior fiscal years, with funds realigned into Project BV3 in FY2022.

A. Mission Description and Budget Item Justification

Tactical Intelligence Targeting Access Node (TITAN) (space) Prototype system will provide timely assured intelligence for Long Range Precision Fires (LRPF) and maneuver in contested and Anti-access area-denial (A2AD) environments; Assured access to Space Intelligence, Surveillance, and Recognizance (ISR): National, Commercial and Theater sensors; Software Analytics capability to enable the intelligence cycle with increased speed, precision and accuracy Automated/Assisted Sensor-to-Shooter workflows: speed, scalability, accuracy to support LRPF in an A2AD environment; Modern and consolidated ground station for National, Commercial, and Theater sensors. TITAN (space) Prototype realigned from TENCAP into Project BV3 effective FY2022.

FY2022 base funds in the amount of \$5.729 million provide for continued integration of new ingest and processing capabilities into the TITAN prototype system and sub systems that will provide rapid availability of National Overhead Systems (NOS) geospatial intelligence (GEOINT) and signal intelligence (SIGINT) capabilities and Remote Ground Terminal (RGT) capabilities to include: Access to emerging Low Earth Orbit (LEO) constellations; and improved downlink, ingest and processing of commercial and government remote sensing data. Also, continues the integration and refinement of automated/assisted target recognition and integration with the fires architecture..

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

	FY 2020	FY 2021	FY 2022
Title: BV3 / Tactical Intelligence Targeting Access Node (TITAN) Prototype System	-	-	5.729
Description: Tactical Intelligence Targeting Access Node (TITAN) prototype system will provide timely assured intelligence for Long Range Precision Fires (LRPF) and maneuver in contested and Anti-access area-denial (A2AD) environments. TITAN provides assured access to Space Intelligence, Surveillance, and Recognizance (ISR): National, Commercial and Theater sensors; Software Analytics capability to enable the intelligence cycle with increased speed, precision and accuracy Automated/Assisted Sensor-to-Shooter workflows: speed, scalability, accuracy to support LRPF in an A2AD environment; and is the Army's modern and consolidated ground station for National, Commercial, and Theater sensors.			
FY 2022 Plans: Continue the integration of new ingest and processing capabilities into the TITAN prototype system and sub systems that will provide rapid availability of National Reconnaissance Office (NRO) Overhead Systems (NOS) Geospatial Intelligence (GEOINT)			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) BV3 / <i>Technical Intel Targeting Access Node (TITAN)</i>
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
and Signal Intelligence (SIGINT) capabilities and Ground Terminal (RGT) capabilities to include access to emerging Low Earth Orbit (LEO) constellations, improved downlink, ingest and processing of commercial and government remote sensing data. Continue the integration and refinement of automated/assisted target recognition and integration with the fires architecture to support Army's #1 priority, Long Range Precision Fires (LRPF). <i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Project transitions from Project DX9 to BV3 in FY2022.			
Accomplishments/Planned Programs Subtotals	-	-	5.729

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0603766A: <i>Tactical Electronic Surveillance System - Adv Dev</i>	37.490	182.400	113.365	-	113.365	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
The TITAN prototype requirement was validated by the TENCAP General Officer Steering Group in April 2019. In order to maximize agility and innovation in acquisition, TENCAP is working with the Defense Innovation Unit to establish an Other Transaction Authority agreement to develop the TITAN prototype. The TITAN prototype will provide a modernized, deployable ground station capable of rapidly and semi-autonomously tasking, receiving, processing, exploiting, fusing, and disseminating space-based sensor data to provide networked situational awareness and direct tactical support to Army commanders at echelon. The TITAN Prototype will reduce sensor to shooter latency to provide timely intelligence support to the commander. The TITAN prototype will use an agile acquisition strategy, and will maximize non-proprietary / open system architectures to enable easy upgrade of software/firmware, analytics/algorithms, and ingest additional data streams as commercial vendors and national data become available. This OTA has been preceded by Soldier touchpoints to inform this acquisition, and Soldier engagement is planned throughout the development and demonstration of the prototype.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605766A / National Capabilities Integr ation (MIP)				BV3 / Technical Intel Targeting Access Node (TITAN)							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TITAN (space) Prototype Engineering Services	C/CPFF	Perspecta : Alexandria, VA	-	-		-		0.329	Jan 2022	-		0.329	0.000	0.329	-
Subtotal			-	-		-		0.329		-		0.329	0.000	0.329	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TITAN (space) Prototype	C/FFP	Northrup Grumman : Aurora, CA	-	-		-		4.500	Jan 2022	-		4.500	0.000	4.500	-
Subtotal			-	-		-		4.500		-		4.500	0.000	4.500	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TITAN (space) Prototype Development	C/FFP	Army TENCAP : Alexandria, VA	-	-		-		0.500	Jan 2022	-		0.500	0.000	0.500	-
Subtotal			-	-		-		0.500		-		0.500	0.000	0.500	N/A
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Exercises for TITAN (space) Prototype Development	C/FFP	Multiple : Multiple	-	-		-		0.400	Jan 2022	-		0.400	0.000	0.400	-
Subtotal			-	-		-		0.400		-		0.400	0.000	0.400	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) BV3 / <i>Technical Intel Targeting Access Node (TITAN)</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Risk Reduction w/Legacy Ground Systems	██████████				██████████				██████████																			
TITAN Pre-Production Development	██████████				██████████				██████████				██████████															
Tactical Intelligence Targeting Access Node	██████████				██████████				██████████				██████████				██████████				██████████							
TITAN Prototype	██████████				██████████				██████████				██████████															
TTITAN Prototype Delivery	██████████				██████████				██████████				██████████															
TITAN Prototype Assessment	██████████				██████████				██████████				██████████															
Operational Leave Behind	██████████				██████████				██████████				██████████															
TITAN P3I Efforts	██████████				██████████				██████████				██████████				██████████				██████████							

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) BV3 / <i>Technical Intel Targeting Access Node (TITAN)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Risk Reduction w/Legacy Ground Systems	1	2020	2	2022
TITAN Pre-Production Development	4	2020	2	2023
Tactical Intelligence Targeting Access Node	1	2021	4	2026
TITAN Prototype	1	2021	2	2022
TTITAN Prototype Delivery	3	2022	3	2022
TITAN Prototype Assessment	3	2022	2	2023
Operational Leave Behind	2	2023	2	2023
TITAN P3I Efforts	3	2023	4	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>				Project (Number/Name) DX9 / <i>National Integration To Tactical Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
DX9: <i>National Integration To Tactical Systems</i>	-	4.490	4.219	2.796	-	2.796	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

National Integration to Tactical Systems provides for centralized monitoring and synchronization by the Army's Tactical Exploitation of National Capabilities (TENCAP) office for the transition and integration of new, updated, and emerging National Intelligence Community (IC) technologies, capabilities, and standards into Programs of Record across the Army to: (1) maintain operational relevance of Army programs and address changes in technology and the threat, (2) ensure Army programs maintain interoperability with and access to the National community architecture and systems, and (3) advance Army ability to conduct analysis and tasking, collection, processing, exploitation, dissemination and feedback (TCPEDF) of intelligence data.

FY 2022 Base funding in the amount of \$2.796 million provides integration funds for two (2) validated National Intel Community (IC) efforts: (1) National Intelligence system development and integration of tactical systems and (2) TENCAP Radio Frequency Exploitation (TRFE) funds the system development and integration efforts.

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

	FY 2020	FY 2021	FY 2022
<p>Title: Army TNG Integration - Airborne Overhead Cooperative Operations (AOCO) / Theater Net-Centric Geolocation (TNG)</p> <p>Description: National Intelligence Community (IC) standard for interoperability and use of specific intelligence networked capabilities.</p> <p>FY 2021 Plans: Continues to provide funds to specified Army Programs of Record (PORs) for final-stage software development and integration efforts, ensuring their compliance to the National requirement and standards that enables these PORs to be interoperable within this National Intelligence Community (IC) "Theater Net-Centric Geolocation (TNG)" network for joint tactical use and improved Army battlefield awareness. (ref. CJCSI 32450.61, AOCO 13 January 2012)</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Beginning in FY2022 the TNG Integration funding realigns and is supported by individual POR's requiring AOCO/TNG compliance.</p>	3.088	3.150	-
<p>Title: TENCAP Radio Frequency Exploitation (TRFE)</p>	1.402	1.069	0.500

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) DX9 / <i>National Integration To Tactical Systems</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Description: Capability software that informs, influences and enhances MULTI-INT sensor systems within Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S) such as Terrestrial Layer System (TLS) by targeting modern digital communications systems employed by near-peer nation state armies. Assists with Battlespace Radio frequency (RF) Characterization for modern communication environments with the intent to synchronize Signal Intelligence (SIGINT), Cyber and Electronic Warfare operations. Utilizes commercial industry components and architectures to minimize hardware costs, risk and maximizes scalability/modularity.</p> <p>FY 2021 Plans: Continues integration of TRFE cognitive, software-based, SIGINT-Enabled, Electronic-Warfare-and-Cyber-Attack prototype capability focused on countering Peer-State and modern communication targets and threats. Will inform and potentially transition to the POR Terrestrial Layer System (TLS).</p> <p>FY 2022 Plans: Integrates the open, government-owned software framework enabling Signal Intelligence (SIGINT), Electronic Warfare and Cyber capabilities into Program of Records (PoR)s.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Changes from prototype integration to software integration.</p>				
<p>Title: National Integration to Tactical Systems</p> <p>Description: National Integration provides for cost-saving enhancements developed by Army TENCAP's BA 6.4 Project 907 along with the integration and transition of new, updated and emerging National Intelligence Community technologies and capabilities into Program of Records (POR)s.</p> <p>FY 2022 Plans: Funds the system development and integration of National sensors, architectures and capabilities into Army programs as directed by the Tactical Exploitation of National Capabilities (TENCAP) General Officers' Steering Group (GOSG), to ensure National Overhead Systems (NOS) directly support Army warfighters during Large Scale Ground Combat Operations.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Increases exploitation and integration of national intelligence community (IC) capabilities to leverage IC investments to support Army modernization priorities.</p>		-	-	2.296
Accomplishments/Planned Programs Subtotals		4.490	4.219	2.796

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army	Date: May 2021
--	-----------------------

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) DX9 / <i>National Integration To Tactical Systems</i>
--	--	---

