Department of Defense
Fiscal Year (FY) 2022 Budget Estimates

May 2021

Army

Justification Book Volume 3a of 3

Research, Development, Test & Evaluation, Army

RDT&E − Volume III, Budget Activity 6

Volume 3a Table of Contents

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.

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:

Budget Activity	***OSDPE / Project***	***Project Title***
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:

Budget Activity	***Old OSDPE / Project: Title***	***New OSDPE / Project***
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):

Budget Activity	***OSDPE / Project***	***Project Title***
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 V ehicles / 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.

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

Appropriation	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
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
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title			
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

Department of Defense
FY 2022 President's Budget
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(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

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
Summary Recap of Non-RDT&E Title FYDP Programs			
Central Supply and Maintenance	890,830	942,493	1,001,231
Total Research, Development, Test & Evaluation	890,830	942,493	1,001,231

Department of the Army
FY 2022 President's Budget
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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	Sec
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

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	Sec
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

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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 Missle 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

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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

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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

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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

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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

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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

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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

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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

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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

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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	

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05 May 2021

Summary Recap of Budget Activities	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
Research, Development, Test, And Evaluation	890,830	942,493	1,001,231
Total Research, Development, Test & Evaluation	890,830	942,493	1,001,231

Summary Recap of Non-RDT&E Title FYDP Programs			
Central Supply and Maintenance	890,830	942,493	1,001,231
Total Research, Development, Test & Evaluation	890,830	942,493	1,001,231

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	Sec
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	

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

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

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

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

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604256A / *Threat Simulator 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**
Total Program Element	-	41.566	41.486	18.439	-	18.439	-	-	-	-	-	-
976: *Army Threat Sim (ATS)*	-	41.566	41.486	18.439	-	18.439	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) supports the design, development, acquisition, integration and fielding of realistic mobile threat simulators and realistic threat simulation products utilized in Army/Department of Defense (DoD) training and developmental and operational tests. This PE originally funded simulators representing Soviet equipment, but scope was expanded to address emerging world threats. Army Threat Simulator and Threat Simulation products are utilized to populate test battlefields for United States (U.S.) Army Test and Evaluation Command (ATEC), to conduct developmental and operational tests, and to support Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) required user testing in System Integration Laboratories (SILs) and hardware/simulation in-the-loop facilities. These battlefield simulators represent adversary systems (e.g. missile systems, command, control and communications systems, electronic warfare systems, etc.) in order to portray a realistic threat environment during testing of U.S. weapon systems.

Army Threat Simulator and Threat Simulation products developed or fielded under this PE support Army-wide, non-system-specific threat product requirements. Each capability is pursued in concert and coordination with existing Army/DoD and Tri-Service capabilities to eliminate duplication of effort. Simulator development is responsive to Office of the Secretary of Defense and Government Accountability Office guidance for the Army to conduct operational testing in a realistic threat environment. Actual threat equipment is acquired when appropriate (in lieu of development) and total package fielding is still required (i.e., instrumentation, operations and maintenance, manuals, new equipment training, etc.). Threat simulator development is accomplished under the auspices of the Project Manager for Cyber Test and Training (PM CT2) and the Director, Operational Test and Evaluation (DOT&E) Threat Simulator Investment Working Group.

B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	42.117	14.515	14.807	-	14.807
Current President's Budget	41.566	41.486	18.439	-	18.439
Total Adjustments	-0.551	26.971	3.632	-	3.632
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	27.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.551	-0.529			
• Adjustments to Budget Years	-	-	3.632	-	3.632

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604256A / *Threat Simulator Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 976: *Army Threat Sim (ATS)*		
Congressional Add: *Threat Cyberspace Operations*	13.000	3.750
Congressional Add: *Cyber Security Operations Center*	15.000	20.000
Congressional Add: *Cyber Threat Vunerabilities & Assessments*	-	3.750
Congressional Add Subtotals for Project: 976	28.000	27.500
Congressional Add Totals for all Projects	28.000	27.500

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604256A / *Threat Simulator Development*	Project (Number/Name) 976 / *Army Threat Sim (ATS)*	

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
976: *Army Threat Sim (ATS)*	-	41.566	41.486	18.439	-	18.439	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the design, development, acquisition, integration, and fielding of realistic mobile threat simulators and realistic threat simulation products utilized in Army/Department of Defense (DoD) training and developmental and operational tests. This Project originally funded simulators representing Soviet equipment, but scope was expanded to address emerging world threats. Army Threat Simulator and Threat Simulation products are utilized to populate test battlefields for the United States (U.S.) Army Test and Evaluation Command (ATEC), to conduct developmental and operational tests, and to support Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) required user testing in System Integration Laboratories (SILs) and hardware/simulation in-the-loop facilities. These battlefield simulators represent adversary systems (e.g. missile systems, command, control and communication systems, electronic warfare systems, etc.) in order to portray a realistic threat environment during testing of U.S. weapon systems.

Army Threat Simulator and Threat Simulation products developed or fielded under this Project support Army-wide, non-system-specific threat product requirements. Each capability is pursued in concert and coordination with existing Army/DoD and Tri-Service capabilities to eliminate duplication of effort. Simulator development is responsive to Office of the Secretary of Defense and Government Accountability Office guidance for the Army to conduct operational testing in a realistic threat environment. Actual threat equipment is acquired when appropriate (in lieu of development) and total package fielding is still required (i.e., instrumentation, operations and maintenance, manuals, new equipment training, etc.) Threat simulator development is accomplished under the auspices of the Project Manager for Cyber Test and Training (PM CT2) and the Director, Operational Test and Evaluation (DOT&E) Threat Simulator Investment Working Group.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Network Exploitation Test Tool (NETT).	1.699	-	-
Description: NETT is a comprehensive Threat Cyberspace Operations (TCO) tool designed for Test and Evaluation (T&E) to portray evolving hostile and malicious Threat effects within the Cyber domain. Program will continue to provide an integrated suite of open-source/open-method exploitation tools to be integrated with robust reporting and instrumentation capabilities. NETT is used by TCO teams to replicate the tactics of state and non-state Threats and is supported by a robust TCO development environment. The Cyber domain is the most rapidly changing domain in which our systems operate. NETT program will continue research of these capabilities and will use an in-depth process to clean, fix, sustain, modernize, and integrate required Threat tools, tactics, and techniques that will be needed during T&E. Focus areas include: continued Threat integration, instrumentation, distributed collaboration between multiple users, targets and attack visualization, data collection and remote agent development.			
Title: Threat Systems Management Office's (TSMO) Threat Operations	1.429	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604256A / *Threat Simulator Development*	**Project (Number/Name)** 976 / *Army Threat Sim (ATS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: The Threat Operations program will fund the operation, maintenance, management, and sustainment capability for Threat systems used to portray a realistic threat environment during Army testing and training within the Army's Threat inventory in order to support multiple Army/DoD test events including Network Integration Evaluation / Army Warfighting Assessment (NIE / AWA) and anticipated excursion test events for numerous Systems Under Test / Programs of Record (SUT / POR).			
Title: Threat Cyberspace Operations (TCO), formerly named Threat Computer Network Operations Team (TCNOT) ***Description:*** TCO supports Army/DoD events by maintaining a team of highly qualified, trained, and certified TCO professionals who execute Cyber operations against systems under test. The TCO program was designated a "Threat CNO Team" under Army Regulation (AR) 380-53 and is accredited as a United States Cyber Command (USCYBERCOM) / National Security Agency (NSA) certified "Red Team".	1.773	-	-
Title: Threat Cyberspace Operations Fidelity Enhancements. formerly named Threat Computer Network Operations (CNO) Fidelity Enhancements ***Description:*** Establishes high-fidelity Threat malware and real-world tools, tactics, techniques, and procedures of Threat employment of TCO using commercial Information Technologies (IT) intended to engage complex U.S. operations. Threat packages range from "technological nomads" operating autonomously to state level forces using both active and passive network attack to selectively degrade or disrupt C4ISR and Enterprise Business Systems.	0.778	-	-
Title: Threat Battle Command Force (TBCF), formerly named Integrated Threat Force (ITF) ***Description:*** The Threat Battle Command Force (TBCF) incorporates remote operations via distributed Command and Control (C2) while maintaining valid Threat TTP during Test & Evaluation (T&E) and training events.	3.097	-	-
Title: Next Generation Mobile Communication Network Infrastructure Test Range (Next GEN MCNITR) ***Description:*** Next Generation MCNITR provides a mobile, scalable closed-loop cellular communications network infrastructure implementing multiple technologies capable of providing a realistic commercial Radio Frequency (RF) signals environment needed for testing and training of U.S. forces in urban and suburban battle space environments. The Next Generation MCNITR program acquires a capability that simulates real-world RF signals environment and that supports representative Threat force reliance of network enabled devices dependent on advanced cellular technology.	2.003	-	-
Title: Advanced Electronic Support Sensor Suite (AESSS) ***Description:*** AESSS provides expansion of Army's ability to portray acoustic, seismic, radio frequency, and electro-optical / infrared (EO/IR) sensor capabilities.	2.787	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604256A / *Threat Simulator Development*	**Project (Number/Name)** 976 / *Army Threat Sim (ATS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Threat Information Warfare	-	4.805	5.977
Description: Provides cyber red team personnel and Information Operations (IO) weapons, Command and Control (C2), infrastructure, and research for advanced threat capabilities targeting Army programs, systems, and commands. Provides funds for cyber training and certifications of on-net interactive operators, certified ethical hackers, mission leads, planners and logistics. Access to real-time Internet flow information used for characterization of near-peer threats and the application of this information to Army targets. ***FY 2021 Plans:*** Identify mission sets with focus on the integration of Red Team operator capabilities into the Threat Environments mission set, i.e. provide not only integration of red assets but also include threat defense, threat blue teams, and general threat-based Cyber Network Defender (CND) operations. Operationalize NETT infrastructure and capabilities into a distributed cloud-based model such that other DoD Red Teams (joint teams) and Army teams can leverage the capability from geographically separated locations (fully distributed operations). Will develop state and non-state threat targeting packages that are current, accurately profiling attack trends and timelines, intent, levels of sophistication, and threat training. These threat packages represent state and non-state level forces using both active and passive network attack to selectively degrade or disrupt Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Enterprise Business Systems. Development of threat targets and networks as new real-world targets sets and capabilities evolve. ***FY 2022 Plans:*** Continue to identify mission sets with focus on the integration of Red Team operator capabilities into the Threat Environments mission set, i.e. provide not only integration of red assets but also include threat defense, threat blue teams, and general threat-based CND operations. Operationalize NETT infrastructure and capabilities into a distributed cloud-based model such that other DoD Red Teams (joint teams) and Army teams can leverage the capability from geographically separated locations (fully distributed operations). Will develop state and non-state threat targeting packages that are current, accurately profiling attack trends and timelines, intent, levels of sophistication, and threat training. These threat packages represent state and non-state level forces using both active and passive network attack to selectively degrade or disrupt Command, Control, Communications, Computers (C4) Intelligence, Surveillance and Reconnaissance (C4ISR) and Enterprise Business Systems. Development of threat targets and networks as new real-world targets sets and capabilities evolve. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase aligns program requirements to Army Modernization priorities in support of the National Defense Strategy.			
Title: Threat Electronic Warfare	-	4.177	8.020
Description: Develops Army threat Electronic Warfare (EW) capabilities that will simulate a realistic anti-access/aerial denial (A2/AD) environment that will portray critical threats to U.S. DoD satellite communication (SATCOM), navigation, and command,			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604256A / *Threat Simulator Development*	**Project (Number/Name)** 976 / *Army Threat Sim (ATS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
control, and communication (C3I) networks. Develops specific EW capabilities to include cyber/EW convergence, tailored jamming in a complex radio frequency (RF) environment, data spoofing, detection of Low Probability Intercept (LPI) waveforms, artificial intelligence (AI), network modeling, passive detection systems, and advanced electronic support systems. The Threat Operations program will fund the operation, maintenance, management, and sustainment capability for Threat systems used to portray a realistic threat environment during Army testing and training within the Army's Threat inventory in order to support multiple Army/Department of Defense (DoD) test events including Joint Warfighting Assessment (JWA) and anticipated excursion test events for numerous SUTs / PORs. ***FY 2021 Plans:*** Continue to develop and integrate electronic support sensors and electronic attack payloads to provide a robust and threat representative capability to support testing of Army systems. Threat Position, Navigation, and Timing (PNT) Jammer will consist of modifications and upgrades to ensure relevance by implementing additional capabilities within the PNT spectrum. Threat Operations will continue to support multiple Army test events including Joint Warfighting Assessment (JWA) and anticipated excursion test events for numerous Systems Under Test/ Programs of Record (SUT / POR) currently identified through FY2021. ***FY 2022 Plans:*** Continue to develop and integrate electronic support sensors and electronic attack payloads to provide a robust and threat representative capability to support testing of Army systems. Threat Position, Navigation, and Timing (PNT) Jammer will consist of modifications and upgrades to ensure relevance by implementing additional capabilities within the PNT spectrum. Threat Operations will continue to support multiple Army test events including Joint Warfighting Assessment (JWA) and anticipated excursion test events for numerous Systems Under Test/ Programs of Record (SUT / POR) currently identified through FY2022. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Army decreased funding in FY 2022 due to higher Army priorities.			
Title: Threat Network and Mission Command ***Description:*** Develops Army threat Network and Mission Command capabilities to include quantum computing techniques, use of adaptive RF transmissions, self-healing/mesh network, capabilities aimed at masking threat communication systems (Very High Frequency (VHF), Ultra High Frequency (UHF), and High Frequency (HF), satellite and cellular, and next generation tactical radios. ***FY 2021 Plans:*** Continue system integration and improve the network fidelity, as well as develop data fusion and artificial intelligence to provide improved decision aids to the Threat Force Commander. ***FY 2022 Plans:***	-	5.004	4.442