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 0603766A: <i>Tactical Electronic Surveillance System - Adv Dev</i>	37.490	182.400	113.365	-	113.365	-	-	-	-	-	-
• OMA - 122011 OMA: <i>Contractor Logistics Support and Other Weapon Support, OMA 122011</i>	-	2.132	-	-	-	-	-	-	-	-	-
• OMA - 122021 OMA: <i>Contractor Logistics Support and Other Weapon, OMA 122021 Support</i>	-	-	11.360	-	11.360	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The 'National Integration To Tactical Systems funds provide for transition and integration of National Intelligence Community (IC) advanced technologies and prototypes leveraged by the Army's Tactical Exploitation of National Capabilities (TENCAP) program office. The Army TENCAP acquisition strategy is driven by an annual TENCAP General Officer Steering Group (TGOSG), co-chaired by the Army G2; Army G8; and the Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology [ASA(ALT)]; and includes representatives from the Army G3; Army G6; Army Futures Command Intelligence-Capability Development and Integration Directorate; Army Training and Doctrine Command (TRADOC); and the Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S). The TGOSG reviews, validates, prioritizes, and guides Army TENCAP efforts, according to Army and Defense strategy. Based on this TGOSG guidance, Army TENCAP invests BA 6.4 RDTE in Intelligence Community (IC) developments during the more cost-effective advanced development phase to ensure Army requirements are met with minimal redundancy with Army investments. Army TENCAP then uses BA 6.5 RDTE to manage the transition of these advanced development efforts through system development and integration into Army Programs of Record (POR). This strategy ensures these leveraged investments remain viable through multiple budget cycles, significantly increasing successful transition to recipient Army POR. Army TENCAP facilitates the continued access to National Intel Community (IC) 'joint' efforts and compatibility with those National standards and software baseline for those Army PORs that benefit from these leveraged National IC technologies, resulting in cost-savings through cost-sharing, and Army participation in collaborative Intelligence. Funds will be used for final-stage integration efforts identified and vetted through the Army TENCAP annual TGOSG.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0605766A / National Capabilities Integration (MIP)				DX9 / National Integration To Tactical Systems							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TNG Engineers	MIPR	Multiple : Multiple	1.333	0.115	Jan 2020	0.150	Jan 2021	-		-		-	0.000	1.598	Continuing
National Integration Engineers	MIPR	Perspecta : Alexandria, VA	-	-		-		0.120	Jan 2022	-		0.120	0.000	0.120	-
Subtotal			1.333	0.115		0.150		0.120		-		0.120	0.000	1.718	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TNG for Multiple Army PORs	MIPR	Multiple : Multiple	33.660	2.250	Jan 2020	3.000	Jan 2021	-		-		-	0.000	38.910	Continuing
TRFE	MIPR	Classified : Classified	2.327	1.100	Jan 2020	1.069	Jan 2021	0.462	Jan 2021	-		0.462	0.000	4.958	Continuing
National Integration	MIPR	Multiple : Multiple	-	-		-		1.691	Jan 2022	-		1.691	0.000	1.691	-
Subtotal			35.987	3.350		4.069		2.153		-		2.153	0.000	45.559	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TNG Support Costs	Allot	PEO IEWS&S/PM SAI : Aberdeen Proving Grounds, MD	0.794	0.550	Jan 2020	-		-		-		-	0.000	1.344	Continuing
National Integration Program Management	MIPR	PEO IEWS&S/PM SAI : Aberdeen Proving Grounds, MD	-	-		-		0.373	Jan 2022	-		0.373	0.000	0.373	-
Subtotal			0.794	0.550		-		0.373		-		0.373	0.000	1.717	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>		Project (Number/Name) DX9 / <i>National Integration To Tactical Systems</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Theater Net-centric Geolocation (TNG) Interoperability Standard																												
TRFE Software Integration Effort																												
National Integration System Development & Integration																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) DX9 / <i>National Integration To Tactical Systems</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Theater Net-centric Geolocation (TNG) Interoperability Standards	2	2014	4	2021
TRFE Software Integration Effort	1	2018	4	2025
National Integration System Development & Integration	1	2022	1	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>				Project (Number/Name) EX7 / <i>Air Vigilance System Development</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
<i>EX7: Air Vigilance System Development</i>	-	3.345	3.451	5.929	-	5.929	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

Air Vigilance systems are a software based solution that collect critical intelligence data on emerging threat aerial systems. The intelligence data provides early warning of operations in restricted airspace to ensure force protection. An Air Vigilance system is comprised of a server unit configured and fielded with a single or multiple sub-component sensors. System Quantities are based upon server units. Operational details are classified.

FY2022 Base funding in the amount of \$5.929 million provides for system development and integration of latest software developments and hardware configurations in accordance with Capability Drop (CD) requirements and in response to emerging threat.

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

	FY 2020	FY 2021	FY 2022
Title: Air Vigilance System Development and Integration	3.345	3.451	5.929
Description: Software and hardware engineering, development and integration efforts.			
FY 2021 Plans: Will provide for software development and integration to ingest latest collected sensor data into the common baseline and enhance system capabilities to meet newly identified threats and latest Capability Drop requirements.			
FY 2022 Plans: Will provide for software development and integration to ingest latest collected sensor data into the common baseline and enhance system capabilities to meet newly identified threats and latest Capability Drop requirements.			
FY 2021 to FY 2022 Increase/Decrease Statement: The AV POR is currently scheduled to complete latest CD requirement; and with the proliferation of active sensors, the POR will need to continue to pace the evolving threat.			
Accomplishments/Planned Programs Subtotals	3.345	3.451	5.929

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) EX7 / <i>Air Vigilance System Development</i>

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

Line Item	FY 2020	FY 2021	FY 2022	FY 2022	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 0603766A: <i>Tactical Electronic Surveillance System - Adv Dev</i>	37.490	182.400	113.365	-	113.365	-	-	-	-	-	-
• W60001: <i>AIR VIGILANCE (AV)</i>	8.953	8.160	13.486	-	13.486	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Air Vigilance (AV) is an Acquisition Category (ACAT) III Automated Information System (AIS) program of record (POR) that originated from a Quick Reaction Capability (QRC) developed and fielded cooperatively with the Intelligence Community (IC) through the efforts and mission of the Army's Tactical Exploitation of National Capabilities (TENCAP) office. The QRC was transitioned into an Army AIS POR by the AAE in May 2013 and assigned to Army Program Executive Office - Intelligence Electronic Warfare and Sensors (PEO IEWS), the chartered acquisition authority for management and execution of the Army's TENCAP mission and Milestone Decision Authority (MDA) for the AV POR. The Army TENCAP continues to leverage the IC common software development and support contract to field the AV systems, and ensure this primarily software based system can continue to access and leverage the common software, and input or ingest the latest sensor collects into the common Intelligence Community (IC) data library. As an AIS POR, the AV POR is currently fielding systems per its Basis of Issue Plan (BOIP) and with software and system capabilities that meet its latest validated Capability Drop (CD) requirements. The AV POR will continue to evolve to meet future validated Capability Drop requirements and maintain its effectiveness against emerging threats.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605766A / National Capabilities Integration (MIP)					Project (Number/Name) EX7 / Air Vigilance System Development							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
System Engineers and Technical Assistance (SETA)	Option/CPFF	Perspecta : Alexandria, VA	0.992	0.530	Jan 2020	0.550	Mar 2021	1.300	Jan 2022	-		1.300	0.000	3.372	Continuing	
Subtotal			0.992	0.530		0.550		1.300		-		1.300	0.000	3.372	N/A	
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Air Vigilance software updates and integration	Option/CPAF	CACI : Sterling, VA	4.413	1.865	Jan 2020	1.900	Mar 2021	3.763	Jan 2022	-		3.763	0.000	11.941	Continuing	
Subtotal			4.413	1.865		1.900		3.763		-		3.763	0.000	11.941	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
PM Costs, Travel, Facilities	Allot	PEO IEWS/Air Vigilance POR : Alexandria, VA	1.574	0.850	Dec 2019	0.900	Jan 2021	0.736	Jan 2022	-		0.736	0.000	4.060	Continuing	
Subtotal			1.574	0.850		0.900		0.736		-		0.736	0.000	4.060	N/A	
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Air Vigilance system Testing and Exercises	Option/CPAF	CACI : Sterling, VA	0.363	0.100	Jan 2020	0.101	Mar 2021	0.130	Jan 2022	-		0.130	0.000	0.694	Continuing	
Subtotal			0.363	0.100		0.101		0.130		-		0.130	0.000	0.694	N/A	

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) EX7 / <i>Air Vigilance System Development</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Air Vigilance System Development Capability Drop (CD3)	[Redacted]																												
Full Deployment - Current RDP s/w Baseline (DEC22)	[Redacted]								[Redacted]								1 FD	[Redacted]				[Redacted]				[Redacted]			
E3I GSA FEDSIM Contract 1yr Base, w/4 Options	[Redacted]																												
Air Vigilance Future Software Capability	[Redacted]								[Redacted]								[Redacted]				[Redacted]				[Redacted]				

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605766A / <i>National Capabilities Integration (MIP)</i>	Project (Number/Name) EX7 / <i>Air Vigilance System Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Air Vigilance System Development Capability Drop (CD3)	2	2016	1	2026
Air Vigilance CD #3 National Assessment Group Test	3	2018	3	2018
Full Deployment - Current RDP s/w Baseline (DEC22)	1	2023	1	2023
TRFE GSA FEDSIM Bridge Contract	2	2018	3	2019
E3I GSA FEDSIM Contract	2	2019	2	2019
E3I GSA FEDSIM Contract 1yr Base, w/4 Options	2	2019	2	2024
Air Vigilance Future Software Capability	2	2022	4	2026

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605812A / <i>Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	7.119	1.678	2.564	-	2.564	-	-	-	-	-	-
VU9: <i>Joint Light Tactical Vehicle</i>	-	7.119	1.678	2.564	-	2.564	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The JLTV Family of Vehicles (FoV), to include a companion trailer, is a United States Army (USA) acquisition lead, joint program with the U.S. Marine Corps (USMC). The JLTV is capable of performing multiple mission roles and designed to provide protected, sustained, networked mobility for personnel and payloads across the full range of military operations. JLTV objectives include increased protection and performance over the current fleet; and, minimizing ownership costs by maximizing commonality, fuel efficiency, reliability, and maintaining effective competition throughout the life cycle. Commonality of components, maintenance procedures, training, etc., among vehicles is expected to be inherent in FoV solutions across mission variants to minimize total ownership cost. Unique service requirements have been minimized. The JLTV Trailer (JLTV-T) is the companion trailer to the JLTV and safely carries its payload while maintaining the same mobility characteristics of the prime mover. The trailer requirement as defined in the Capability Production Document (CPD), dated 21 November 2014 was validated on 7 June 2019 by the Army and required the JLTV and JLTV-T to be fielded as a system. On November 2019, Army Futures Command validated the JLTV-T Army Procurement Objective (APO) of 18,224. The Follow-on JLTV Contract is scheduled to be awarded in Q4 FY 2022. JLTV intends to competitively award the follow-on contract as a single award five year requirements contract with five one year options.