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604256A / *Threat Simulator Development*	**Project (Number/Name)** 976 / *Army Threat Sim (ATS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue system integration and improve the network fidelity, as well as develop data fusion and artificial intelligence to provide improved decision aids to the Threat Force Commander. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Army decreased funding in FY2022 due to higher Army priorities.			
Accomplishments/Planned Programs Subtotals	13.566	13.986	18.439

	FY 2020	FY 2021
Congressional Add: Threat Cyberspace Operations ***FY 2020 Accomplishments:*** Supported Cyber Threat and vulnerability assessments through the enhancement of Cyber Threat simulators, including the research and development of cyber security solutions (tools, techniques, tactics & procedures). ***FY 2021 Plans:*** Support of Cyber Threat and vulnerability assessments through the enhancement of Cyber Threat simulators, including the research and development of cyber security solutions (tools, techniques, tactics & procedures).	13.000	3.750
Congressional Add: Cyber Security Operations Center ***FY 2020 Accomplishments:*** Support of Cyber Threat and vulnerability assessments to the Defense Industrial Base (DIB) through the enhancement of Cyber Threat representative tools and expertise, including the research and development of cyber security solutions (tools, techniques, tactics & procedures). ***FY 2021 Plans:*** Continue the Cyber Security Operations Center (CSOC) technical capabilities by engaging a variety of Defense Industrial Base (DIB) participants to conduct multiple prototype demonstrations. Continue gathering data to conduct the feasibility assessment of providing scalable cyber security expertise to the DIB. Develop and demonstrate the ability to provide secure real-time cyber support to a series of cloud enabled customer bases.	15.000	20.000
Congressional Add: Cyber Threat Vunerabilities & Assessments ***FY 2021 Plans:*** TSMO is chartered as the threat provider for the Army Acquisition community and provides Red Team capabilities to all branches of the DoD. As such, TSMO has a responsibility to continuously develop new and maintain existing threat capabilities, in the cyber, physical, intelligence, and EW domains. Cyber Vulnerability Assessments (CVA) allow TSMO to develop and test new capabilities in support of the Army Test and Evaluation, Cyber Operations Resiliency Assessment ? Platform (CORA-P), and Persistent Cyber Operation	-	3.750

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604256A / *Threat Simulator Development*	**Project (Number/Name)** 976 / *Army Threat Sim (ATS)*

	FY 2020	FY 2021
(PCO) missions. CVA will enable TSMO to more closely replicate advanced adversarial capabilities resulting in more threat faithful testing of critical Army weapon and information systems.		
Congressional Adds Subtotals	28.000	27.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems 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
Total Program Element	-	27.984	35.279	17.404	-	17.404	-	-	-	-	-	-
238: *Aerial Targets*	-	26.238	32.271	11.085	-	11.085	-	-	-	-	-	-
459: *Ground Targets*	-	1.746	3.008	6.319	-	6.319	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element funds aerial and ground target hardware and software development, maintenance, and upgrades. The overall objective is to ensure validation of weapon system accuracy and reliability by developing aerial and ground targets essential for test and evaluation (T&E). These targets are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under the Secretariat Reliance panel for providing rotary wing, mobile ground, towed, and designated targets for T&E. The Army executes development of some service-peculiar target requirements in support of quality assurance, lot acceptance, and training and continues development of service-peculiar and on-going target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	28.327	10.668	11.452	-	11.452
Current President's Budget	27.984	35.279	17.404	-	17.404
Total Adjustments	-0.343	24.611	5.952	-	5.952
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	25.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.343	-0.389			
• Adjustments to Budget Years	-	-	5.952	-	5.952

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 238: *Aerial Targets*		
Congressional Add: *UAS Swarm Threat and Mitigation*	20.000	25.000
Congressional Add Subtotals for Project: 238	20.000	25.000
Congressional Add Totals for all Projects	20.000	25.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604258A *I Target Systems Development*

Change Summary Explanation

Increase in funding from FY 2021 to FY 2022 for Aerial Targets is in support of program requirements in support of Army Modernization priorities such as Long Range Precision Fires (LRPF) targets and Next-Generation Combat Vehicles (NGCV) adversaries. Increased funding will allow development of simultaneous target control in multiple domains, and to address required updates to the Unmanned Aerial System - Target (UAS-T). Increase in funding from FY 2021 to FY 2022 for Ground Targets supports development of surface targets representing emerging ground threats, and requirements to implement fidelity level of target geometry with scientific prediction software to support Army Modernization priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604258A / *Target Systems Development*	Project (Number/Name) 238 / *Aerial Targets*	

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
238: *Aerial Targets*	-	26.238	32.271	11.085	-	11.085	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aerial Targets Project supports Army readiness and multi-domain operations through development, acquisition, operation and modernization of aerial targets. Multi-spectral Aerial Targets include realistic surrogates, actual high performance threat aircraft, and virtual target computer models. Current and emerging weapons systems require test, evaluation, and training using threat representative aerial targets to assess weapons systems effectiveness in the operational environment. This project encompasses a portfolio of full-scale, miniature, and subscale fixed wing/rotary wing targets, virtual targets, ancillary devices, and associated control systems. For accurate threat portrayal that properly stresses weapons systems during test and evaluation, aerial targets must exhibit the flight characteristics, threat signatures, and other performance factors to represent or emulate relevant and validated threats. This Project funds: the long-range planning necessary to determine future target needs and development of coordinated requirements; the management of target research, development, test and evaluation, production, and modernization; execution of the validation process to ensure that aerial targets accurately represent the threat; as well as storage and repair parts. The Army is the Test Enterprise Reliance lead for Rotary Wing Targets and Towed Target development and the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing High Speed Aerial Target.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Towed Targets/Ancillary devices.	0.269	0.363	0.556
Description: Engineering & Manufacturing Development (EMD) phase activities for Towed Targets/Ancillary devices.			
FY 2021 Plans: Continues EMD for Towed Targets/Ancillary devices, to include development, enhancement, maintenance, and sustainment for towed targets and ancillary devices as needed. Continued development and testing of Low Cost Towed target systems (Sphere Tow and the Glide Tow Target) emulating current threats at a very low cost to Lower Tier Project Office (LTPO), Indirect Fire Protection Capability (IFPC), Center for Countermeasures/Office of the Secretary of Defense (CCM/OSD), and classified customers. Signature modification and performance enhancement efforts for these targets is ongoing. Investigates and tests other cost-saving towed systems (Glide-Tow, Cruise Missile Tow Target, Towed Spheres, and Tow Test Bed) for Air Defense Weapons System customers.			
FY 2022 Plans: Continues EMD for Towed Targets/Ancillary devices, to include development, enhancement, maintenance, and sustainment for towed targets and ancillary devices as needed. Continued development and testing of Low Cost Towed target systems (Sphere Tow and the Glide Tow Target) emulating current threats at a very low cost to Lower Tier Project Office (LTPO), Indirect Fire Protection Capability (IFPC), Center for Countermeasures/Office of the Secretary of Defense (CCM/OSD), and classified customers. Signature modification and performance enhancement efforts for these targets is ongoing. Investigates and tests other			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
cost-saving towed systems (Glide-Tow, Cruise Missile Tow Target, Towed Spheres, and Tow Test Bed) for Air Defense Weapons System customers. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in funding from FY 2021 to FY 2022 will be used to improve the durability of the Global Position System (GPS) antennas on the Sphere Tow Targets and qualify the Data Recorders for more severe environments.			
Title: Aerial Virtual Targets. ***Description:*** EMD phase activities for Aerial Virtual Targets. ***FY 2021 Plans:*** Will continue engineering and manufacturing for Aerial Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques; focuses on simulation target models of airplanes, helicopters, missiles, unmanned aerial vehicles, and aerial targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations; will support verification and validation of models, will provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Simulation target models are employed to facilitate simulations for Developmental Testing (DT) and Operational Test (OT) planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. These models will be used by multiple DoD agencies and multiple weapon systems such as, but not limited to Close Combat Weapon Systems, Unmanned Aerial Systems, and Lower Tier Program offices. ***FY 2022 Plans:*** Will continue engineering and manufacturing for Aerial Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques; focuses on simulation target models of airplanes, helicopters, missiles, unmanned aerial vehicles, and aerial targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations; will support verification and validation of models, will provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Simulation target models are employed to facilitate simulations for (DT) and (OT) planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. These models will be used by multiple DoD agencies and multiple weapon systems such as, but not limited to Close Combat Weapon Systems, Unmanned Aerial Systems, and Lower Tier Program offices. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	0.466	0.581	0.890

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase in funding from FY 2021 to FY 2022 aligns program requirements to implement fidelity level of target geometry with scientific prediction software to support Army Modernization priorities such as Long Range Precision Fires (LRPF) targets and Next-Generation Combat Vehicles (NGCV) adversaries.			
Title: Army Ground Aerial Target Control System (AGATCS). ***Description:*** EMD phase activities for the AGATCS in support of a modern current technology target control system for control of subscale and full scale aerial, surface (ground/seaborne), Small Unmanned Aerial System (SUAS) and rotary wing targets. ***FY 2021 Plans:*** AGATCS engineering and manufacturing to provide remote control of aerial (fixed wing, rotary wing, and simulated unmanned aerial systems (SUAS)), ground (heavy, medium, and light vehicles), and seaborne targets with a single control system in support of live fire testing necessary for lethality evaluation and sensor package testing for evaluation of suitability and effectiveness. Complies with DODI 8510.01 mandate / DOD Risk Management Framework on all target control systems to ensure a secure operating posture. Meets surface target testing requirements to include formation, collision avoidance, and swarming capabilities for U.S. Army test ranges. Provides Test Centers and the T&E community with a versatile seaborne and rotary wing resource for use in conducting tests to include live fire testing, observation, signal repeater and cargo transportation. ***FY 2022 Plans:*** AGATCS engineering and manufacturing to provide remote control of aerial (fixed wing, rotary wing, and simulated unmanned aerial systems (SUAS)), ground (heavy, medium, and light vehicles), and seaborne targets with a single control system in support of live fire testing necessary for lethality evaluation and sensor package testing for evaluation of suitability and effectiveness. Complies with DODI 8510.01 mandate / DOD Risk Management Framework on all target control systems to ensure a secure operating posture. Meets surface target testing requirements to include formation, collision avoidance, and swarming capabilities for U.S. Army test ranges. Provides Test Centers and the T&E community with a versatile seaborne and rotary wing resource for use in conducting tests to include live fire testing, observation, signal repeater and cargo transportation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in funding from FY 2021 to FY 2022 supports development of simultaneous target control in multiple domains as well as anti-access and area denial (A2/AD) target control capabilities such as in GPS denied environments in support of the National Defense Strategy.	2.352	2.691	4.116
Title: Unmanned Aerial System - Target (UAS-T). ***Description:*** Technical updates and life cycle management activities for the UAS-T to provide Threat representative support for test and experimentation missions. ***FY 2021 Plans:***	0.204	1.018	1.557

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Technical and life cycle management for the UAS-T to operate and maintain a generic, tactical class unmanned aircraft system target to support a variety of test requirements by providing a generic threat representative aerial target to support test and experimentation missions. Projects to be supported include the Space and Missile Defense Command and the Joint Integration Air and Missile Defense Organization live fire testing. This activity will continue to require technical support for investigation, demonstration, and integration of a more economical target, to include technical oversight of the targets' acquisition and ground support equipment. ***FY 2022 Plans:*** Technical and life cycle management for the UAS-T to operate and maintain a generic, tactical class unmanned aircraft system target to support a variety of test requirements by providing a generic threat representative aerial target to support test and experimentation missions. Projects to be supported include the Space and Missile Defense Command and the Joint Integration Air and Missile Defense Organization live fire testing. This activity will continue to require technical support for investigation, demonstration, and integration of a more economical target, to include technical oversight of the targets' acquisition and ground support equipment. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in funding from FY 2021 to FY 2022 is to continue aligning program requirements to meet Army Modernization priorities in support of the National Defense Strategy. Unmanned Aerial System - Target (UAS-T) customers are aligned under the Army Modernization priorities. The UAS-T design has been in technical sustainment and requires a technical refresh. The increase is to address obsolescence currently being seen throughout the airframe such as the engine as well as upgrades to target avionics. These updates are required to continue support to Army Modernization efforts.			
Title: High Speed Aerial Target (HSAT). ***Description:*** Funds the EMD phase for the replacement of the aging MQM-107 with the new BQM-167A to provide a realistic aerial target capable of simulating the performance of enemy aircraft; technical and life cycle management activities for equipment, to include engineering change proposals, technology obsolescence, and safety and system data documentation for the HSAT Target. Program requires technical support for investigation, demonstration, and integration of a more economical target. Technical oversight of the replacement targets' acquisition along with Ground Support Equipment (GSE) and other activities related to getting it operational is essential; provides a realistic aerial target capable of simulating the performance of enemy aircraft to aid in the research, development, test, and evaluation of weapons systems and aid in training operational units employing production missile systems. ***FY 2021 Plans:*** The U.S Army Targets Management Office provides Aerial Targets to customers for threat realism required by law in Title 10 U.S.C., Section 2366 (Live Fire Test & Evaluation) for the testing of ACAT I/II major munitions, missile programs, or product	2.947	2.618	3.966

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
improvements of these programs. This line is the technical sustainment of all HSATs. This funding covers the engineering, integration, safety, cyber security, technology obsolescence, safety and system data documentation, Air Worthiness Release development, and flight waivers for the entire enterprise, as well as, non-recurring engineering for software/firmware updates, and minor product upgrades. This includes the MQM-107, MQM-178, BQM-34, and the new BQM-167. These HSATs will continue to support T&E programs such as Patriot, Stinger, Integrated Air and Missile Defense, Sentinel Radar, Cruise Missile Defense System, and classified programs for Army and Tri-Service customers. ***FY 2022 Plans:*** The U.S Army Targets Management Office provides Aerial Targets to customers for threat realism required by law in Title 10 U.S.C., Section 2366 (Live Fire Test & Evaluation) for the testing of ACAT I/II major munitions, missile programs, or product improvements of these programs. This line is the technical sustainment of all HSATs. This funding covers the engineering, integration, safety, cyber security, technology obsolescence, safety and system data documentation, Air Worthiness Release development, and flight waivers for the entire enterprise, as well as, non-recurring engineering for software/firmware updates, and minor product upgrades. This includes the MQM-107, MQM-178, BQM-34, and the new BQM-167. These HSATs will continue to support T&E programs such as Patriot, Stinger, Integrated Air and Missile Defense, Sentinel Radar, Cruise Missile Defense System, and classified programs for Army and Tri-Service customers. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2021 to FY 2022 decrease aligns with priorities within the Army.			
Accomplishments/Planned Programs Subtotals	6.238	7.271	11.085

	FY 2020	FY 2021
Congressional Add: UAS Swarm Threat and Mitigation	20.000	25.000
FY 2020 Accomplishments: Provided Unmanned Aerial System swarm and mass threat systems for soldier and major weapon systems testing, including mitigation. Provided integrated, multi-domain threat representative unmanned aerial system (UAS) swarm capabilities through custom UAS platforms and payloads that challenge the Test and Evaluation (T&E) communities? execution of counter UAS (CUAS) Technologies and Tactics, Techniques, and Procedures (TTPs). Provided relevant feedback to the T&E communities on their vulnerabilities to UAS-enabled Intelligence, Surveillance, and Reconnaissance (ISR), Cyber, Electronic Warfare (EW), Dynamic Targeting, and Swarm operations.		

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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	FY 2020	FY 2021
Provided remote, unattended UAS swarm operations through the integration of automated launch, recovery, and charging systems to minimize operational manpower requirements and maximize UAS swarm utility. ***FY 2021 Plans:*** Funds development of US produced UAS platforms, ground control system, mission planner/ simulation, payloads, and system mobility for Army DT & OT weapons testing in support of Army readiness and modernization. Funds development of 5G NSA cellular network simulator, field deployable 5G network system, and 5G NSA/SA CORE network capable of interoperability with foreign and future domestic architectures. This capability is key to TSMO?s ability to replicate realistic UAS swarms and testing of other related networks.		
Congressional Adds Subtotals	20.000	25.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604258A / *Target Systems Development*	Project (Number/Name) 459 / *Ground Targets*	

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
459: *Ground Targets*	-	1.746	3.008	6.319	-	6.319	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds Army efforts to support test and evaluation (T&E) of advanced weapon systems and supports Army Modernization, Multi-Domain Operations, and Tri-Service readiness by developing ground target surrogates, acquiring foreign equipment, and developing virtual target computer models of ground vehicle targets. These products are required to adequately stress weapon systems undergoing (T&E). The United States Army is the Tri-Service lead for providing mobile ground targets for (T&E). This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the centralized management of the ground target research, development, test and evaluation processes; execution of the validation process; acquisition of foreign equipment; and continuing maintenance, storage, and development/enhancement/update via engineering services of developed and acquired targets to ensure availability for (T&E) customers. This Project also manages use of current assets and operates a centralized spare parts program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Mobile Ground Target Operations (MGTO)	1.004	1.503	3.614
Description: MGTO provides oversight of five Primary Operating Centers to include operation, storage, maintenance, repair, safety and configuration management. The objective of the MGTO effort is to support the testing community as fully, efficiently and effectively as possible. The MGTO centrally manages a fleet of foreign threat ground vehicles while maintaining the foreign integrity of the assets. ***FY 2021 Plans:*** Will maintain a fleet of reusable ground targets emulating relevant, current, and emerging threats which provides cost effective solutions for T&E. The (MGTO) will centrally manage a fleet of foreign threat ground vehicles while maintaining the foreign integrity of the assets. The MGTO will provide support and oversight for actual threat foreign ground vehicles and mobile ground target surrogate vehicles for use as threat targets by the T&E community for destructive and non-destructive scenarios. Efforts will support users such as, but not limited to Apache 64E, Joint Air to Ground Missile, Javelin, Extended Range Guided Multiple Launch Rocket System, Army Tactical Missile System, Cruise Missile Defense System, Precision Fires, Counter Rocket Artillery and Missile, Close Combat Weapon System, and other research, prototyping, and operational users. ***FY 2022 Plans:*** Will maintain a fleet of reusable ground targets emulating relevant, current, and emerging threats which provides cost effective solutions for T&E. The MGTO will centrally manage a fleet of foreign threat ground vehicles while maintaining the foreign integrity of the assets. The MGTO will provide support and oversight for actual threat foreign ground vehicles and mobile ground target surrogate vehicles for use as threat targets by the T&E community for destructive and non-destructive scenarios. Efforts will			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 459 / *Ground Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
support users such as, but not limited to Army Futures Command Cross Functional Teams (CFTs) Apache 64E, Joint Air to Ground Missile, Javelin, Extended Range Guided Multiple Launch Rocket System, Army Tactical Missile System, Cruise Missile Defense System, Precision Fires, Counter Rocket Artillery and Missile, Close Combat Weapon System, and other research, prototyping, and operational users. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The FY 2021 to FY 2022 funding increase is for the management, maintenance, and operational sustainment of a fleet of foreign (and other) vehicles as reusable targets portraying relevant, current, and emerging threats in order to provide cost effective and highly realistic threats for Test & Evaluation through consolidated management including: safety, configuration management, storage, maintenance, spare parts, program management and oversight.			
Title: Mobile Ground Targets Hardware (MGTH) ***Description:*** MGTH provides a mix of actual threat assets and surrogate targets to support Army T&E events. ***FY 2021 Plans:*** Will provide cost effective and highly threat representative surface targets (consisting of actual foreign equipment as well as surrogates) for T&E of multiple Weapon System developers. Will continue to provide surface targets to meet the functionality and signature fidelity requirements of the objective force. Will acquire actual foreign equipment, to include insurgent vehicles, to meet known Weapon System target shortfalls. Will continue to initiate analysis and design efforts to address specific capability shortfalls and the ability to develop threat representative surrogates. ***FY 2022 Plans:*** Will provide cost effective and highly threat representative surface targets (consisting of actual foreign equipment as well as surrogates) for Test and Evaluation of multiple Weapon System developers. Will continue to provide surface targets to meet the functionality and signature fidelity requirements of the objective force. Will acquire actual foreign equipment, to include insurgent vehicles, to meet known weapon system target shortfalls. Will continue to initiate analysis and design efforts to address specific capability shortfalls and the ability to develop threat representative surrogates. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 funding increase will support new development of surface targets representing emerging ground threats and will perform analysis, research, design, and development of threat representative infrared and radar cross section signatures integrated into current and future surface target platforms.	0.373	0.710	1.396
Title: Ground Virtual Targets ***Description:*** Government System (T&E) to support the research and development of Ground Virtual Targets. Virtual Targets are employed by multiple Department of Defense agencies and weapon systems to facilitate simulations for Developmental and	0.369	0.795	1.309

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 459 / *Ground Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Operational Test planning, rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. ***FY 2021 Plans:*** Will continue engineering and manufacturing for Ground Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques. Will focus on simulation target models of armored assets, air defense systems, small - unmanned aerial systems vehicles, maritime systems and other surface targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations. Will support verification and validation of models and provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. ***FY 2022 Plans:*** Will continue engineering and manufacturing for Ground Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques. Will focus on simulation target models of armored assets, air defense systems, small unmanned aerial systems vehicles, maritime systems and other surface targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations. Will support verification and validation of models and provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD Test and Evaluation communities. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 funding increase supports program requirements to implement fidelity level of target geometry with scientific prediction software to support Army Modernization priorities such as Long Range Precision Fires (LRPF) targets and Next-Generation Combat Vehicles (NGCV) adversaries.			
Accomplishments/Planned Programs Subtotals	1.746	3.008	6.319