This program element supports modernization of the JLTV FoV by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, Victory Architecture, autonomous operations and other emerging technologies. This program element also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

The FY 2022 budget supports the development and continuation of engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, series hybrid, and a full electric option; Cyber Scans to evaluate emerging threats and technologies; Integrated Tactical Network (ITN) rapid prototyping to support emerging characterization events; development and integration of Anti-Idle technology; and JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, Protected Troop Transport, and Protected Command and Control.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605812A / <i>Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	7.232	1.742	1.799	-	1.799
Current President's Budget	7.119	1.678	2.564	-	2.564
Total Adjustments	-0.113	-0.064	0.765	-	0.765
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.113	-0.064			
• Adjustments to Budget Years	-	-	0.765	-	0.765

Change Summary Explanation

FY22 JLTV RDT&E increased by \$0.765M in support of Next Generation Powertrain effort

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)				Project (Number/Name) VU9 / Joint Light Tactical Vehicle			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
VU9: Joint Light Tactical Vehicle	-	7.119	1.678	2.564	-	2.564	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The JLTV Family of Vehicles (FoV), to include a companion trailer, is a United States Army (USA) acquisition lead, joint program with the U.S. Marine Corps (USMC). The JLTV is capable of performing multiple mission roles and designed to provide protected, sustained, networked mobility for personnel and payloads across the full range of military operations. JLTV objectives include increased protection and performance over the current fleet; and, minimizing ownership costs by maximizing commonality, fuel efficiency, reliability, and maintaining effective competition throughout the life cycle. Commonality of components, maintenance procedures, training, etc., among vehicles is expected to be inherent in FoV solutions across mission variants to minimize total ownership cost. Unique service requirements have been minimized. The JLTV Trailer (JLTV-T) is the companion trailer to the JLTV and safely carries its payload while maintaining the same mobility characteristics of the prime mover. The trailer requirement as defined in the Capability Production Document (CPD), dated 21 November 2014 was validated on 7 June 2019 by the Army and required the JLTV and JLTV-T to be fielded as a system. On November 2019, Army Futures Command validated the JLTV-T Army Procurement Objective (APO) of 18,224. The Follow-on JLTV Contract is scheduled to be awarded in Q4 FY 2022. JLTV intends to competitively award the follow-on contract as a single award five year requirements contract with five one year options.

This program element supports modernization of the JLTV FoV by investigating technology insertions including, but not limited to: condition based maintenance, vetronics, Victory Architecture, autonomous operations and other emerging technologies. This program element also supports developing initial prototypes to enable refinement of Operational Requirements and early user feedback to support future sustainment and operational movement operating concepts.

The FY 2022 budget supports the development and continuation of engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, series hybrid, and a full electric option; Cyber Scans to evaluate emerging threats and technologies; Integrated Tactical Network (ITN) rapid prototyping to support emerging characterization events; development and integration of Anti-Idle technology; and JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, Protected Troop Transport, and Protected Command and Control.

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

	FY 2020	FY 2021	FY 2022
Title: Evaluation and Assessment of current and future engineering efforts	7.119	1.678	2.564
Description: Funding is provided for the support of JLTV evaluation and assessment of current and future engineering efforts.			
FY 2021 Plans:			
Development and continuation of engineering efforts including: Survivability enhancements to optimize the JLTV system architecture and drastically reduce (O&S) costs; Ongoing development of Command, Control, Communications, Computers,			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	Project (Number/Name) VU9 / Joint Light Tactical Vehicle

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
and Intelligence (C4I) system packaging optimization efforts such as Integrated Tactical Network (ITN) and Integrated Vision Augmentation System (IVAS); Ongoing testing to ensure cyber vulnerabilities are considered and mitigated; development and integration of Anti-Idle technology; JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, Protected Troop Transport, and Protected Command and Control; Field Service Representative (FSR) support; and Close Combat Weapons Carrier (CCWC) enhancements engineering change proposal.			
FY 2022 Plans: Development and continuation of engineering efforts including: Initiation of design, integration and testing for the Next Generation Powertrain which will consider parallel hybrid, series hybrid, and a full electric option; Cyber Scans to evaluate emerging threats and technologies; Integrated Tactical Network (ITN) rapid prototyping to support emerging characterization events; development and integration of Anti-Idle technology; and JLTV Utility Multipurpose Protected Shelter (JUMPS) to support emerging requirements such as Protected Ambulance, Protected Troop Transport, and Protected Command and Control.			
FY 2021 to FY 2022 Increase/Decrease Statement: Increase in funding due to initiation of design, integration and testing for the Next Generation Powertrain.			
Accomplishments/Planned Programs Subtotals	7.119	1.678	2.564

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• D15603: JOINT LIGHT TACTICAL VEHICLE	972.407	-	-	-	-	-	-	-	-	-	-
• D15610: JOINT LIGHT TACTICAL VEHICLE FAMILY OF VEHICLES	-	884.414	574.562	-	574.562	-	-	-	-	-	-
• D15615: JOINT LIGHT TACTICAL VEHICLE (JLTV)	-	812.023	496.122	-	496.122	-	-	-	-	-	-
• D15618: JOINT LIGHT TACTICAL VEHICLE TRAILER (JLTV-T)	-	72.391	78.440	-	78.440	-	-	-	-	-	-
• D00929: JOINT LIGHT TACTICAL VEHICLE (JTLV) MOD-IN-SERVICE	-	-	7.190	-	7.190	-	-	-	-	-	-
• MC - 5095: JOINT LIGHT TACTICAL VEHICLE (JLTV) - USMC	555.648	368.675	322.013	-	322.013	-	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	Project (Number/Name) VU9 / Joint Light Tactical Vehicle

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MC - 0605813M: JOINT LIGHT TACTICAL VEHICLE (JLTV) - USMC	2.094	2.541	2.005	-	2.005	-	-	-	-	-	-

Remarks

JLTV is a Joint Program with the United States Marine Corps (USMC)

D. Acquisition Strategy

The JLTV Family of Vehicles (FoV), to include a companion trailer, is a United States Army (USA) lead, joint program with the U.S. Marine Corps (USMC).

The JLTV Program entered the Production and Deployment Phase with the Acquisition Decision Memorandum authorization on 25 August 2015. With Milestone C approval, the Low Rate Initial Production (LRIP) fixed price contract was awarded to Oshkosh Defense LLC on 25 August 2015. This contract consisted of a three year LRIP period with options for five additional years of Full Rate Production (FRP) deliveries. JPO JLTV procured the Technical Data Package (TDP) with appropriate data rights to allow for possible future competition for production vehicles and spares. Current contract options may be exercised through 30 November 2023. The Follow-on JLTV Contract is scheduled to be awarded in Q4 FY 2022. JLTV intends to competitively award the follow-on contract as a single award five year requirements contract with five one year options.

A split procurement will occur between the existing Oshkosh contract and the new competitively awarded contract based on the approved acquisition strategy. Program achieved a successful FRP decision in May 2019. The FRP Acquisition Decision Memorandum was signed in June 2019.

The trailer requirement as defined in the Capability Production Document (CPD), dated 21 November 2014 was validated on 7 June 2019 by the Army and required the JLTV and JLTV-T to be fielded as a system. In November 2019, Army Futures Command validated the JLTV-T Army Procurement Objective (APO) of 18,224. In June 2020, the 1st JLTV Trailer Production Contract was awarded to Oshkosh for 1,410 Army JLTV-Ts.

The JLTV program will continually monitor emerging technologies and capabilities through its partnerships with U.S. Army and Marine Corps science and technology organizations as well as through industry market research and partnerships. The JLTV program will look for opportunities to implement increased capabilities throughout the systems Life Cycle.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	Project (Number/Name) VU9 / Joint Light Tactical Vehicle
--	--	--

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Light Tactical Vehicles (JLTV) Contract Service Support	SS/CPFF	Booz-Allen Hamilton, : McLean, VA	10.191	-		-		-		-		-	0.000	10.191	-
JLTV Contract Service Support for Cost Analysis for JLTV CARD	SS/CPFF	Camber Corporation, : Huntsville, AL	0.591	-		-		-		-		-	0.000	0.591	-
JLTV Service Support	MIPR	US Army Combined Arms Support Commands - CASCOM, : Ft. Lee, VA	0.200	-		-		-		-		-	0.000	0.200	-
Subtotal			10.982	-		-		-		-		-	0.000	10.982	N/A

Remarks
Funding for Management Services has shifted from RDT&E to Procurement and Operations and Maintenance - Army(OMA).

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JLTV Live Fire Test Support	C/FFP	Oshkosh Corporation : Oshkosh, WI	19.091	-		-		-		-		-	0.000	19.091	-
Evaluation and Assessment of current and future engineering efforts	C/Various	Various : Various	7.476	7.119	Jan 2020	1.678	Jan 2021	2.564	Jan 2022	-		2.564	Continuing	Continuing	Continuing
Subtotal			26.567	7.119		1.678		2.564		-		2.564	Continuing	Continuing	N/A

Remarks
Funding has increased in FY22 due to initiation of design, integration and testing for the Next Generation Powertrain.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army											Date: May 2021				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)					Project (Number/Name) VU9 / Joint Light Tactical Vehicle						

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Light Tactical Vehicles (JLTV) Program Management Support	Various	TACOM Life Cycle Management Command (LCMC), : Harrison Township, MI	31.919	-		-		-		-		-	0.000	31.919	-
GFE Management / GFE / Integration	MIPR	Various : TBD	19.436	-		-		-		-		-	0.000	19.436	-
JLTV EMD/LRIP phase.	MIPR	Tank-Automotive Research, Development, and Engineering Center - TARDEC : Warren, MI	14.245	-		-		-		-		-	0.000	14.245	-
JLTV Prototype EMD/LRIP - Budget	MIPR	TACOM Life Cycle Management Command (LCMC), : Warren, MI	12.383	-		-		-		-		-	0.000	12.383	-
Subtotal			77.983	-		-		-		-		-	0.000	77.983	N/A

Remarks

Funding for Support Costs has shifted from RDT&E to Procurement and Operations and Maintenance - Army(OMA).

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Complete Engineering and Manufacturing Development (EMD) Test - Limited User Test (LUT)	MIPR	Army Evaluation Center (AEC) : Aberdeen Proving Ground, MD	41.342	-		-		-		-		-	0.000	41.342	-
Development Testing, MOT&E and Live Fire T&E - Log demo, and corrosion.	Various	TBD : Various	42.994	-		-		-		-		-	0.000	42.994	-

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	Project (Number/Name) VU9 / Joint Light Tactical Vehicle

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Evaluation and Assessment																												
Close Combat Weapons Carrier (CCWC) ECP																												
Survivability ECP																												
Field Service Representative (FSR) support																												
Integrated Vision Augmentation System (IVAS)																												
Anti-Idle																												
JLTV Utility Multipurpose Protected Shelter (JUMPS)																												
Cyber Scans																												
Integrated Tactical Network (ITN)																												
Next Generation Powertrain																												
Army Initial Operating Capability (IOC)																												
Full Materiel Release (FMR)																												
Competitive Follow-On Contract Award																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)		Project (Number/Name) VU9 / Joint Light Tactical Vehicle	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Follow-on Contract Live Fire and Survivability Testing																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605812A / Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Phase (EMD)	Project (Number/Name) VU9 / Joint Light Tactical Vehicle

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluation and Assessment	3	2018	4	2026
Close Combat Weapons Carrier (CCWC) ECP	4	2018	3	2022
Survivability ECP	4	2019	2	2022
Field Service Representative (FSR) support	3	2020	2	2023
Integrated Vision Augmentation System (IVAS)	1	2021	3	2022
Anti-Idle	2	2021	2	2024
JLTV Utility Multipurpose Protected Shelter (JUMPS)	2	2021	2	2023
Cyber Scans	2	2021	2	2023
Integrated Tactical Network (ITN)	4	2021	4	2022
Next Generation Powertrain	2	2022	2	2023
Army Initial Operating Capability (IOC)	3	2020	3	2020
Full Materiel Release (FMR)	1	2022	1	2022
Competitive Follow-On Contract Award	4	2022	4	2022
Follow-on Contract Live Fire and Survivability Testing	3	2024	3	2024

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605830A / <i>Aviation Ground Support Equipment</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	1.596	1.413	1.201	-	1.201	-	-	-	-	-	-
EE5: <i>Aviation Ground Support Equipment</i>	-	1.596	1.413	1.201	-	1.201	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Aviation Ground Support Equipment (AGSE) Product Directorate conducts developmental testing and the acquisition of prototypes to enhance the functionality of current and future aircraft maintenance equipment. This will be accomplished by identifying more effective aircraft maintenance equipment, validating new maintenance concepts, improving machine interfaces, updating aircraft maintenance processes, and developing improved diagnostic technologies which will reduce Operation and Support costs. This program provides for the development of rapid battle repair procedures, tools, ground handling, and test equipment to speed the return of aircraft to a fully mission capable status. Included in this program are: Aviation Ground Power Unit Next Generation (AGPU Nex Gen), Self-propelled Crane Aircraft Maintenance and Positioning Increment II (SCAMP II), (Expeditionary Variant), Aircraft Cleaning and Deicing System (ACDS), Turbine Engine Wash System (TEWS) and development of support equipment required for maintenance of modernized/future force aircraft.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	1.664	1.467	1.385	-	1.385
Current President's Budget	1.596	1.413	1.201	-	1.201
Total Adjustments	-0.068	-0.054	-0.184	-	-0.184
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.068	-0.054			
• Adjustments to Budget Years	-	-	-0.184	-	-0.184

Change Summary Explanation

Reduction in Current PB22 as a result of a decrease in the Aviation Ground Power Unit Next Generation system.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0605830A / Aviation Ground Support Equipment				Project (Number/Name) EE5 / Aviation Ground Support Equipment			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EE5: Aviation Ground Support Equipment	-	1.596	1.413	1.201	-	1.201	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aviation Ground Support Equipment (AGSE) Product Directorate conducts developmental testing and the acquisition of prototypes to enhance the functionality of current and future aircraft maintenance equipment. This will be accomplished by identifying more effective aircraft maintenance equipment, validating new maintenance concepts, improving machine interfaces, updating aircraft maintenance processes, and developing improved diagnostic technologies which will reduce Operation and Support costs. This program provides for the development of rapid battle repair procedures, tools, ground handling, and test equipment to speed the return of aircraft to a fully mission capable status. Included in this program are: Aviation Ground Power Unit Next Generation (AGPU Nex Gen), Self-propelled Crane Aircraft Maintenance and Positioning Increment II (SCAMP II), (Expeditionary Variant), Aircraft Cleaning and Deicing System (ACDS), Turbine Engine Wash System (TEWS) and development of support equipment required for maintenance of modernized/future force aircraft.

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

	FY 2020	FY 2021	FY 2022
Title: Self Aircraft Maintenance and Positioning (SCAMP)	0.187	-	-
Description: SCAMP is a critical forward maintenance enabler providing capability to remove and replace major aircraft components in support of Army Aviation maintenance in austere locations.			
Title: Aviation Ground Power Unit Next Generation (AGPU 1.1)	1.409	1.413	1.201
Description: The AGPU 1.1 provides external hydraulic, pneumatic, and AC/DC electrical power to meet enduring and future Army aircraft servicing requirements.			
FY 2021 Plans: Procure test articles and provide technical support for Risk Reduction Testing.			
FY 2022 Plans: Conduct performance verification testing and environmental testing of the AGPU 1.1 Next Gen candidates.			
FY 2021 to FY 2022 Increase/Decrease Statement: Decrease in funding will delay the APGU 1.1 Tech Manual development, prolonging the attainment of Material Release and fielding to the Soldier.			
Accomplishments/Planned Programs Subtotals	1.596	1.413	1.201

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605830A / Aviation Ground Support Equipment	Project (Number/Name) EE5 / Aviation Ground Support Equipment

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AZ3520: AVIATION GROUND SUPPORT EQUIPMENT	18.624	17.584	13.561	-	13.561	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

This project is an aggregate of Aviation Ground Support Equipment related projects. While the detailed acquisition strategy varies from program to program, the general strategy for each individual program is to complete the development effort through Government test (developmental and operational). Program documentation for each milestone decision is prepared, as appropriate, concurrently with the development effort.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0605830A / Aviation Ground Support Equipment		Project (Number/Name) EE5 / Aviation Ground Support Equipment	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Aviation Ground Power Unit (AGPU 1.1)																																
AGPU Next Gen.																																
Aircraft Cleaning and Deicing System (ACDS)																																
Self Crane Aircraft Maintenance and Positioning (SCAMP)																																
SCAMP																																
ACDS																																

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605830A / Aviation Ground Support Equipment	Project (Number/Name) EE5 / Aviation Ground Support Equipment

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Aviation Ground Power Unit (AGPU 1.1)	4	2018	4	2023
Aircraft Cleaning and Deicing System (ACDS)	1	2024	4	2030
Self Crane Aircraft Maintenance and Positioning (SCAMP)	1	2020	4	2020

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	3.936	3.451	3.362	-	3.362	-	-	-	-	-	-
RH5: TROJAN - RH12	-	3.936	3.451	3.362	-	3.362	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

TROJAN research and development supports TROJAN Next Generation (TROJAN NexGEN), formerly TROJAN Classic XXI (TCXXI), future capabilities to fulfill the Army's need for worldwide, deployable, remorable, intelligence, surveillance and reconnaissance support that can dynamically execute operations from sanctuary-based to deployed assets in theater. In support of Army Modernization and Army Force Generation, TROJAN NexGEN will provide soldiers with a real-world, hands-on, live and near-real time Signals Intelligence (SIGINT) training environment sustaining, maintaining and enhancing their military occupational specialty proficiencies and specific target expertise. This operational readiness training will fulfill the Army's larger intelligence training requirement via a secure, collaborative architecture.

A key factor for future force success is the ability to collect, process, and use information about an adversary while preventing similar information from being disclosed. TROJAN NexGEN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN NexGEN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. Engineers test and evaluate new digital intelligence collection, processing and dissemination technology using the fielded TROJAN NexGEN systems prior to the acquisition of those technologies. As part of the objective intelligence architecture, these capabilities will enable processing and dissemination of real-time intelligence data from various sources to form the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative that TROJAN NexGEN keeps pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threat.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	3.936	3.451	3.404	-	3.404
Current President's Budget	3.936	3.451	3.362	-	3.362
Total Adjustments	0.000	0.000	-0.042	-	-0.042
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.042	-	-0.042

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12				Project (Number/Name) RH5 / TROJAN - RH12			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
RH5: TROJAN - RH12	-	3.936	3.451	3.362	-	3.362	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TROJAN research and development supports TROJAN Next Generation (TROJAN NexGEN), formerly TROJAN Classic XXI (TCXXI), future capabilities to fulfill the Army's need for worldwide, deployable, remorable, intelligence, surveillance and reconnaissance support that can dynamically execute operations from sanctuary-based to deployed assets in theater. In support of Army Modernization and Army Force Generation, TROJAN NexGEN will provide soldiers with a real-world, hands-on, live and near-real time SIGINT training environment sustaining, maintaining and enhancing their military occupational specialty proficiencies and specific target expertise. This operational readiness training will fulfill the Army's larger intelligence training requirement via a secure, collaborative architecture.

A key factor for future force success is the ability to collect, process, and use information about an adversary while preventing similar information from being disclosed. TROJAN NexGEN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN NexGEN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. Engineers test and evaluate new digital intelligence collection, processing and dissemination technology using the fielded TROJAN NexGEN systems prior to the acquisition of those technologies. As part of the objective intelligence architecture, these capabilities will enable processing and dissemination of real-time intelligence data from various sources to form the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative that TROJAN NexGEN keeps pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threat.

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

	FY 2020	FY 2021	FY 2022
Title: Integrate Direction Finding and geo-location	0.765	1.200	1.188
Description: Integrate Direction Finding (DF) and geolocation (GL) technologies into TROJAN Remote Receiving Groups.			
FY 2021 Plans: Continuously adapt/improve the latest Direction Finding (DF) and geolocation technologies for integration into TROJAN NexGEN systems in accordance with Joint Interface Control Document (JICD) 4.2. Utilize field based risk reduction exercises to test and evaluate integrated technologies of the overall TROJAN Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise. Continue to research and test for the integration of Electronics Intelligence (ELINT) capabilities. Resource labor for one MAT DEV technologist, two MAT DEV software engineers and two MAT DEV HW engineers will be accounted for in the Integrate Direction Finding (DF) and geolocation (GL) project.			
FY 2022 Plans: Will continuously adapt/improve the latest Direction Finding (DF) and geolocation technologies for integration into TROJAN NexGEN systems in accordance with Joint Interface Control Document (JICD) 4.2., and JICD 4.2 ELINT (JEL). Will utilize field			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>based risk reduction exercises to test and evaluate integrated technologies of the overall TROJAN Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise. Will continue to research and test for the integration of Electronics Intelligence (ELINT) capabilities. Will resource labor for one MAT DEV technologist, two MAT DEV software engineers and two MAT DEV HW engineers will be accounted for in the Integrate Direction Finding (DF) and geolocation (GL) project.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Decrease reflects inflation adjustment.</p>				
<p>Title: Enable assured communications for the TROJAN Network architecture (formerly Improve security of the TROJAN Network architecture).</p> <p>Description: Acquire and apply multi-bandwidth compression algorithm technology to maximize TROJAN intelligence network throughput.</p> <p>FY 2021 Plans: Continue efforts to utilize Government off the shelf (GOTS) / Commercial of the shelf (COTS) solutions to enable communication in an anti-access/area denial environment; continue to integrate and test with technologies to enable redundant communications paths; will continue to test with anti-jam technologies for satellite communications.</p> <p>FY 2022 Plans: Will transition Government off the shelf (GOTS) / Commercial of the shelf (COTS) solutions enabling communication in an anti-access/area denial environment to TROJAN production systems. Will continue to research, evaluate, integrate and test with technologies to enable redundant communications paths and anti-jam technologies based current threats.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Reduced level of effort in anticipation of a transition to TROJAN production systems.</p>		1.035	0.751	0.500
<p>Title: Integrate and test specialized hardware/software</p> <p>Description: Integrate and test specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Resource development of GLAIVE software (SW). Integrated several new National Security Agency (NSA) SW packages.</p> <p>FY 2021 Plans: Continue integration and testing of specialized hardware/software for classified pre-processing and detection of new signals of interest. Continue to resource development, integration and test of GOTS/COTS software. Continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Continue efforts to integrate JICD 4.2 across all platforms. Begin efforts to integrate C4ISR Modular Open Suite of Standards (CMOSS).</p> <p>FY 2022 Plans:</p>		1.001	0.500	0.704

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021		FY 2022
---	----------------	----------------	--	----------------

Will continue integration and testing of specialized hardware/software for classified pre-processing and detection of new signals of interest. Will continue to resource development, integration and test of GOTS/COTS software. Will continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Will continue efforts to integrate JICD 4.2 across all platforms. Will continue efforts to integrate C4ISR Modular Open Suite of Standards (CMOSS).