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*							
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	-	140.946	119.231	68.139	-	68.139	-	-	-	-	-	-
983: *Reagan Test Site (RTS) T&E Investments*	-	5.990	6.051	6.487	-	6.487	-	-	-	-	-	-
984: *Major Developmental Testing Instrumentation*	-	42.929	47.985	38.040	-	38.040	-	-	-	-	-	-
986: *Major Operational Test Instrumentation*	-	-	11.840	3.841	-	3.841	-	-	-	-	-	-
EY9: *Range Radar Replacement Program (RRRP)*	-	90.861	52.340	18.687	-	18.687	-	-	-	-	-	-
FF1: *Cyber Blue Team*	-	1.166	1.015	1.084	-	1.084	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the development and acquisition of major developmental test instrumentation for the United States (U.S.) Army Test and Evaluation Command's (ATEC) test activities: White Sands Test Center (WSTC), New Mexico; Yuma Test Center (YTC), Arizona; Aberdeen Test Center (ATC), Maryland; Electronic Proving Ground (EPG), Arizona; Redstone Test Center (RTC), Alabama; and for the Reagan Test Site (RTS) at the United States Army Kwajalein Atoll (USAKA), which is managed by the Space and Missile Defense Command. This PE also funds development and acquisition of Operational Test Command's (OTC) major field instrumentation and beginning in Fiscal Year 2020, management of the Cyber Acquisition Blue Teams (CABT) certification standards. Requirements for instrumentation and cyber certifications are identified through a long range survey of project managers, Research Development and Engineering Centers (RDECs), and Battle Laboratories developing future weapon systems and the test programs that support these systems. Army testing facilities are also surveyed to determine major testing capability shortfalls.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	146.565	106.270	59.144	-	59.144
Current President's Budget	140.946	119.231	68.139	-	68.139
Total Adjustments	-5.619	12.961	8.995	-	8.995
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	16.840			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.619	-3.879			
• Adjustments to Budget Years	-	-	8.995	-	8.995

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 984: *Major Developmental Testing Instrumentation*		
Congressional Add: *High Powered Microwave Test and Evaluation Assets*	10.000	-
Congressional Add: *Radio frequency threat systems emulator for rotary wing aircraft*	-	5.000
Congressional Add Subtotals for Project: 984	10.000	5.000
Project: 986: *Major Operational Test Instrumentation*		
Congressional Add: *Major operational test instrumentation*	-	11.840
Congressional Add Subtotals for Project: 986	-	11.840
Congressional Add Totals for all Projects	10.000	16.840

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*	Project (Number/Name) 983 / *Reagan Test Site (RTS) T&E Investments*	

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
983: *Reagan Test Site (RTS) T&E Investments*	-	5.990	6.051	6.487	-	6.487	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds improvement and modernization (I&M) for the Ronald Reagan Ballistic Missile Defense Test Site (RTS) instrumentation systems. The Reagan Test Site with its remote location and one of kind instrumentation systems provides a strategic test environment that cannot be replicated. In order to continue its critical mission of testing missile systems that are of paramount importance to the defense of the nation, the RTS instrumentation systems must be continuously updated and upgraded to support the emerging technologies being developed by the Department of Defense (DOD) such as hypersonics and other advanced weapons systems. Without modernization these instrumentation systems face obsolescence or degraded capability and the inability to provide the critical data needed for continued materiel development. Without instrumentation on par with the technologies being utilized in emerging systems, the materiel developer will be unable to complete their test programs or pass programmatic milestones toward deployment. These funds provide modernization of the radar, telemetry, optics, range safety, communications, command/control and other equipment essential to meet test and evaluation requirements of the Services and DoD agencies. The RTS instrumentation is required to support data collection for test & evaluation assessments and operational decisions that have strategic implications for the Army, Navy, Air Force, United States Strategic Command (STRATCOM), Missile Defense Agency (MDA), Defense Advanced Research Projects Agency (DARPA), National Aeronautics and Space Administration (NASA), and other customers. RTS, located in the Republic of the Marshall Islands, is a remote, secure activity of the Major Range and Test Facility Base (MRTFB). Funding will enable RTS to continue to meet customer objectives and sustain the required instrumentation suite.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Radar Reliability Improvement Program (RRI).	0.500	0.500	0.500
Description: The Radar Improvement and Sustainment (RIS) activity is an Improvements and Modernizations (I&M) Umbrella Program to push technology into radar systems. RIS is a group of complimentary I&M Projects that mitigate annual Operations and Maintenance (O&M) risks. Projects initiated address the following needs: Enhancing the Reliability of the Sensor; Technology Refresh; Obsolescence; Commonality of Design across Sensors; Enhanced Monitoring; Fault Detection - Fault Isolation (FD/FI); Enable Remote Operation and Monitoring; and Enhanced Capabilities.			
FY 2021 Plans: RRI Program continues as an I&M umbrella Program that pushes technology into the radar systems. RRI projects will address: Enhancing the Reliability of the Sensor; Technology Refresh; Obsolescence; Commonality of Design across Sensors; Enhanced Monitoring FD/FI; Enable Remote Operation and Monitoring; and Enhanced Capabilities.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 983 / *Reagan Test Site (RTS) T&E Investments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
RRI Program will continue as an I&M umbrella Program to push technology into the radar systems. RRI projects will address: Enhancing the Reliability of the Sensor; Technology Refresh; Obsolescence; Commonality of Design across Sensors; Enhanced Monitoring FD/FI; Enable Remote Operation and Monitoring; and Enhanced Capabilities.			
Title: Telemetry (TM) Modernization Study. ***Description:*** This activity will develop the technology required to modernize the telemetry systems using an innovative software defined radio approach designed to vastly improve the ability to adapt to future telemetry changes and requirements quickly with lower cost. In addition, this approach will enable centralized command and control of the telemetry equipment increasing efficiency in mission preparation and execution. The telemetry back-end processing chain is currently comprised of discrete frequency-specific hardware components that are replicated for each telemetry channel required for a test event. This activity will develop a scalable frequency-agnostic, software-based solution that runs on commodity computer servers. More complex missions (e.g., Over-the-air (OTA) operational testing of the Ballistic Missile Defense Systems (BMDS)) will continue to require more telemetry channels, but this activity will avoid much of that future cost. This effort will provide enough hardware to increase capacity of the telemetry system. ***FY 2021 Plans:*** Continuation of V&A testing effort focusing on engineering test for the full-up capability and deployment of the modernized telemetry equipment to the other TM sites within RTS range (Kwaj, Illegini, & Gagan Islands). ***FY 2022 Plans:*** Continuation of V&A testing effort focusing on engineering test for the full-up capability and deployment of the modernized telemetry equipment to the other TM sites within RTS range (Kwaj, Illegini, & Gagan Islands). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY21 to FY22 is due to project being scheduled to be completed in FY21.	2.521	2.500	1.300
Title: Legacy Servo Upgrade Program. ***Description:*** This activity will design, upgrade, and replace the radar and optics servo systems. The custom-hardware based legacy systems will be replaced with commercially supportable commercial off the shelf (COTS) hardware. Where possible, common components will be used across all range sensors to minimize ongoing maintenance costs. ***FY 2021 Plans:*** Continuation of the assessment of remaining antenna servo systems and determine next highest priority servo replacement need and initiate engineering design activities for the next phase of the program. ***FY 2022 Plans:***	0.041	0.108	0.500

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 983 / *Reagan Test Site (RTS) T&E Investments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Assessment of remaining antenna servo systems and determine next highest priority servo replacement need and initiate engineering design activities for the next phase of the program. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is due to funds made available to increase the work in FY22 on the servo upgrade.			
Title: RTS Cyber Threat Assessment and Mitigation ***Description:*** Prototype and integrate a sidelobe canceller (to protect against electronic attack and radar jamming) for ALTAIR Ultra High Frequency (UHF) radar that has compatibility with other KREMs.	0.189	-	-
Title: RTS Range Enhancements for Hypersonic Vehicle Testing ***Description:*** The Range Enhancements for Hypersonic Vehicle Testing program will develop and deploy advanced technologies and a number of infrastructure upgrades specific to hypersonic vehicle testing. These technologies and infrastructure improvements include advanced non-ballistic tracking enhancements, improved data collection, additional waveform support, sensor surrogate capabilities and integration of adjunct sensors to support situational awareness and future tracking enhancements. ***FY 2021 Plans:*** Begin maturing and deploying enhanced tracking algorithms to the RTS sensor suite ***FY 2022 Plans:*** Continue maturing and deploying enhanced tracking algorithms to the RTS sensor suite ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is due to an increase in deploying enhance tracking requirements of this project in FY22.	-	0.100	0.511
Title: Digital Focal Plane Array (DFPA) Technology Insertion ***Description:*** DFPA Technology Insertion program designs, builds, and integrates DFPA-based camera systems and other leading-edge imaging technologies into existing Super Recording Automatic Digital Optical Tracker (RADOT) mounts at RTS. The cameras and telescopes will provide coverage in multiple imaging bands including Middle Wave Infra-Red (MWIR) and Long Wave Infra-Red (LWIR). ***FY 2021 Plans:*** Procure and deploy additional DFPA based cameras at SR Optics site ***FY 2022 Plans:***	0.206	0.040	0.520

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 983 / *Reagan Test Site (RTS) T&E Investments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Procure and deploy additional DFPA based cameras at SR Optics site ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is consistent with life cycle change for this effort.			
Title: Radar Open System Architecture (ROSA) Refresh ***Description:*** ROSA initial concept and implementation subdivided each of the RTS radars into logical and separable functional building blocks. Up to nine common subsystems including receivers, transmitters and antenna controls were designed using Commercial Off the Shelf (COTS) equipment to provide a unified framework, largely eliminating the very unique and custom hardware and software at each of the RTS radars. Over a decade of technology advancement and further maturity of industry standards have outdated the current ROSA implementation, posing a sustainability problem. This program will identify key subsystem technologies and architectures to stabilize future procurement, maintenance and operational capability across all RTS radars. ***FY 2021 Plans:*** No activities funded under this budget item. ***FY 2022 Plans:*** Continue to maintain and increase the operability of RTS capabilities across all KREMS radars.	2.437	2.000	2.000
Title: TRADEX L-Band High Voltage Power Supply Upgrade ***Description:*** TRADEX L-Band High Voltage Power Supply Upgrade will improve resilience of L-band by providing a backup power supply and a test stand where tubes can be tested without impacting the operational system. ***FY 2021 Plans:*** Continues to upgrade the unregulated supply components that are obsolete and a single point of failure for the TRADEX radar with a modern solid state power supply technology which will replace the legacy power supply, modulator, crowbar and capacitor bank. ***FY 2022 Plans:*** Continue to upgrade the unregulated supply components that are obsolete and a single point of failure for the TRADEX radar with a modern solid state power supply technology which would replace the legacy power supply, modulator, crowbar and capacitor bank. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	0.096	0.803	0.200

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 983 / *Reagan Test Site (RTS) T&E Investments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Decrease from FY21 to FY22 is consistent with life cycle change for this effort.			
Title: MPS-36 Infrastructure Refresh	-	-	0.956
Description: MPS-36 radars are quite old and decaying due to corrosion because of proximity to Pacific Ocean as well as normal wear and tear. This project is to replace outdoor infrastructure related to the MPS-36 radars: dish, pedestal, wiring, connectors, LNA, and other components as required. Upgrade to newer materials and technologies to improve performance and longevity. ***FY 2022 Plans:*** Begin multi-year infrastructure repair & refresh with inspections & study of existing issues, and begin to replace most critical items. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is due to the start of a new effort.			
Accomplishments/Planned Programs Subtotals	5.990	6.051	6.487

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*	Project (Number/Name) 984 / *Major Developmental Testing Instrumentation*	

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
984: *Major Developmental Testing Instrumentation*	-	42.929	47.985	38.040	-	38.040	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project develops and acquires major test instrumentation to perform developmental testing of weapon systems at United States Army Test and Evaluation Command's (ATEC) activities which include: Yuma Test Center (YTC), AZ; Aberdeen Test Center (ATC), MD; Electronic Proving Ground (EPG), AZ; White Sands Test Center (WSTC), NM; Redstone Test Center (RTC), AL; Cold Regions Test Center (CRTC), AK.