FY 2021 to FY 2022 Increase/Decrease Statement:
Increased focus on GOTS C4ISR Modular Open Suite of Standards (CMOSS).

Title: Research and testing of receivers 0.360 1.000 0.970

Description: Research and testing of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using Digital System Processing (DSP) and Software Defined Radio (SDR) technologies.

FY 2021 Plans:
Continue research and testing of receiver packages for fixed and transportable TROJAN systems to detect and process non-standard modulations using DSP and SDRs. Integrate receiver packages to enable additional and wideband frequency ranges for COTS/GOTS Software Defined Radios.

FY 2022 Plans:
Will continue research and testing of receiver packages for fixed and transportable TROJAN systems to detect and process non-standard modulations using DSP and SDRs. Will integrate receiver packages to enable additional and wideband frequency ranges for COTS/GOTS Software Defined Radios. Will utilize COTS/GOTS hardware and software frameworks to enable multiple SDRs to cooperate on a common backplane.

FY 2021 to FY 2022 Increase/Decrease Statement:
Economic Adjustment

Title: Labor cost software (SW) engineers 0.775 - -

Description: Labor for two software (SW) engineers in support of GLAIVE and other above applicable efforts. Labor for one Material Developer (MAT DEV) technologist, one MAT DEV software and one MAT DEV Hardware (HW) engineer.

Accomplishments/Planned Programs Subtotals				3.936	3.451	3.362
---	--	--	--	-------	-------	-------

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BA0326: TROJAN	20.965	19.359	30.828	-	30.828	-	-	-	-	-	-

Remarks

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

D. Acquisition Strategy

The Acquisition Strategy for the TROJAN NexGEN Systems supported by TROJAN RDT&E is to adapt and leverage from Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) products. Additionally, the Acquisition Strategy leverages off of development by DoD and other Government agencies to the greatest extent possible. TROJAN RDT&E is used to fund the development of enhancing these technologies to meet specific user requirements.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Labor Costs MAT DEV HW/SW Engineers	Various	CERDEC I2WD, APG, MD : MD	5.887	0.775	Oct 2019	-		-		-		-	0.000	6.662	-
Subtotal			5.887	0.775		-		-		-		-	0.000	6.662	N/A

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrate Direction Finding and geo-location	Various	APG : MD	6.209	0.765	Oct 2019	1.200	Oct 2020	1.188	Oct 2021	-		1.188	Continuing	Continuing	-
Enable assured communications for the TROJAN Network Architecture	Various	APG : MD	6.156	1.035	Oct 2019	0.751	Oct 2020	0.500	Oct 2021	-		0.500	Continuing	Continuing	-
Research and testing of Receivers	Various	APG : MD	2.420	0.360	Oct 2019	1.000	Oct 2020	0.970	Oct 2021	-		0.970	Continuing	Continuing	-
Develop Satellite Communications (SATCOM) Dishes and transceivers	Various	APG : MD	3.644	-		-		-		-		-	0.000	3.644	-
Specialized Software Enhancements	Various	APG : MD	0.998	-		-		-		-		-	0.000	0.998	-
Develop Hardware/ Software Interface	Various	APG : MD	0.445	-		-		-		-		-	0.000	0.445	-
Subtotal			19.872	2.160		2.951		2.658		-		2.658	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration and Testing of Hardware/Software	Various	APG : MD	7.140	1.001	Oct 2019	0.500	Oct 2020	0.704	Oct 2021	-		0.704	0.000	9.345	Continuing
Subtotal			7.140	1.001		0.500		0.704		-		0.704	0.000	9.345	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army **Date: May 2021**

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Follow on Hardware, Software and Systems Development																												
	Development Efforts																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / TROJAN - RH12	Project (Number/Name) RH5 / TROJAN - RH12
--	---	---

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Hardware, Software and Systems Development	1	2014	4	2018
Follow on Hardware, Software and Systems Development	1	2019	4	2023

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303267A / <i>Auctioned Spectrum Relocation Fund</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	7.650	-	-	-	-	-	-	-	-	-	-
XR2: <i>Auctioned Spectrum Relocation Fund</i>	-	7.650	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

In accordance with 47 USC 928 and the Commercial Spectrum Enhancement Act (CSEA) Title II, P.L.108-494, dated December 23, 2004, established the Spectrum Relocation Fund (SRF) to provide Federal agencies a mechanism to recover the costs associated with relocating communication systems from spectrum bands which were auctioned for commercial purposes. The SRF is funded with proceeds from FCC conducted auctions of spectrum licenses. SRF funds have an indefinite obligation period and remain available until expended (X Year). The DoD Chief Information Officer (CIO) executes oversight of DoD spectrum relocation and sharing efforts.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	7.650	0.000	0.000	-	0.000
Total Adjustments	7.650	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.650	-			
• SBIR/STTR Transfer	-	-			

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303467A / <i>SENSR Spectrum Pipeline SRF</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	0.251	-	-	-	-	-	-	-	-	-	-
X1B: <i>SENSR Spectrum Pipeline SRF</i>	-	0.251	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

In accordance with 47 USC 928 and the Commercial Spectrum Enhancement Act (CSEA) Title II, P.L.108-494, dated December 23, 2004, established the Spectrum Relocation Fund (SRF) to provide Federal agencies a mechanism to recover the costs associated with relocating communication systems from spectrum bands which were auctioned for commercial purposes. The SRF is funded with proceeds from FCC conducted auctions of spectrum licenses. SRF funds have an indefinite obligation period and remain available until expended (X Year). The DoD Chief Information Officer (CIO) executes oversight of DoD spectrum relocation and sharing efforts.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.251	0.000	0.000	-	0.000
Total Adjustments	0.251	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.251	-			
• SBIR/STTR Transfer	-	-			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303467A / <i>SENSR Spectrum Pipeline SRF</i>	Project (Number/Name) X1B / <i>SENSR Spectrum Pipeline SRF</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
X1B: <i>SENSR Spectrum Pipeline SRF</i>	-	0.251	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

In accordance with 47 USC 928 and the Commercial Spectrum Enhancement Act (CSEA) Title II, P.L. 108-494, dated December 23, 2004, established the Spectrum Relocation Fund (SRF) to provide Federal agencies a mechanism to recover the costs associated with relocating communication systems from spectrum bands which were auctioned for commercial purposes. The SRF is funded with proceeds from FCC conducted auctions of spectrum licenses. SRF funds have an indefinite obligation period and remain available until expended (X Year). The DoD Chief Information Officer (CIO) executes oversight of DoD spectrum relocation and sharing efforts.

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

	FY 2020	FY 2021	FY 2022
Title: <i>SENSR Spectrum Pipeline SRF</i>	0.251	-	-
Accomplishments/Planned Programs Subtotals	0.251	-	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303467A / <i>SENSR Spectrum Pipeline SRF</i>	Project (Number/Name) X1B / <i>SENSR Spectrum Pipeline SRF</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SENSR Spectrum Pipeline SRF	[REDACTED]																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303467A / <i>SENSR Spectrum Pipeline SRF</i>	Project (Number/Name) X1B / <i>SENSR Spectrum Pipeline SRF</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SENSR Spectrum Pipeline SRF	3	2020	3	2021

Note
SENSR Spectrum Pipeline

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303567A / <i>Non-SENSR Spectrum Pipeline SRF</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	1.236	-	-	-	-	-	-	-	-	-	-
X1C: <i>Non-SENSOR Spectrum Pipeline SRF</i>	-	1.236	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

In accordance with 47 USC 928 and the Commercial Spectrum Enhancement Act (CSEA) Title II, P.L. 108-494, dated December 23, 2004, established the Spectrum Relocation Fund (SRF) to provide Federal agencies a mechanism to recover the costs associated with relocating communication systems from spectrum bands which were auctioned for commercial purposes. The SRF is funded with proceeds from FCC conducted auctions of spectrum licenses. SRF funds have an indefinite obligation period and remain available until expended (X Year). The DoD Chief (CIO) executes oversight of DoD spectrum relocation and sharing efforts.

B. Program Change Summary (\$ in Millions)

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	1.236	0.000	0.000	-	0.000
Total Adjustments	1.236	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.236	-			
• SBIR/STTR Transfer	-	-			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0303567A / Non-SENSR Spectrum Pipeline SRF				Project (Number/Name) X1C / Non-SENSOR Spectrum Pipeline SRF			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
X1C: Non-SENSOR Spectrum Pipeline SRF	-	1.236	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In accordance with 47 USC 928 and the Commercial Spectrum Enhancement Act (CSEA) Title II, P.L. 108-494, dated December 23, 2004, established the Spectrum Relocation Fund (SRF) to provide Federal agencies a mechanism to recover the costs associated with relocating communication systems from spectrum bands which were auctioned for commercial purposes. The SRF is funded with proceeds from FCC conducted auctions of spectrum licenses. SRF funds have an indefinite obligation period and remain available until expended (X Year). The DoD Chief Information Officer (CIO) executes oversight of DoD spectrum relocation and sharing efforts.

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

	FY 2020	FY 2021	FY 2022
Title: Non-SENSOR Spectrum Pipeline SRF	1.236	-	-
Description: Federal Communications Commission (FCC) spectrum auction has reduced the available frequencies traditionally used for Telemetry. White Sands Missile Range (WSMR) has been moving out of the 1755-1780 band by modifying Telemetry Receive Ground Systems with T1/T2 Modulation Efficient capability and LTE filter. Enhance Spectrum Monitoring & Management/ De-confliction capability.			
Accomplishments/Planned Programs Subtotals	1.236	-	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0303567A / Non-SENSR Spectrum Pipeline SRF		Project (Number/Name) X1C / Non-SENSOR Spectrum Pipeline SRF	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
5.5 m Tracker Installation at Salinas Peak / On-site Testing				■																								
5.5 m Tracker Installation at Alamo Peak / On-site Testing						■																						
5.5 m Tracker Installation at Dry Site / On-site Testing								■																				

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303567A / <i>Non-SENSR Spectrum Pipeline SRF</i>	Project (Number/Name) X1C / <i>Non-SENSOR Spectrum Pipeline SRF</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
5.5 m Tracker Installation at Salinas Peak / On-site Testing	4	2020	1	2021
5.5 m Tracker Installation at Alamo Peak / On-site Testing	1	2021	1	2021
5.5 m Tracker Installation at Dry Site / On-site Testing	2	2021	2	2021

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	18.432	59.755	75.520	-	75.520	-	-	-	-	-	-
CK3: <i>TLS Echelon Above Brigade (EAB)</i>	-	-	-	19.505	-	19.505	-	-	-	-	-	-
EW5: <i>Electronic Warfare Development</i>	-	11.001	12.597	-	-	-	-	-	-	-	-	-
EW6: <i>ARAT-TSS</i>	-	7.431	9.053	5.391	-	5.391	-	-	-	-	-	-
FJ5: <i>Terrestrial Layer System</i>	-	-	38.105	50.624	-	50.624	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element encompasses engineering and manufacturing development for tactical Electronic Warfare (EW) terrestrial (ground) employment applications. The systems under this program provide the Army with the capability to detect, identify, locate, collect/process, report, and engage (disrupt, degrade or deny) hostile forces to prevent their effective use of communications & non-communications networks, counter-mortar/counter-battery radars, surveillance radars, electronically fused munitions and other enemy threats using the Electro-Magnetic Spectrum (EMS).