Projects are designated as a major test program based on their visibility, assessed relative technical risk (medium high), schedule risk, cost (greater than $1.500 Million per year or $7.500 Million for the total Project) and applicability to other mission areas or services. These Projects are technically demanding, state of the art, unique instrumentation assets or suites to meet the technology shortfalls, and generally result from development programs managed by a professional project management team. Fiscal Year 2022 funds will be used for modernization of outdated instrumentation in support of developmental testing for Army, Department of Defense programs.

Test Network Modernization (TNM) will upgrade existing test data networks to ensure infrastructures are capable of providing reliable and secure transport of data and communications for ATEC test activities. Applied Environments Modernization (AEM) program will upgrade antiquated Environmental labs for climatic and dynamic testing with new cascade refrigeration units, climatic chambers, vibration test systems, x-ray cameras, a real-time radiography system and full spectrum solar lights. Robotics/Unmanned Aerial Systems (R/UAS) Instrumentation Suite will develop and procure instrumentation for testing controlled and autonomous ground and aerial robotic systems. System of Systems Cooperative Engagement Test Infrastructure (SCETI) will provide for the development of systems to conduct systems-level Manned-Unmanned Teaming (MUM-T) testing for both aircraft and ground systems in a distributed environment. ATEC Fiber Modernization will provide all ATEC Test Centers with a revitalized fiber network to complement the TNM program. Due to limited commercial infrastructure, the cold regions provide a difficult climate for network connectivity. Therefore, both TNM and AFM's ability in resourcing an edge capability (5G wireless) along with providing a permanent fiber backbone on Army test ranges is critical to ensuring advanced weapon systems operate flawlessly in extreme cold environments. Telemetry Systems Modernization (TSM) will modernize outdated telemetry systems with new equipment designed to enhance the technical and spectral capabilities currently available. This new telemetry equipment will also provide for a remote controlled operational environment. In support of the National Defense Strategy, each of these programs supports the following Army Cross Functional Teams: Long Range Precision Fires, Next Generation Combat Vehicle and Future Vertical Lift.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: EMD phase contract activity of the Test Network Modernization.	16.146	12.545	11.107
Description: Engineering, Manufacturing, and Development (EMD) phase contract activity for the Test Network Modernization. This effort will provide a modern test infrastructure capable of reliable, secure transport of test data and test communications for			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 984 / *Major Developmental Testing Instrumentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
all ATEC test ranges. This effort supports Long Range Precision Fires, Next Generation Combat Vehicle and Future Vertical Lift Cross-Functional Teams. ***FY 2021 Plans:*** The Test Network Modernization effort will continue in the engineering and manufacturing phase. The site surveys from FY 2019 will have been evaluated and the remainder of the equipment required for the Test Centers will be purchased based on considerations of their requirements and their upcoming tests. In addition, the evaluation of the site surveys will be complete and the direction for hardware and software needs will be accomplished so as to provide the direction to create an enterprise network for the test centers. FY 2021 funds in the amount of $12.545 Million will continue the standardization of the network that will allow modern monitoring, tracking, and troubleshooting of network issues and failure points. ***FY 2022 Plans:*** The Test Network Modernization effort will continue in the engineering and manufacturing phase. FY 2022 funds in the amount of $11.107 Million will continue the standardization of the network that allows modern monitoring, tracking, and troubleshooting of network issues and failure points. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY2022 funds decreased due to the completion of equipment upgrades identified in the FY2019 test center site surveys.			
Title: EMD for the Applied Environments Modernization. ***Description:*** EMD phase contract activity for the Applied Environments Modernization program. This effort supports Long Range Precision Fires, Next Generation Combat Vehicle, Future Vertical Lift, Air and Missile Defense Cross-Functional Teams. ***FY 2021 Plans:*** Will continue EMD phase for Applied Environments Modernization program. In FY2021 funds in the amount of $10.267 Million will be used to procure various environmental lab upgrades at EPG (Electronic Proving Ground), WSTC (White Sands Test Center), YTC (Yuma Test Center) and ATC (Aberdeen Test Center). A Large Salt-Fog chamber, fungus chamber and humidity chamber will be procured for EPG. A field refrigeration unit and conditioning chamber will be procured for YTC. Temperature conditioning equipment will be provided to ATC. A Large Salt-Fog chamber will be provided to WSTC along with a refurbished large force shaker. ***FY 2022 Plans:*** Will continue EMD phase for Applied Environments Modernization program. In FY 2022 funds in the amount of $8.020 Million will be used to continue with the procurement of a Rain and Wind Facility, Temperature, Altitude, Humidity, and Decompression	1.644	10.267	8.020

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 984 / *Major Developmental Testing Instrumentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Chamber, Portable Field Refrigeration unit, and Multi-Use Conditioning Chambers at Yuma Test Center (YTC) and a Replacement Temperature Humidity Chamber at Redstone Test Center (RTC). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 funds decreased due to the completion of the environmental lab upgrades at ATEC Test Centers.			
Title: EMD phase contract activity for Robotics/UAS Instrumentation Suite ***Description:*** EMD phase of Robotics/Unmanned Autonomous System (UAS) Instrumentation Suite for testing controlled and autonomous ground and aerial robotic systems. This effort supports Next Generation Combat Vehicle and Future Vertical Lift Cross-Functional Teams. ***FY 2021 Plans:*** Funds in the amount of $6.263 Million will complete acquisition strategy and begin acquiring equipment needed for testing controlled and autonomous ground and aerial robotic systems at Aberdeen Test Center. ***FY 2022 Plans:*** Funds in the amount of $6.821 Million will continue with the acquisition of instrumentation hardware and sensor suite equipment needed for testing controlled and autonomous ground and aerial robotic systems at Aberdeen Test Center. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY2022 funds increased to continue with procuring the necessary equipment identified during acquisition strategy refinement.	1.658	6.263	6.821
Title: EMD phase contract activity for ATEC Fiber Modernization ***Description:*** ATEC Fiber Modernization will provide all ATEC Test Centers with a revitalized fiber network to complement the Test Network Modernization (TNM) program. This effort provides test centers with an improved fiber infrastructure to support greater data payloads and increased network reliability. This enterprise effort will replace fiber optic cable at the test centers to extend the lifecycle of the test networks. This effort supports Long Range Precision Fires, Next Generation Combat Vehicle, Network, Air and Missile Defense and Future Vertical Lift Cross-Functional Teams. ***FY 2021 Plans:*** Begin market research and creation of acquisition strategy for replacement of fiber network at all ATEC test centers. ***FY 2022 Plans:*** Funds in the amount of $5.425 Million will continue the market research for revitalization of the network and further refine the acquisition strategy for replacement of fiber network at all ATEC test centers. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	-	0.963	5.425

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 984 / *Major Developmental Testing Instrumentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY2022 increase in funds is required to begin obtaining the necessary equipment identified during acquisition strategy refinement.			
Title: EMD phase contract activity for Telemetry Systems Modernization ***Description:*** Telemetry Systems Modernization will modernize current outdated telemetry systems located at: White Sands Test Center, Yuma Test Center, Aberdeen Test Center and Redstone Test Center. The modernization of these systems will provide enhanced technical and spectral capability while also providing for a remote controlled operational environment. This effort supports Long Range Precision Fires, Next Generation Combat Vehicle, Air and Missile Defense, and Future Vertical Lift Cross-Functional Teams. ***FY 2021 Plans:*** Will complete acquisition strategy and begin replacing obsolete Telemetry system components at Redstone Test Center, Yuma Test Center and White Sands Test Center. This replacement will include Commercial-Off-The-Shelf (COTS) fixed site and mobile telemetry equipment. ***FY 2022 Plans:*** Funds in the amount of 6.667 Million will continue with replacement of obsolete Telemetry system components at Redstone Test Center, Yuma Test Center and White Sands Test Center. This replacement will include Commercial Off The Shelf (COTS) fixed site and mobile telemetry equipment. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decrease in funds is required to procure the necessary equipment identified during acquisition strategy refinement.	-	7.859	6.667
Title: EMD phase contract activity for System of Systems Controlled Environment Test Infrastructure (SCETI) ***Description:*** EMD phase for System of Systems Cooperative Engagement Test Infrastructure (SCETI). This effort supported the Future Vertical Lift Cross-Functional Team. ***FY 2021 Plans:*** Will continue EMD phase for the SCETI Program. In FY 2021 funds in the amount of $5.088 million will be used to provide system integration and completion of the development of the rain degraded visual environment capability. The funds will also be used to develop the fog and snow degraded visual environment capabilities. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Project was completed in FY2021	3.802	5.088	-
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Electromagnetic Environmental Effects (E3) Systems Modernization (EMRE) project.	5.698	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 984 / *Major Developmental Testing Instrumentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: EMD phase contract activities for the EMRE project. This effort will upgraded 27 instrumentation test facilities at WSMR. This effort supported Long Range Precision Fires, Next Generation Combat Vehicle and Future Vertical Lift Cross-Functional Teams.			
Title: EMD phase contract activity for the Nuclear Effects Test Capability Modernization. ***Description:*** EMD phase contract activity for the Nuclear Effects Test Capability Modernization. This effort supported Long Range Precision Fires, Next Generation Combat Vehicle and Future Vertical Lift Cross-Functional Teams.	3.981	-	-
Accomplishments/Planned Programs Subtotals	32.929	42.985	38.040

	FY 2020	FY 2021
Congressional Add: High Powered Microwave Test and Evaluation Assets ***FY 2020 Accomplishments:*** Will work to develop a surrogate for High Power Microwave (HPM) payload suitable for airborne Test and Evaluation (T&E) applications and develop new HPM technologies that provide greater agility in surrogate waveform characteristics. Will identify suitable airborne platforms for future HPM integration and test that will enable warfighter development of Tactics, Techniques and Procedures (TTP) for counter-electronic (CE) HPM systems.	10.000	-
Congressional Add: Radio frequency threat systems emulator for rotary wing aircraft ***FY 2021 Plans:*** Congressional Add funding in the amount of $5 million dollars for the Major Operational Test Instrumentation of the radio frequency threat system emulator for rotary wing aircraft.	-	5.000
Congressional Adds Subtotals	10.000	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*	Project (Number/Name) 986 / *Major Operational Test Instrumentation*	

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
986: *Major Operational Test Instrumentation*	-	-	11.840	3.841	-	3.841	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the development, acquisition, and integration of major operational test instrumentation for the U.S. Army Test and Evaluation Command's Operational Test Command and supporting test activities at test and training ranges. Requirements for instrumentation are identified through a long range survey of project managers, Research Development and Engineering Centers (RDECs), and Battle Laboratories developing future weapon systems and the test programs that support these systems. Project focus is to address Director Operational Test and Evaluation (DOT&E)-identified Army test realism shortfalls.

Projects are designated as a major test program based on their visibility, assessed relative technical risk (medium-high), schedule risk, cost (greater than $1.500 million per year or $7.500 million for the total project) and applicability to other mission areas or services. These projects are technically demanding, state-of-the-art, unique instrumentation assets or suites to meet technology shortfalls, and generally result from development programs managed by a professional project management team.