Project CK3 supports the development of the Program of Record, Terrestrial Layer System (TLS) Echelons Above Brigade (EAB). TLS-EAB will provide Signals Intelligence (SIGINT), Electronic Warfare (EW), and Cyber-enabling integrated solution to support Multi Domain Battle capability gaps and provide Force Protection, Situational Development, and Information Superiority to Army Divisions, Corps and Multi-Domain Task Forces.

Project EW5 provides for Prophet Enhanced, the current system under the Prophet Ground acquisition program. Its primary mission is to provide 24-hour Situation Development and Information Superiority to the supported maneuver brigade enabling the most effective engagement of enemy forces. Prophet Enhanced provides a modular, scalable, open architecture based system solution optimized for ease of use in a variety of configurations.

Project EW6 provides for the Army Reprogramming Analysis Team (ARAT), a Department of the Army established project to develop techniques, methods, tools and architecture to reprogram mission software embedded in Army EW systems, Force Protection Systems (FPS), and Target Sensing Systems (TSS) in response to changes in threat signatures. ARAT Research and Development enables continuous development of: 1) automated threat analysis tools to rapidly detect (flag) threat changes within intelligence systems, 2) tools to minimize the time to develop EW Mission Software and Products (MSP) for both air and ground EW systems, 3) tools and technology to minimize the time required to test and validate MSPs, 4) improved communications conduits to transmit mission software changes to field users, and 5) enhanced mission-software uploading tools. These efforts allow for rapid threat analysis, simulation, mission software development, distribution and uploading of mission software changes directly to the supported Soldier in the field. The ARAT project will develop, test and equip an Army-wide infrastructure capable of rapidly reprogramming electronic combat software embedded in offensive and defensive weapon systems.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
---	-----------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>
--	---

Project FJ5 supports the development of the Program of Record, Terrestrial Layer System (TLS), an effort that initiated in FY 2020 (funded with PE 0604021A / AW7). TLS will provide Signals Intelligence (SIGINT), Electronic Warfare (EW), and Cyber-enabling integrated solution to support Multi Domain Battle capability gaps and provide Force Protection, Situational Development, and Information Superiority to the maneuver forces.

FY 2022 funds the Terrestrial Layer System (TLS) Echelons Above Brigade (EAB) efforts (Project CK3), Army Reprogramming Analysis Team (ARAT) efforts (Project EW6) and Terrestrial Layer System (TLS) efforts (Project FJ5).

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	18.432	59.755	66.861	-	66.861
Current President's Budget	18.432	59.755	75.520	-	75.520
Total Adjustments	0.000	0.000	8.659	-	8.659
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	8.659	-	8.659

Change Summary Explanation

FY2022 PE 0304270A Project CK3 increase of \$19.505 million to support TLS Echelons Above Brigade (EAB); FY2022 realignment (decrease) of \$6.212 million from PE 0304270A Project EW5 (BA5) to PE 0607313A Project CE2 (BA7); FY2022 PE 0304270A Project EW6 decreased \$4.008 million; FY2022 PE 0304270A Project FJ5 decreased \$0.626 million.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>				Project (Number/Name) CK3 / <i>TLS Echelon Above Brigade (EAB)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CK3: <i>TLS Echelon Above Brigade (EAB)</i>	-	-	-	19.505	-	19.505	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

A. Mission Description and Budget Item Justification

The Terrestrial Layer System (TLS) Echelons Above Brigade (EAB) Program of Record will provide Army Divisions, Corps and Multi-Domain Task Forces (MDTF) extended range, integrated full spectrum Signals Intelligence (SIGINT), Electronic Warfare (EW), and Cyber-enabling non-kinetic offensive capabilities to support large scale combat operations. TLS EAB's information Superiority provides Indications and Warnings, Force Protection and Situational Awareness to influence the commander's decision cycle, improve targeting timeliness and accuracy, and provides electronic attack and offensive cyber warfare options to deny, degrade, disrupt, or otherwise manipulate the targeted force. TLS EAB employs technologically advanced systems with a modular open-system approach for multiple configurations that can be efficiently sustained and effectively upgraded to provide capabilities against changing near peer and emerging threats to address joint all domain capability gaps.

Justification:

FY2022 Base funding in the amount of \$19.505 million funds platform integration and system level prototyping for TLS variants that will be fielded to Echelons Above Brigade (EAB).

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

	FY 2020	FY 2021	FY 2022
Title: TLS EAB Integration	-	-	19.505
Description: TLS Echelons Above Brigade (EAB) will be a new Program in FY2022, fulfilling distinct capabilities to support Division, Corps and Multi-Domain Task Force commanders. TLS EAB will be integrated onto different prime mover platforms than TLS Brigade Combat Team (BCT) and will employ different technologies and hardware to fulfill the unique extended range capabilities to support large scale combat operations.			
FY 2022 Plans: Initiates development of System Level Prototypes and integration of TLS EAB mission equipment.			
FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 is first year of funding for this new start requirement.			
Accomplishments/Planned Programs Subtotals	-	-	19.505

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) CK3 / <i>TLS Echelon Above Brigade (EAB)</i>

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

N/A

Remarks

D. Acquisition Strategy

A competitive acquisition approach is planned for TLS EAB development. The TLS EAB program will use a tailored acquisition approach to rapidly deliver an integrated ground intelligence, electronic warfare and cyber capability on multiple platform types to align with maneuver forces. The TLS EAB program will leverage authorities to accelerate delivery through rapid prototyping with rapid fielding approaches or a Milestone C Decision Point.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) CK3 / <i>TLS Echelon Above Brigade (EAB)</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Development, prototyping and integration																												
TLS EAB Production and Fielding to MDTF Units																												
TLS EAB Production and Fielding to Division Units																												
TLS EAB Production and Fielding to Corps Units																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) CK3 / <i>TLS Echelon Above Brigade (EAB)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development, prototyping and integration	2	2022	4	2026
TLS EAB Production and Fielding to MDTF Units	2	2023	4	2025
TLS EAB Production and Fielding to Division Units	2	2024	4	2027
TLS EAB Production and Fielding to Corps Units	2	2025	4	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>				Project (Number/Name) EW5 / <i>Electronic Warfare Development</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EW5: <i>Electronic Warfare Development</i>	-	11.001	12.597	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

PE 0304270A Project EW5 has no FY2022 funding request; FY2022 funding realigned to 677313CE2.

A. Mission Description and Budget Item Justification

Prophet Enhanced is the current system under the Prophet Ground acquisition program. Funds provide for development and integration of Technical Insertion upgrades for Next Generation Signals and state-of-the-art Signals Intelligence (SIGINT) exploitation techniques to increase the capabilities of the Prophet Enhanced and maintain operational relevance. The Prophet Enhanced is the tactical commander's organic ground-based SIGINT/Electronic Warfare system for the Multi-Function Teams (MFTs) organic to the Brigade Combat Teams (BCTs) and Expeditionary-Military Intelligence Brigades (E-MIBs). Its primary mission is to provide 24-hour Situation Development and Information Superiority to the supported maneuver brigade to enable the most effective engagement of enemy forces. Prophet Enhanced provides a modular, scalable, open architecture-based system solution optimized for ease of use in a variety of configurations. It also incorporates product modification, integration, evaluation and demonstration events of equipment for rapid integration of Technical Insertions (TI) and product development to ensure operational relevance.

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

	FY 2020	FY 2021	FY 2022
Title: Program Management	0.450	0.450	-
Description: Engineering, technical and programmatic oversight of the development of next generation signals.			
FY 2021 Plans: Funds will provide for matrix and contractor system engineering and program management support for the Prophet program.			
FY 2021 to FY 2022 Increase/Decrease Statement: Funding realigned to PE 0607313A CE2.			
Title: Signal of Interest upgrades	4.024	8.647	-
Description: The Signal Environment that Prophet Systems exploit is constantly contested with evolving threats. This environment creates gaps in Prophet's ability to collect and exploit these signals. Prophet must integrate the latest emerging Intelligence Community (IC) and commercial solutions upgrades to remain relevant against these numerous, key, and high-priority emerging threats.			
FY 2021 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW5 / <i>Electronic Warfare Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Continuing, but not limited to development and evaluation of Next Generation SIGINT capabilities into the Prophet SIGINT Software (PS2). The new signals and libraries of signals address key exploitation gaps in the Prophet system's ability to collect against key tactical near peer signals and emerging threats. FY 2021 to FY 2022 Increase/Decrease Statement: Funding realigned to PE 0607313A CE2.				
Title: Proficiency Trainer and Target Signature Arrays Description: The Proficiency Trainer and Target Signature Arrays are required to conduct training to sustain operator proficiency on the Prophet Enhanced at the unit level after the system has been fielded and post New Equipment Training (NET) training.		2.000	-	-
Title: Enhanced Signal Processing and Line of Sight Testing Description: Testing required of the Enhanced Signal Processing kit and Line of Sight Communications kit onto the Prophet Enhanced system. FY 2021 Plans: Combined testing of the Enhanced Signal Processing kit and Line of Sight Communication kit. FY 2021 to FY 2022 Increase/Decrease Statement: Funding realigned to PE 0607313A CE2.		1.044	0.200	-
Title: Enhanced Signal Processing Integration & Development Description: Effort to integrate the Enhanced Signal Processing kit into the Prophet Enhanced system. FY 2021 Plans: Development and evaluation of the Enhanced Signal Processing capability. FY 2021 to FY 2022 Increase/Decrease Statement: Funding realigned to PE 0607313A CE2.		3.483	0.550	-
Title: Customer Testing Description: Customer Testing of the Prophet Enhanced system as a result of changes to the baseline. FY 2021 Plans:		-	0.785	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW5 / <i>Electronic Warfare Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Customer Testing of the Prophet System baseline after transition to sustainment to support and maintain the PE System Full Material Release			
FY 2021 to FY 2022 Increase/Decrease Statement: Funding realigned to PE 0607313A CE2.			
Title: Technical Data Package	-	1.965	-
Description: Technical Data Package (TDP) for Prophet Enhanced, to be used for sustainment support as well as for follow on systems			
FY 2021 Plans: Develop Technical Data Package (TDP) for Prophet Enhanced			
FY 2021 to FY 2022 Increase/Decrease Statement: Funding realigned to PE 0607313A CE2.			
Accomplishments/Planned Programs Subtotals	11.001	12.597	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• BZ9753: <i>PROPHET ENHANCED MODIFICATIONS</i>	57.103	78.529	35.300	-	35.300	-	-	-	-	-	-
• BZ9751: <i>SPECIAL PURPOSE SYSTEMS</i>	4.000	48.979	3.739	-	3.739	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The Prophet Research and Development (R&D) Acquisition Strategy is structured to maintain operational relevancy of Prophet Enhanced systems in a dynamic threat environment while reducing risk and streamlining business and engineering processes. Contracting activities are to maintain SIGINT relevance and complete Technical Insertion (TI) to Prophet Enhanced systems to pursue the latest Signals of Interest and design against obsolescence. The Technical Insertion (TI) contract supports R&D and other developmental work.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0304270A / <i>Electronic Warfare Development</i>				EW5 / <i>Electronic Warfare Development</i>							
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	PM Electronic Warfare & Cyber : APG, MD	1.611	0.450	Dec 2019	0.450	Dec 2020	-		-		-	Continuing	Continuing	Continuing
Subtotal			1.611	0.450		0.450		-		-		-	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Signals of Interest Upgrade	SS/CPFF	GD Mission Systems : Scottsdale, AZ	4.093	4.024	Jan 2020	8.647	Jan 2021	-		-		-	Continuing	Continuing	Continuing
Trainer/TSA	SS/ Various	GD Mission Systems and Various Supporting Organizations : Scottsdale, AZ	-	2.000	Jan 2020	-		-		-		-	0.000	2.000	-
Enhanced Signal Processing Integration, Development & Evaluation	SS/CPFF	GD Mission Systems : Scottsdale, AZ	-	3.483	Jan 2020	0.550	Jan 2021	-		-		-	Continuing	Continuing	Continuing
Subtotal			4.093	9.507		9.197		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Data Package	SS/CPFF	GD Mission Systems : Scottsdale, AZ	-	-		1.965	Mar 2021	-		-		-	0.000	1.965	-
Subtotal			-	-		1.965		-		-		-	0.000	1.965	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW5 / <i>Electronic Warfare Development</i>
--	---	---