The DOT&E annual report to Congress identified shortfalls in the Army's abilities to create realistic operational environments. The Integrated Live-Virtual-Constructive (LVC) Test Environment (ILTE) project will address multiple shortfalls identified by DOT&E. ILTE is a portfolio of related development efforts that will deliver a system of systems to provide a Real-Time Casualty Assessment (RTCA) and instrumentation suite that delivers a high fidelity, realistic, real-time capability to measure hardware and personnel performance in modern combat environments. ILTE will enable testing under tactical conditions for small and large-scale operations while integrating network operations and effects in support of the Army Equipment Modernization Plan. ILTE also allows the U.S. Army to test all Current-to-Future weapon systems in a realistic operational environment. ILTE will transition Research, Development, Test and Evaluation (RDTE) developed performance enhancements and technology upgrades to the operational test command, control, and communications, communications network, weapons system interfaces, vehicle and dismounted-troop kits and peripherals, Global Positioning System (GPS), encryption components, and integrate operational realistic digital battlefield data collection and analysis tools. These tools will collect, store and analyze data from the digital battlefield. Improvements will enable the ILTE system of systems to measure and record accrued damage, levels of exposure, effects of countermeasures, evasive action, and instrument threat vehicles. This capability is required by the operational test community to integrate digital battlefield data collection and analysis tools to support Project Convergence, Army Modernization priorities and other operational tests.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Integrated Live-Virtual-Constructive Test Environment	-	-	3.841
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** 986 / *Major Operational Test Instrumentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Develop and integrate the Integrated Live-Virtual-Constructive Test Environment System of Systems with capability to perform real-time casualty assessment, create operational realistic test environments, collect test data, command and control the test environment, and integrate with other systems and tools. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 Increase to meet the Army's Major Operational Test Instrumentation requirements for the Army's Test Centers.			
Accomplishments/Planned Programs Subtotals	-	-	3.841

	FY 2020	FY 2021
Congressional Add: Major operational test instrumentation	-	11.840
FY 2021 Plans: T&E Investment to advance hardware and software to properly conduct operational testing on 31 Army modernization efforts in development by Army Futures Command. Adds near-peer threat live, virtual, and constructive components (ideally reconfigurable/programmable threat simulators and simulations) that will operate within the Integrated Live-Virtual-Constructive Test Environment (ILTE) real-time simulation, test control, and data architectures for network communications and processing. Will enhance Real Time Casualty Assistance (RTCA) simulation that includes kinetic weapons as well as directed energy weapons, electronic warfare, cyber operations, and a converged EW/Cyber capability. Will integrate constructive simulation to augment single, one-on-one RTCA effects calculation as well as replicating supporting systems-of-systems via high-fidelity modeling.		
Congressional Adds Subtotals	-	11.840

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*	Project (Number/Name) EY9 / *Range Radar Replacement Program (RRRP)*	

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
EY9: *Range Radar Replacement Program (RRRP)*	-	90.861	52.340	18.687	-	18.687	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In order to effect strategic overmatch on current and future battlefields, it is essential that the United States (U.S.) Army provide advanced radar system instrumentation for developmental testing. Since existing range radar instrumentation is aged beyond useful life and cannot adequately support emerging test requirements, the Range Radar Replacement Program (RRRP) recapitalizes and develops modern instrumentation radars to replace obsolete tracking and surveillance radars at U.S. Army Test and Evaluation Command's (ATEC) activities, which include: Aberdeen Test Center (ATC), MD; White Sands Test Center (WSTC), NM; and Yuma Test Center (YTC), AZ. The project will deliver capability in two block increments: Block I will recapitalize or replace existing radar systems, and Block II will develop a Long Range Radar which is compliant with ATEC's Test Capability Requirements Document (TCRD). The acquisition of modern instrumentation radar systems will provide the Army with critical testing data essential for the development of next generation technology and advanced system capabilities. The RRRP provides the test centers with improved radar resolution, sensitivity, accuracy, clutter suppression, and reliability. The planned solution to meet program requirements consists of four primary items: Long Range Single Object Tracking Radars (SOTR), Long Range Multiple Object Tracking Radars (MOTR), Medium Range Radars (MRR), and Short Range Radars (SRR). The resulting systems will not only reduce operation and sustainment costs for the ranges, but will improve data collection, thus enhancing development of Army systems being tested at these ranges. The current fleet of instrumentation radars located at ATC, WSTC, and YTC has become antiquated to the extent that they are not able to support the test needs of the test centers.

This Project will procure Modified Commercial Off-the-Shelf (MCOTS) radars for both the MRR and SRR solutions, and a combination of recapitalization and MCOTS replacement for the Long Range SOTRs. Also, the project will conduct Engineering and Manufacturing Development (EMD) for upgrading three Long Range MOTRs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: EMD Phase	90.861	52.340	18.687
Description: The Fiscal Year (FY) 2022 request of $18.753 million continues development of the first Block II Long Range radar prototype, and continues acceptance testing of Medium Range and MPS-39 MOTR instrumentation radars.			
FY 2021 Plans: Continue procurement of MCOTS long range radars, initiate the EMD phase for the first Block II LRR, and complete acceptance testing of instrumentation radars.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** EY9 / *Range Radar Replacement Program (RRRP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue development of the first Block II Long Range radar prototype, and continue acceptance testing of Medium Range, Short Range and MPS-39 MOTR instrumentation radars. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decrease of $33.587 million is consistent with the strategic plan to align RRRP with developmental testing requirements emerging from Army modernization efforts.			
Accomplishments/Planned Programs Subtotals	90.861	52.340	18.687

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*	Project (Number/Name) FF1 / *Cyber Blue Team*	

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
FF1: *Cyber Blue Team*	-	1.166	1.015	1.084	-	1.084	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In 2016 the Army Acquisition Executive (AAE) designated the Program Manager for Cyber, and Training (PM CT2) (formerly PM ITTS) as the Office of Primary Responsibility for Cyber Acquisition Blue Teams (CABT) certifications and standards program. This Project executes the establishment and management of certification standards for CABT and coordination of requirements on behalf of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA (ALT)).

PM CT2 will establish certification standards, certify Blue Teams and maintain a vulnerabilities/lessons learned repository. PM CT2 will work with Blue and Red Teams to establish processes which facilitate open network tests under the red team authority, coordinate with Program Managers on CABT efforts on behalf of ASA (ALT) and report to ASA (ALT) on new cyber vulnerabilities. Blue teams will work cooperatively with acquisition programs to make sure all security measures are taken throughout the program's lifecycle, ensuring cyber resiliency. Blue teams are essential to help military operators assess, protect and defeat the presence of cyber security threats across Army Acquisition Programs.

Will focus on the continuation of certifying candidate teams. The goal is to certify enough teams to allow acquisition programs the flexibility to find a certified Blue Team that meet their program's schedule and cost and can be incorporated early on in the program. CABT vulnerability assessments will provide data analytics to report trends and lessons learned. A web portal will serve as a one stop shop for both candidate and certified Blue teams to obtain and maintain their certification.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Cyber Blue Teams	1.166	1.015	1.084
Description: Management and oversight of Cyber Blue Team vulnerability assessments.			
FY 2021 Plans: Will continue to support the maintenance and operation of a central repository to include trend analysis and lessons learned from vulnerability assessments. The CABT program will also develop and maintain an additional web portal to support and manage both the candidate and the certified teams.			
FY 2022 Plans: Will continue to support the maintenance and operation of a central repository to include trend analysis and lessons learned from vulnerability assessments. The CABT program will also develop and maintain an additional web portal to support and manage both the candidate and the certified teams.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** FF1 / *Cyber Blue Team*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 to FY 2022 increase is for the additional web portal to support and manage both the candidate and certified teams.			
Accomplishments/Planned Programs Subtotals	1.166	1.015	1.084

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605103A / *Rand Arroyo Center*							
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	-	12.573	12.989	33.126	-	33.126	-	-	-	-	-	-
732: *Arroyo Center Spt*	-	12.573	12.989	33.126	-	33.126	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds RAND Arroyo Center, the Department of the Army's Federally Funded Research and Development Center (FFRDC) for studies and analysis. RAND Arroyo Center draws researchers from RAND's staff of nearly 700 professionals trained in a broad range of disciplines. Most staff members work in RAND's principal locations: Santa Monica, California; Arlington, Virginia; and Pittsburgh, Pennsylvania. RAND Arroyo Center provides for continuing analytical research across a broad spectrum of issues and concerns, grouped in three major research areas: Personnel, Training, and Health; Forces and Logistics; and Strategy, Doctrine and Resources. RAND Arroyo Center research agenda is primarily focused on mid/long-term concerns. Current priorities include: implementation of the National Defense Strategy; total force readiness; Army modernization priorities; ongoing operations and dynamic force employment; reform business processes; multi-domain operations; and soldier-centric investments and soldier and family resilience. Results and analytical findings directly affect senior leadership deliberations on major issues. RAND Arroyo research is sponsored by the Secretary, Chief of Staff, Under Secretary, Vice Chief of Staff, Deputy Chiefs of Staff; Assistant Secretaries of the Army, and Army Major Commands. RAND Arroyo is governed by AR 5-21 and receives Army guidance through the Arroyo Center Policy Committee (ACPC), which is co-chaired by the Vice Chief of Staff of the Army and the Assistant Secretary of the Army (Acquisition, Logistics and Technology). The ACPC reviews, monitors, and approves the annual Arroyo Center research plan. Each research project is sponsored by a General Officer or Senior Executive Service who is continually involved in research evaluation and feedback. RAND Arroyo provides the Army with a unique multidisciplinary capability for independent analysis.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	13.113	13.481	14.091	-	14.091
Current President's Budget	12.573	12.989	33.126	-	33.126
Total Adjustments	-0.540	-0.492	19.035	-	19.035
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.540	-0.492			
• Adjustments to Budget Years	-	-	19.035	-	19.035

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605103A / *Rand Arroyo Center*

Change Summary Explanation

FFRDC was mandated a change in business model from 1/3 - 2/3 reimbursable to a direct model based upon Under Secretary of Defense for Research and Engineering (DoD(R&E)) new guidance. This will change direct funding to 2/3's of requirement enabling the Army to better allocate resources to study and analyze national defense and Army priorities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605301A *I Army Kwajalein Atoll*							
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	-	230.051	221.965	240.877	-	240.877	-	-	-	-	-	-
DW7: *Army Kwajalein Atoll Facilities Sustainment*	-	38.398	45.357	47.799	-	47.799	-	-	-	-	-	-
DW8: *Army Kwajalein Atoll Installation Services*	-	125.771	119.581	135.120	-	135.120	-	-	-	-	-	-
DW9: *Army Kwajalein Atoll Restoration And Modernization*	-	55.505	47.512	46.420	-	46.420	-	-	-	-	-	-
DX2: *Army Kwajalein Test Ranges and Mission Support*	-	10.377	9.515	11.538	-	11.538	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) is unique in the Research, Development, Test & Evaluation (RDTE) portfolio due to the comprehensive scope of RDTE funding at United States (U.S.) Army Garrison Kwajalein Atoll, directly supporting eleven leased islands with radars, telemetry, and optics in support of continuous New Foreign Launch surveillance, space surveillance, space object identification, offensive and defensive strategic ballistic and interceptor missile testing. In addition, responsibilities include provision of the totality of the logistics and municipal services required to maintain a strategically vital mission support infrastructure in a remote Pacific island chain 2,300 miles southwest of Hawaii. Kwajalein's flexible electromagnetic frequency spectrum, equatorial locale, deep water, and unmatched instrumentation make the nation's space and missile operations possible. In addition, the Ronald Reagan Ballistic Missile Defense Test Site (RTS) on Kwajalein is the Department of Defense's (DoD) only land-impact missile testing site, providing an increasingly vital Test & Evaluation (T&E) capability.

The U.S. Army Kwajalein Atoll / Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS), located in the Republic of the Marshall Islands, is a remote, secure activity of the Major Range and Test Facility Base (MRTFB). USAKA/RTS supports test and evaluation of major Army and DoD missile and space acquisition programs and provides New Foreign Launch surveillance and space operations (surveillance and object identification) in support of U.S. Strategic Command (USSTRATCOM), the U.S. Air Force, and National Aeronautics and Space Administration (NASA) scientific and space programs. USAG-KA provides Base Operations (BOS), Infrastructure and Services (Projects DW7, DW8, and DW9) support to the USAKA/RTS mission and other resident Programs (i.e. Army missile defense, Air Force & Navy Intercontinental Ballistic Missile (ICBM) developmental and operational tests; Army, Air Force, Navy and Defense Advanced Research Projects Agency (DARPA) hypersonic developmental tests; Air Force Space Fence, Missile Defense Agency (MDA) operational /demonstration/ validation tests; USSTRATCOM space situational awareness requirements (including contributions to the U.S. Space Surveillance Network); and space experiments). Base Operations Services at Kwajalein Atoll are conducted predominantly through a contracted workforce with governmental oversight. These PE-funded contracts provide: installation/base operations and maintenance for all facilities, logistics, and security; power generation fuel supporting the installation and radars; transportation; and mission essential bandwidth via a fiber optic cable system.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605301A *I Army Kwajalein Atoll*

The Network Enterprise Technology Command (NETCOM) utilizes Project DX2 to provide civilian pay, manpower service contracts, supporting Information Technology (IT), equipment, and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Information Technology Services Management at Army Kwajalein Test Ranges. This Project provides C4IM services in accordance with the Department of Army Pamphlet (DA PAM) PAM 25-1-1 and the Army C4IM Services List.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	238.691	231.824	231.405	-	231.405
Current President's Budget	230.051	221.965	240.877	-	240.877
Total Adjustments	-8.640	-9.859	9.472	-	9.472
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.594			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.976	-			
• SBIR/STTR Transfer	-9.616	-8.265			
• Adjustments to Budget Years	-	-	9.472	-	9.472

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605301A / *Army Kwajalein Atoll*	Project (Number/Name) DW7 / *Army Kwajalein Atoll Facilities Sustainment*	

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
DW7: *Army Kwajalein Atoll Facilities Sustainment*	-	38.398	45.357	47.799	-	47.799	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides resources for preventive maintenance and repair necessary to sustain 1,477 facilities on Kwajalein, Roi-Namur, and nine other leased islands, totaling 2.6 million square feet. Funds are focused toward keeping facilities in good working order in accordance with industry standards. This includes emergency response and service calls, minor repair and major repair or replacement resulting from Kwajalein's particularly harsh climate, including strong winds, saltwater corrosion, and sustained torrential rainfall. Funds also provide manpower necessary to achieve, evaluate, and sustain compliance with appropriate Federal, State, and local environmental laws, Executive Orders, Department of Defense (DoD) Directives, regulations, and overseas country-specific Final Governing Standards.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Real Property Maintenance	38.398	45.236	47.671

Description: This effort provides the preventive maintenance and repair necessary to sustain Kwajalein facilities and utilities in order to prevent further deterioration. Funds facilities and utilities at minimum acceptable levels to mitigate risk of catastrophic failures. Includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. Also includes costs of major repairs or replacement of facility components that are expected to occur periodically throughout the expected service life. This work includes: regular roof replacement; refinishing wall surfaces; repairing and replacing electrical, plumbing, and cooling systems; replacing tile and carpeting; and similar types of work. Sustainment, however, is not intended to keep facilities adequately functioning beyond their expected service lives.

FY 2021 Plans:

Will continue to service 1,477 facilities on Kwajalein, Roi-Namur, and the nine other leased islands, totaling 2.6 Million square feet. Will continue an aggressive maintenance plan based on the significant corrosive environment; prepare maintenance plans and schedules for recurring or preventive maintenance; perform periodic pre-maintenance inspections; perform preventive and corrective maintenance; report the need for major repair, replacement, or rehabilitation; prepare records of maintenance actions performed and deficiencies discovered; and perform post-maintenance inspections.

FY 2022 Plans:

Will continue to service 1,477 facilities on Kwajalein, Roi-Namur, and the nine other leased islands, totaling 2.6 Million square feet. Will continue an aggressive maintenance plan based on the significant corrosive environment; prepare maintenance plans and schedules for recurring or preventive maintenance; perform periodic pre-maintenance inspections; perform preventive and

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW7 / *Army Kwajalein Atoll Facilities Sustainment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
corrective maintenance; report the need for major repair, replacement, or rehabilitation; prepare records of maintenance actions performed and deficiencies discovered; and perform post-maintenance inspections. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Adjusted for Inflation			
Title: Environmental Quality ***Description:*** This effort provides manpower necessary to achieve, evaluate, and sustain compliance with appropriate Federal, State, and local environmental laws, Executive Orders, DoD Directives, regulations, and overseas country-specific Final Governing Standards, in order to protect human health and safety and reduce total cost to the Army through environmental compliance, conservation, and pollution prevention. Enables installations to comply with legal environmental mandates and critical stewardship responsibilities that impact management and modernization of installations, while sustaining natural and cultural resources in a manner that provides continued access and long-term use of training lands to support the Army's installation missions.. ***FY 2021 Plans:*** Will continue oversight and management of environmental workload ***FY 2022 Plans:*** Will continue oversight and management of environmental workload ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Adjusted for Inflation	-	0.121	0.128
Accomplishments/Planned Programs Subtotals	38.398	45.357	47.799

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605301A / *Army Kwajalein Atoll*	Project (Number/Name) DW8 / *Army Kwajalein Atoll Installation Services*	

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
DW8: *Army Kwajalein Atoll Installation Services*	-	125.771	119.581	135.120	-	135.120	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project resources Base Operations / Installation Services Support for United States (U.S.) Army Kwajalein (USAKA) Garrison located in the Republic of the Marshall Islands, a remote, secure activity designated as a Major Range and Test Facility Base (MRTFB). Base Operations / Installation Services Support resourcing is a critical enabler to ensure continuity of operations supporting Test and Evaluation and Space Operations of the Ronald Reagan Ballistic Missile Test Site in its role as an MRTFB Activity. Kwajalein is a government-managed / contractor-operated (GOCO) site and is primarily dependent upon its associated support contracts for the daily operations and maintenance of Base Operations / Installation Services Support. Installation Services Support consists of: Utility Services; logistical (fuel/transportation) operations support requirements; Medical/Dental Services; Education (K-12) Services; Food/Grocery Services; Contracted Security Guards; and Aviation/Marine support.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Airfields (AAF) and Heliports (AHP)	11.798	7.812	7.775
Description: Provides Resources Operations and Maintenance for Army Airfield and Aviation Fleet. Provides manpower, equipment acquisition, sustainment and maintenance in support of airfield operations, airfield management, aircraft services, air traffic services (ATS), air transport, airspace management and control, and air traffic control equipment maintenance. Includes airfield specific equipment, safety requirements, Hazardous Materials (HAZMAT) support, and airfield obstruction surveys. AAF/ AHP functions support Department of Defense (DoD) priorities for Army and joint force capabilities and inter-agency, intra-agency and multinational operations to meet current and future full spectrum requirements. Funds AAF/AHP functions at the necessary state of readiness to support missions across eleven islands (two fixed wing/six rotator wing) in addition to international aircraft traffic and reduces risk of major accidents/incidents.			
FY 2021 Plans: Provide services for all mission essential DoD, commercial, and transient aircraft. Operate two Airfields and eight outer islands helipads. Operate and maintain one Air Traffic Control (ATC) tower with class D airspace, two separate airfield operations and integrated STARS radar for aircraft separation and de-confliction. Support all intra-atoll cargo and personnel movements with two fixed wing and four rotary wing aircraft. Support transient international flights.			
FY 2022 Plans: Provide services for all mission essential DoD, commercial, and transient aircraft. Operate two Airfields and eight outer islands helipads. Operate and maintain one Air Traffic Control (ATC) tower with class D airspace, two separate airfield operations and			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
integrated STARS radar for aircraft separation and de-confliction. Support all intra-atoll cargo and personnel movements with two fixed wing and four rotary wing aircraft. Support transient international flights. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Title: Army Community Services (ACS) ***Description:*** Provides programs that prevent family violence/fatalities through family advocacy programs and counseling; provide specialized assistance to provide prevention, education and family sustainment for military and civilian personnel and their families; and also provide critical financial, employment and relocation education and training to Soldiers, civilians, and their Families. ***FY 2021 Plans:*** Continue to provide necessary/routine Army Community Services to the Installation. ***FY 2022 Plans:*** Continue to provide necessary/routine Army Community Services to the Installation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	-	0.283	0.281
Title: Child and Youth Services (CYS) ***Description:*** Provides child care, youth, and school services (CYSS) programs for children and youth. Provides child and youth spaces required to meet Army's child care and youth participation demand goals. Resources the following programs: 1) Child Development Centers; 2) Family Child Care; 3) School Age Care; 4) Youth Programs; 5) Youth Sports & Fitness; 6) School Support Services. Resources staffing levels necessary to minimize risk of child abuse, and the oversight to achieve and maintain DoD Certification (State licensing equivalent) and National Accreditation per statutory requirement and DoD policy. ***FY 2021 Plans:*** Continue to provide resources to operate CYS programs on Kwajalein to include a Child Development Center, School Age Services programs, Supplemental Programs and Services, and Youth programs and services. Establish and maintain developmentally and age-appropriate staff-child/youth interactions, activities, activity schedules and plans, supplies and equipment, furnishings, and environment (both indoors and outdoors) that lead to the social, physical, cognitive, and emotional growth of children up to 18 years. Ensure that youth programs include, at a minimum, seasonal sports programs, 4-H Club	1.213	0.427	0.427

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
programs, Boys and Girls Club of America programs, instructional programs, recreational programs, programs that promote leadership and citizenship, intervention services, and teen programs. ***FY 2022 Plans:*** Continue to provide resources to operate CYS programs on Kwajalein to include a Child Development Center, School Age Services programs, Supplemental Programs and Services, and Youth programs and services. Establish and maintain developmentally and age-appropriate staff-child/youth interactions, activities, activity schedules and plans, supplies and equipment, furnishings, and environment (both indoors and outdoors) that lead to the social, physical, cognitive, and emotional growth of children up to 18 years. Ensure that youth programs include, at a minimum, seasonal sports programs, 4-H Club programs, Boys and Girls Club of America programs, instructional programs, recreational programs, programs that promote leadership and citizenship, intervention services, and teen programs.			
Title: Engineering Services ***Description:*** Provides (1) Facility Management and Administration and (2) Installation Engineering Services. Facility Management includes public works management costs, contract management, material procurement, facility data management; to include, Geographic Information System (GIS) and Sustainment Management Systems (SMS) suite implementation/inspections, furnishings management costs, and real property and real estate management. Installation Engineering Services includes facility engineer service contracts, annual inspection of facilities, master planning, overhead of planning and design, and overhead of construction management and non-Sustainment and Restoration Modernization (SRM) service calls. Excludes: vehicle maintenance, in-house shop and contracted personnel who routinely perform facility sustainment activities; and design engineers or project managers or construction inspectors who manage and oversee facility sustainment and construction projects. ***FY 2021 Plans:*** Continue to provide necessary/routine engineering services to the Installation. ***FY 2022 Plans:*** Continue to provide necessary/routine engineering services to the Installation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	2.147	4.386	4.411
Title: Soldier Recreation and Community Support ***Description:*** Provides the development and delivery of Soldier Programs, Community Recreation, and Direct Common Family and Morale, Welfare and Recreation (FMWR) Support Services that sustain the Total Army, in accordance with (IAW) the Army Campaign Plan and the Chief of Staff of the Army (CSA)'s Strategic Priorities. Programs funded include sports, fitness and aquatics, recreation centers, libraries, outdoor recreation, skill development, bowling (16 lanes or less); Direct Common FMWR	1.914	0.250	0.251

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Support Services (essential command and control and risk management programs for property, funds and personnel); and as designated by Congress, Category C FMWR activities at remote and isolated sites. These programs resource readiness and resiliency and build upon physical, emotional, social and psychological coping skills; funds opportunities for Soldiers, civilians and Families to foster self-reliance, morale and a sense of belonging by offering positive discretionary time choices, mitigating aberrant behaviors through individual skill development and team participation. ***FY 2021 Plans:*** Continue to provided resources necessary to sustain Soldier Recreation and Community Support for a community population of 1400 and meet the needs of USAKA/RTS residents, tenants, satellite activities, range users, and other authorized organizations/ personnel on Kwajalein Island, Roi-Namur Island, Meck Island, and on other USAKA/RTS outer islands. ***FY 2022 Plans:*** Continue to provided resources necessary to sustain Soldier Recreation and Community Support for a community population of 1400 and meet the needs of USAKA/RTS residents, tenants, satellite activities, range users, and other authorized organizations/ personnel on Kwajalein Island, Roi-Namur Island, Meck Island, and on other USAKA/RTS outer islands. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Fire and Emergency Services (FES) ***Description:*** Provides for fire and emergency services for the installation, including preparation for and response and mitigation of aircraft and structural firefighting and rescue, technical rescue, Hazardous Materials and Weapons of mass destruction/Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) responses, and out of control wildfire mitigation in an all-hazard response environment. ***FY 2021 Plans:*** Continue to provide fire and Emergency Services which are performed in association with the Base Support/Logistics contractor. Provide fire protection services for all USAG-KA and RTS assets, to include facilities, structural, aircraft, shipboard and small watercraft, and wild land fires. Services provide protection for the fire hazards associated with operations and community at USAG-KA and RTS. Provide Fire Protection on Kwajalein and Roi-Namur 24 hours Provided Fire Protection and Emergency Services on Meck during duty hours, mission periods, and hazardous operations. Provide ambulance service on Kwajalein, Meck, and Roi-Namur Islands. Provide fire safety education and activities for the schools and child development center and for adult residents of USAG-KA. Train personnel normally assigned to work on the remote islands of Illeginni, Ennylabegan, Gagan, and Legan in first aid, Cardiopulmonary Resuscitation (CPR), and operation of fire extinguishers and fire alarm and suppression	4.156	5.003	4.968