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Enhanced Signal Processing and Line of Sight Testing	MIPR	Army Test & Evaluation Command : Ft. Huachuca, AZ	-	1.044	Mar 2020	0.200	Dec 2020	-		-		-	0.000	1.244	-
Customer Testing	MIPR	Army Test & Evaluation Command : APG, MD	-	-		0.785	Jan 2021	-		-		-	0.000	0.785	-
Subtotal			-	1.044		0.985		-		-		-	0.000	2.029	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		5.704	11.001	12.597	-	-	-	Continuing	Continuing	N/A

Remarks
PE 0304270A Project EW5 has no FY2022 funding request; FY2022 funding realigned to 677313CE2.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW5 / <i>Electronic Warfare Development</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Prophet Technical Insertion (TI)																																				
Customer Testing (2021)																																				
Customer Testing (2023)																																				
Customer Testing (2025)																																				
Prophet Modification of Legacy Systems																																				
Prophet Modification of Legacy Systems - Fielding																																				
Prophet Technical Insertions																																				
System Customer Testing																																				
System Customer Testing																																				
System Customer Testing																																				
System Customer Testing																																				
Prophet Modification																																				
Prophet Modification - Fielding																																				

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW5 / <i>Electronic Warfare Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Prophet Technical Insertion (TI)	4	2008	4	2025
Customer Testing (2021)	2	2021	2	2021
Customer Testing (2023)	2	2023	2	2023
Customer Testing (2025)	2	2025	2	2025
Prophet Modification of Legacy Systems	3	2017	1	2021
Prophet Modification of Legacy Systems - Fielding	2	2018	4	2021

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>				Project (Number/Name) EW6 / ARAT-TSS			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EW6: ARAT-TSS	-	7.431	9.053	5.391	-	5.391	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Army Reprogramming Analysis Team (ARAT) is a Department of the Army established program to develop techniques, methods, tools, and architecture to rapidly reprogram mission software embedded in Army Electronic Warfare (EW) Force Protection Systems (FPS) in response to changes in threat signatures. The regulatory guidance directing this mission is contained in Army Regulation (AR) 525-15, AR 525-22, and AR 95-1. The ARAT develops integrated technical solutions required to counter increasingly sophisticated EW Signal threats to US Forces. The ARAT mission software reprogramming infrastructure supports the Army Campaign Plan to provide the Regionally Aligned Forces tactical Commander timely rapid-reprogramming capability of EW systems with mission software. The ARAT mission responsibility is to develop and distribute Mission Software and Products to forward deployed combat forces. ARAT identifies and analyzes worldwide threat signature changes which affect EW systems; determines the impact of observed Signal Intelligence (SIGINT) signature changes; rapidly develops new mission software to adapt friendly systems to detect and defeat enemy threats to U.S. Army ground and air platforms; disseminates the Mission Software and Products to forward deployed forces, and provides government developed tools and software to upload new mission software into the affected EW systems.

A. Mission Description and Budget Item Justification

Current military operations are conducted in a rapidly changing threat environment, where Improvised Explosive Devices (IEDs), Infra Red (IR) man-portable air defense systems (MANPADS) seekers, radar guided surface-to-air-missiles (SAM), laser guided weapons, anti-helicopter mines, and targeting sensors are proliferating and evolving. Integrated solutions are required to counter increasingly sophisticated EW threats. The ARAT reprogramming infrastructure supports the tactical Commander by providing timely rapid reprogramming of mission software and information dissemination for Army supported, Joint and allied services. ARAT supports integrated reprogramming of target acquisition, target engagement, vehicle survivability, and Aircraft Survivability Equipment (ASE). ARAT rapid-reprogramming infrastructure supports tactical requirements for deployed aircraft and ground-based (e.g. Counter Radio-Controlled Improvised Explosive Device (CREW)) survivability systems. ARAT identifies and analyzes threat signature changes which affect EW systems; determines the impact of observed signature changes; develops new mission software to adapt the system to the changes; disseminates the mission software; and provides methods to upload the new mission software into the affected EW systems. Each element within the ARAT infrastructure plays a specific role within the program's rapid reprogramming process, providing the Soldier with the capability to install mission and target identification software at the lowest possible level, thus maximizing flexibility for tactical commanders. ARAT participates in the operational and developmental test design of Army EW systems, and supports Joint Service Reprogramming Exercises in all theaters. ARAT Research and Development enables continuous development of: 1) automated threat analysis tools to rapidly detect (flag) threat changes within the intelligence system, 2) tools to minimize the time to develop Mission Software and Products (MSP), 3) tools and technology to minimize the time required to test and validate MSPs, 4) improved communications conduits to rapidly transmit mission software to upload into supported EW systems. These efforts allow for rapid threat analysis, threat modeling and simulation, mission software development and testing, distribution and uploading of mission software directly to the supported Soldier in the field.

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

	FY 2020	FY 2021	FY 2022
Title: Keeping Pace with the Enemy and Technology	4.424	4.703	2.657

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW6 / ARAT-TSS

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: This effort focuses on developing a capability for the Government to rapidly develop and distribute organic mission software solutions for multiple EW systems. The Army must continually modernize and enhance software tools, hardware modernization, and processes counter enemy technology. ARAT EW6 executes Research, Development, Test, and Evaluation (RDTE) funding to provide an organic Army capability for this organization to rapidly develop, test and distribute mission software solutions for forward deployed combat forces.</p> <p>FY 2021 Plans: ARAT's FY 2021 base plan to keep pace with enemy and technology will focus on gaining a decisive edge on emerging enemy technologies that are evolving rapidly. With the Army's shift to focus on peer and near peer adversaries ARAT must enhance it's ability to rapidly detect a changed or new threat, analyze the threat, develop a rapid mission software solution to detect and defeat the threat, and rapidly distribute the mission software to forward deployed combat forces.</p> <p>FY 2022 Plans: ARAT EW6 will continue infrastructure enhancement activities that will reduce timelines from threat detection to distribution of mission software solutions that detect and defeat enemy Electronic Warfare systems directed against air and ground Army platforms.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: ARAT EW6 has decreased funding requirement from FY21 to FY22. Decreased is based on reduction of planned activities from FY21 to FY22.</p>			
<p>Title: Infrastructure Improvements Multispectral</p> <p>Description: This effort focuses on enhancing the Army's Multispectral Missile Warning System (MWS) software sustainment infrastructure. With the worldwide proliferation of MANPADS the Army must have the capability to rapidly analyze and develop mission software solutions that detect and counter MANPADS to defend Army Aviation platforms against this lethal threat.</p> <p>FY 2021 Plans: The FY 2021 plan includes modernization of the infrastructure automated testing of mission software. ARAT will continue to focus on enhancing software tools that aid in speeding up testing time of mission software. Mission software must be rigorously tested and validated prior to release to forward deployed combat forces. ARAT performs testing of thousands of test points within a mission software file. Due to the sophistication of emerging threat weapon systems ARAT will increase the amount of test points required to validate the release of mission software. ARAT will need to continue enhancing it's infrastructure to rapidly develop and test mission software. ARAT has procured new threat simulators that require software to allow the simulators to replicate</p>	0.893	1.087	0.616

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW6 / ARAT-TSS		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>enemy weapon system radars. Simulation software allows ARAT to replicate sophisticated enemy radar systems that are required to conduct laboratory testing of mission software.</p> <p>FY 2022 Plans: ARAT EW6 will continue infrastructure enhancement activities that will reduce timelines from threat detection to distribution of mission software solutions that detect and defeat enemy Electronic Warfare systems directed against air and ground Army platforms.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: ARAT EW6 has decreased funding requirement from FY21 to FY22. Decreased is based on reduction of planned activities from FY21 to FY22.</p>				
<p>Title: Infrastructure Improvement Radio Frequency General</p> <p>Description: This effort focuses on enhancing the Army's Radio Frequency (RF) EW system Mission Software and Products (MSP) development and distribution infrastructure. The Army must fight in a contested and congested EW environment. Mission software solutions to defend against RF threats must be rapidly developed, tested, and distributed to Soldiers on an ever changing battlefield.</p> <p>FY 2021 Plans: ARAT FY 2021 base plan is enhance the Radio Frequency infrastructure. Intended efforts include designing and developing software that emulates radar components to reduce dependency on aging antennas and aircraft processors that are in low inventory across the Army. Emulated aircraft components reduces the maintenance requirement to repair or replace actual aircraft hardware in the ARAT laboratories. Additionally, ARAT will continue enhancing automated testing of mission software. Automated testing decreases the time it takes to validate mission software by utilizing software tools to execute the testing in lieu of having engineers perform the testing functions. ARAT will continue to enhance the Ground Electronic Warfare (GrEW) mission software development and testing infrastructure. GrEW efforts will include software emulation of operational environments where GrEW systems will operate worldwide. The emulation software will allow ARAT to create realistic environments in a laboratory. Realistic environments include the physical and climatological components of where the GrEW systems may operate. Having the capability to model environments in a laboratory provides the ability to rapidly test and validate mission software in lieu of lengthy field testing.</p> <p>FY 2022 Plans:</p>		1.263	1.386	1.004

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW6 / ARAT-TSS		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>ARAT EW6 will continue infrastructure enhancement activities that will reduce timelines from threat detection to distribution of mission software solutions that detect and defeat enemy Electronic Warfare systems directed against air and ground Army platforms.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: ARAT EW6 has decreased funding requirement from FY21 to FY22. Decreased is based on reduction of planned activities from FY21 to FY22.</p>				
<p>Title: Threat Flagging and Mission Data Set Reprogramming Tool Development</p> <p>Description: This effort focuses on enhancing the Army's capability to monitor changes in enemy EW systems that affect system performance of Army detection, declaration, and countermeasure EW systems onboard. The enemy is continuously developing or modifying its EW systems. For Army platforms to have protection against enemy systems it must have a robust capability to immediately detect changes in threat system performance and rapidly develop, test, and distribute a mission software solution that counters the threat. This effort will enhance the Army's capability bridge detection of a change in enemy threat and the rapid development of MSP.</p> <p>FY 2021 Plans: The FY 2021 Base Plan is to enhance ARAT's ability to rapidly detect threat changes worldwide. Additionally, design and develop software tools that provide the capability to enhance the accuracy and speed of mission software development and testing for Electronic Warfare systems. Planned efforts include enhancing ARAT's Threat Detection and Threat Analysis capability. Enhancing Threat Detection will provide ARAT with the ability to rapidly detect changes in known threats, assess the impact of the change in threat, develop a mission software solution to detect and defeat the threat, and distribute the new mission software to forward deployed forces. ARAT will continue to focus RDT&E efforts on enhancing the mission software development and testing infrastructure.</p> <p>FY 2022 Plans: ARAT EW6 will continue infrastructure enhancement activities that will reduce timelines from threat detection to distribution of mission software solutions that detect and defeat enemy Electronic Warfare systems directed against air and ground Army platforms.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: ARAT EW6 has decreased funding requirement from FY21 to FY22. Decreased is based on reduction of planned activities from FY21 to FY22.</p>		0.851	1.877	1.114
Accomplishments/Planned Programs Subtotals		7.431	9.053	5.391

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW6 / ARAT-TSS

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

Remarks

D. Acquisition Strategy

The efforts to be funded in this project will require a combination of systems specific and high-tech knowledge. The contractual services portion for the project will be obtained from both the Communications-Electronics Command (CECOM) Software Engineering Center (SEC) competitive omnibus and the Program Executive Office - Simulation, Training and Instrumentation (PEO STRI), and the Defense Technical Intelligence Center (DTIC) high tech contracts.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0304270A / <i>Electronic Warfare Development</i>				EW6 / ARAT-TSS								
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management	Various	CECOM SEC : Aberdeen Proving Ground, MD	9.548	0.182	Mar 2020	0.188	Mar 2020	-		-		-	Continuing	Continuing	Continuing	
Subtotal			9.548	0.182		0.188		-		-		-	Continuing	Continuing	N/A	
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
USG Labor	Various	CECOM SEC : Various Locations	3.483	0.383		1.190		0.576		-		0.576	0.000	5.632	-	
Travel	Various	CECOM SEC : Various Locations	0.918	0.084		0.088		0.092		-		0.092	0.000	1.182	-	
Subtotal			4.401	0.467		1.278		0.668		-		0.668	0.000	6.814	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Development Support	Various	CECOM SEC, RDECOM, DTIC : Various Locations	41.154	6.782	Mar 2020	7.587	Mar 2020	4.723	Mar 2020	-		4.723	Continuing	Continuing	Continuing	
Subtotal			41.154	6.782		7.587		4.723		-		4.723	Continuing	Continuing	N/A	
Project Cost Totals			55.103	7.431		9.053		5.391		-		5.391	Continuing	Continuing	N/A	
Remarks																

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW6 / ARAT-TSS	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Software Development Enhancement Support (see notes in Sch <i>Software Development Support</i>																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) EW6 / ARAT-TSS

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Development Enhancement Support (see notes in Schedule Detail)	1	2015	4	2021

Note

- Software Test Automation
- Threat Analysis Data Evaluation Tool
- Enhance Data Distribution

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>
--	---	---

COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
FJ5: <i>Terrestrial Layer System</i>	-	-	38.105	50.624	-	50.624	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Terrestrial Layer System (TLS) provides Army maneuver forces integrated full spectrum Signals Intelligence (SIGINT), Electronic Warfare (EW), and Cyber-enabling non-kinetic offensive operation options to Brigade Combat Team (BCT) commanders. TLS' information Superiority provides Indications and Warnings, Force Protection and Situational Awareness to influence the commander's decision cycle, improve targeting timeliness and accuracy, and provide the maneuver commander with electronic attack and offensive cyber warfare options to deny, degrade, disrupt, or otherwise manipulate the targeted force. TLS employs technologically advanced systems with a modular open-system approach for multiple configurations that can be efficiently sustained and effectively upgraded to provide capabilities against changing near peer and emerging threats to address multi-domain capability gaps.

Justification:
FY 2022 Base funding in the amount of \$50.624 million funds system level prototyping, platform integration on multiple platforms and testing efforts for TLS variants that will be fielded to BCTs.

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

	FY 2020	FY 2021	FY 2022
<p>Title: Technical / Program Management</p> <p>Description: Funds will provide for technical engineering and program management.</p> <p>FY 2021 Plans: FY 2021 technical engineering and program management support for TLS.</p> <p>FY 2022 Plans: FY 2022 technical engineering and program management support for TLS.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 funding decreased due to availability of other resources to support efforts.</p>	-	7.318	5.799
<p>Title: Platform Integration and System Development</p> <p>Description: Development of System Level Prototypes and integration of TLS mission equipment onto vehicle platforms that will enable TLS platforms to match vehicle platforms organic to the unit.</p> <p>FY 2021 Plans:</p>	-	28.036	30.492

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Development of System Level Prototypes and integration of TLS mission equipment onto vehicle platform(s). FY 2022 Plans: Development of System Level Prototypes and integration of TLS mission equipment onto at least, but not limited to the Stryker vehicle platform and AMPV vehicle platform. FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 funding requirement increased due to integration on additional platforms.			
Title: Test Events Description: System and Operational test events FY 2021 Plans: Testing of TLS system FY 2022 Plans: Testing of TLS system FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 requirement increased due to additional platforms.	-	2.751	9.476
Title: New signal threat integration and signal relevancy FY 2022 Plans: Includes, but is not limited to, development and evaluation of Next Generation SIGINT, EA and Cyber capabilities into the TLS baseline to increase signal processing capabilities for the against key near peer and emerging enemy threat signals. FY 2021 to FY 2022 Increase/Decrease Statement: FY 2022 is the first year for this requirement.	-	-	4.857
Accomplishments/Planned Programs Subtotals	-	38.105	50.624

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• B97600: <i>TERRESTRIAL LAYER SYSTEMS (TLS)</i>	-	8.081	39.240	-	39.240	-	-	-	-	-	-
• 0604021A: <i>Electronic Warfare Technology Maturation (MIP)</i>	23.043	15.034	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
------------------	----------------	----------------	-------------------------------	------------------------------	--------------------------------	----------------	----------------	----------------	----------------	-----------------------------------	-------------------

Remarks

D. Acquisition Strategy

A competitive acquisition approach is planned for TLS development. The TLS program will use a tailored acquisition approach to rapidly deliver an integrated ground intelligence, electronic warfare and cyber capability on multiple platform types to align with maneuver forces. The TLS program will leverage authorities to accelerate delivery through rapid prototyping with rapid fielding approaches or a Milestone C Decision Point.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>
--	---	---

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical / Program Management	TBD	TBD : TBD	-	-		7.318	Feb 2021	5.799	Feb 2022	-		5.799	Continuing	Continuing	-
Subtotal			-	-		7.318		5.799		-		5.799	Continuing	Continuing	N/A

Remarks
Efforts include FFRDC support from Contract #W56KGU-18-D-0004 to continue developing and managing the Signals processing and compute environment as well as from competitive contract #W15P7T-10-D-D421 for Systems Engineering and Technical Assistance (SETA) support.

Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Vehicle Integration and System Development	C/CPFF	TBD : TBD	-	-		28.036	Mar 2021	30.492	Dec 2021	-		30.492	0.000	58.528	-
New signal threat integration and signal relevancy	C/CPFF	TBD : TBD	-	-		-		4.857	Jan 2022	-		4.857	0.000	4.857	-
Subtotal			-	-		28.036		35.349		-		35.349	0.000	63.385	N/A

Remarks
Competitive OTA #W15QKN-17-9-5555 for development and integration. FY2022 funding supports continued system development and integration on at least, but not limited to the Stryker vehicle platform and the AMPV vehicle platform that will enable TLS fielded systems to match vehicle platforms organic to the fielded unit.

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Events	MIPR	ATEC : APG, MD	-	-		2.751	Mar 2021	9.476	Mar 2022	-		9.476	0.000	12.227	-
Subtotal			-	-		2.751		9.476		-		9.476	0.000	12.227	N/A

Remarks
FY2022 Test & Evaluation efforts will be accomplished via a combination of various support contracts and direct Government support.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Milestone A	▲ 1																												
Component Engineering and Prototyping		■																											
Mid Tier Acquisition Approval		▲ 2																											
Integration on Stryker					■																								
Field Test 1							■																						
Field Test 2								■																					
Long Lead Component Procurement									■																				
Rapid Fielding or MS C Decision Point											▲ 3																		
Production on Stryker Variant													■																
First Unit Equipped with TLS on Stryker											▲ 4																		
IOT&E / Log Demo												■																	
Integration & Evaluation on AMPV													■																
TLS Production on AMPV																	■												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Integration & Evaluation on IBCT Platform ("Y")																												
TLS Production on IBCT Platform ("Y")																												
Iterative Prototyping																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0304270A / <i>Electronic Warfare Development</i>	Project (Number/Name) FJ5 / <i>Terrestrial Layer System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone A	2	2020	2	2020
Component Engineering and Prototyping	3	2020	2	2021
Mid Tier Acquisition Approval	3	2020	3	2020
Integration on Stryker	2	2021	1	2022
Field Test 1	4	2021	4	2021
Field Test 2	4	2021	1	2022
Long Lead Component Procurement	2	2021	1	2022
Rapid Fielding or MS C Decision Point	1	2022	1	2022
Production on Stryker Variant	2	2022	2	2025
First Unit Equipped with TLS on Stryker	4	2022	4	2022
IOT&E / Log Demo	1	2023	1	2023
Integration & Evaluation on AMPV	2	2022	4	2023
TLS Production on AMPV	1	2024	1	2025
Integration & Evaluation on IBCT Platform ("Y")	2	2023	4	2024
TLS Production on IBCT Platform ("Y")	1	2025	4	2026
Iterative Prototyping	1	2022	1	2027