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
equipment peculiar to the island. Provide rescue and emergency medical personnel available for immediate dispatch to aircraft or vessel crash site, entry into the ocean or lagoon, and be provisioned for immediate rescue and emergency medical assistance. ***FY 2022 Plans:*** Continue to provide fire and Emergency Services which are performed in association with the Base Support/Logistics contractor. Provide fire protection services for all USAG-KA and RTS assets, to include facilities, structural, aircraft, shipboard and small watercraft, and wild land fires. Services provide protection for the fire hazards associated with operations and community at USAG-KA and RTS. Provide Fire Protection on Kwajalein and Roi-Namur 24 hours Provided Fire Protection and Emergency Services on Meck during duty hours, mission periods, and hazardous operations. Provide ambulance service on Kwajalein, Meck, and Roi-Namur Islands. Provide fire safety education and activities for the schools and child development center and for adult residents of USAG-KA. Train personnel normally assigned to work on the remote islands of Illeginni, Ennylabegan, Gagan, and Legan in first aid, Cardiopulmonary Resuscitation (CPR), and operation of fire extinguishers and fire alarm and suppression equipment peculiar to the island. Provide rescue and emergency medical personnel available for immediate dispatch to aircraft or vessel crash site, entry into the ocean or lagoon, and be provisioned for immediate rescue and emergency medical assistance. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Financial Management (FM) Activities ***Description:*** Provides Directorate of Resource Management (DRM) and DRM base support for Army tenants resident on or receiving support from the Army installation. Functions of the DRM include program, budget, manpower, documentation, Memorandum of Understanding (MOU)/Memorandum of Agreement (MOA)/Support Agreement management, finance and accounting. ***FY 2021 Plans:*** Continue to provide program/budget support and budget execution, financial advisory service and accounting liaison services. Support Audit Readiness through Statement of Budgetary Resource samples. Continue to establish Inter-service Support Agreements (ISSA). Provide management analysis on manpower requirements and organizational structure analysis. Provide Contracting Officer Representative oversight for the Program Management functions for the base-support contract. ***FY 2022 Plans:*** Continue to provide program/budget support and budget execution, financial advisory service and accounting liaison services. Support Audit Readiness through Statement of Budgetary Resource samples. Continue to establish Inter-service Support	0.763	0.608	0.629

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Agreements (ISSA). Provide management analysis on manpower requirements and organizational structure analysis. Provide Contracting Officer Representative oversight for the Program Management functions for the base-support contract. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Food Services ***Description:*** Provides for the operation of dining facilities including contract employees, food service supplies, and equipment life-cycle replacement. ***FY 2021 Plans:*** Continue to provide services for DoD, contractor, host nation, interagency and intra-agency organizations with multiple facilities on three different islands to include 3 cafeterias, bakery, grocery store, dry/cold warehousing, AAFES retail stores, AAFES food court, and catering services and private organizations. Monitor and approve food purchases and preparation. Conduct food service inspections. ***FY 2022 Plans:*** Continue to provide services for DoD, contractor, host nation, interagency and intra-agency organizations with multiple facilities on three different islands to include 3 cafeterias, bakery, grocery store, dry/cold warehousing, AAFES retail stores, AAFES food court, and catering services and private organizations. Monitor and approve food purchases and preparation. Conduct food service inspections. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	11.348	9.178	9.114
Title: Unaccompanied Housing ***Description:*** Provides for Government-owned Unaccompanied Housing including appropriated funded Army lodging, lifecycle replacement furnishings, and other associated costs. Includes Manpower purchase, control, moving, management and handling of lifecycle replacement and repair for all unaccompanied housing furnishings. Includes all costs of authorized replacement furnishings in existing inventory. ***FY 2021 Plans:*** Continue to provide contractor management, oversight, M&R, and control of all USAG-KA Housing/ Billeting Facilities Utilize best commercial residential business practices to ensure basic quality of life standards are achieved and are in compliance with life and safety standards. Provide Master Key control services. Provide and implement a sound furnishings and appliances program that addresses acquisition, replacement, M&R, and refurbishing. Provide Hospitality Kits consisting of the minimum essential items	0.249	1.658	1.607

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
to operate a household until permanent party personnel's HHG arrive and from HHG shipment until departure. Provide COOM on all facilities prior to reassignment to in-coming resident. ***FY 2022 Plans:*** Continue to provide contractor management, oversight, M&R, and control of all USAG-KA Housing/ Billeting Facilities Utilize best commercial residential business practices to ensure basic quality of life standards are achieved and are in compliance with life and safety standards. Provide Master Key control services. Provide and implement a sound furnishings and appliances program that addresses acquisition, replacement, M&R, and refurbishing. Provide Hospitality Kits consisting of the minimum essential items to operate a household until permanent party personnel's HHG arrive and from HHG shipment until departure. Provide COOM on all facilities prior to reassignment to in-coming resident. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Law Enforcement ***Description:*** Provides Law Enforcement (LE) activities/services for the protection of people and property, enforcement of laws, and maintenance of order. This effort covers, but is not limited to: all personnel and operating costs associated with LE operations, salaries, overtime, benefits, material and supplies, equipment, vehicles, training and management for LE response forces (Department of the Army Civilian Police (DACP) and military police (MP)). Funds the conduct of motor vehicle traffic supervision, and liaison with civilian LE agencies. Funds LE work load derived from historical responses to calls for service (i.e. Crimes against Persons, Drug Crimes, Traffic Crimes, Absent Without Leave (AWOL), Sex Crimes, and Crimes against Property, Environmental Violations, Fraud Crimes, Alarm Response and Public Service Calls), investigation of non-felony level offenses, preparation and distribution of MP reports and related documents, and collection and analyses of crime statistics. ***FY 2021 Plans:*** Continue to provide LE activities/services for the protection of people and property, enforcement of laws, and maintenance of order. Will cover, but not limited to, all personnel and operating costs associated with LE operations, salaries, overtime, benefits, material and supplies, equipment, vehicles, training and management for LE response forces. ***FY 2022 Plans:*** Continue to provide Law Enforcement activities/services for the protection of people and property, enforcement of laws, and maintenance of order. Will cover, but not limited to, all personnel and operating costs associated with LE operations, salaries, overtime, benefits, material and supplies, equipment, vehicles, training and management for LE response forces. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	0.751	1.631	1.697

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Economic Adjustments			
Title: Materiel Maintenance ***Description:*** Provide for automotive, Marine vessel, Construction, General Equipment, and Armament Maintenance. Also provides Field and Sustainment level maintenance services to Army activities in accordance with AR 750-1; provides maintenance technical assistance to supported units and activities, and provides material maintenance on base operations support equipment. ***FY 2021 Plans:*** Continue to provide resources for the maintenance of all 6 aircraft, 17 marine vessels, heavy equipment, non-tactical and tactical equipment, construction equipment; base operations equipment and marine navigational aides. Provide government estimates for repair/ replacement of damaged, lost or lifecycle replacement equipment. Provide resources for On-Condition Cyclic Maintenance (OCCM) for marine vessels. ***FY 2022 Plans:*** Continue to provide resources for the maintenance of assigned aircraft, marine vessels, heavy equipment, non-tactical and tactical equipment, construction equipment; base operations equipment and marine navigational aides. Provide government estimates for repair/ replacement of damaged, lost or lifecycle replacement equipment. Provide resources for On-Condition Cyclic Maintenance (OCCM) for marine vessels. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	6.390	2.920	2.903
Title: Municipal Services ***Description:*** Provides for municipal services including grounds maintenance, custodial, pest management, solid waste or refuse handling operations, pavement clearance. ***FY 2021 Plans:*** Will provide necessary/routine municipal services to the Installation. ***FY 2022 Plans:*** Will provide necessary/routine municipal services to the Installation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	5.232	1.932	1.918
Title: Installation Command and Management	33.261	29.471	33.008

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Provides for a K-12 school system, medical/dental services, and Base Support Contract overhead fees. Additionally, supports offices of the Commander, Staff Judge Advocate (SJA), Chaplain, Public Affairs (PA), and Safety Office. Supports civilian pay and benefits, training, duty travel, Permanent Change of Station (PCS) costs, equipment, and contractual services for installation command and management activities. Kwajalein Medical/Dental services provide family practice and emergency services at Kwajalein (2-5 days for MEDEVAC support to Honolulu), a secondary clinic on Roi-Namur, and a dental clinic. Support includes but is not limited to medical lab and imaging services, pharmacy services, basic dental services, and all medical functions including inspections of medical facilities. ***FY 2021 Plans:*** Provide Installation Command and Management across 11 islands/defense sites to a population of over 100 Active Duty Military and Department of the Army civilians & 1100 contractors and their family members. Plan, organize, staff, direct, and control all aspects of installation and command management. ***FY 2022 Plans:*** Provide Installation Command and Management across 11 islands/defense sites to a population of over 100 Active Duty Military and Department of the Army civilians & 1100 contractors and their family members. Plan, organize, staff, direct, and control all aspects of installation and command management. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Personnel Services Delivery ***Description:*** Provides a human resource specialist responsible for providing all aspects of human resource management, administrative, and counsel to the Garrison Staff. ***FY 2021 Plans:*** Continue to provide human resource support to the Garrison Staff. ***FY 2022 Plans:*** Continue to provide human resource support to the Garrison Staff. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	0.092	0.121	0.126
Title: Physical Security Matters	4.446	5.669	5.604

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Provides resources for physical security programs and equipment to support Army installations and facilities requirements. Procures, installs, maintains and/or leases physical security equipment to include, but not limited to barriers; blast mitigation devices; communication systems; explosive detection devices; intrusion detection systems and devices; sensors; site improvements; management/planning; and security forces and technicians. Funds contract security guards including military working dog management and equipping the installation with explosive and drug detection dog capabilities. ***FY 2021 Plans:*** Continue to provide the necessary physical security procedures and materials to ensure USAG-KA maintains all proper security measures. ***FY 2022 Plans:*** Continue to provide the necessary physical security procedures and materials to ensure USAG-KA maintains all proper security measures. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Army Security Programs ***Description:*** Funds Army Command security activities supporting: Information Security, Personnel Security, Industrial Security, Communications Security (COMSEC) Policy, Security Education, Training and Awareness (SETA), Special Access Program (SAP) Security, Sensitive Compartmented Information (SCI) Security, Foreign Disclosure, and Technology Protection. ***FY 2021 Plans:*** Continue to provide the necessary security procedures and materials to ensure USAGKA maintains all proper security measures to ensure successful missions continue on USAGKA. ***FY 2022 Plans:*** Continue to provide the necessary security procedures and materials to ensure USAGKA maintains all proper security measures to ensure successful missions continue on USAGKA. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	0.122	0.122	0.126
Title: Supply Logistics ***Description:*** Provides supply operations which support: ammunition supply point services, bulk petroleum operations, marine and aviation assets, Army tenants, operation of a central receiving point and/or Installation Supply Support Activity (SSA) for goods	12.774	24.195	36.862

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
delivered to the installation, management of non-deployable installation property, and receipt, storage, issue, reutilization and tracking of hazardous materials. ***FY 2021 Plans:*** Continue to provided resources for property accountability of all GFE/CAP, reutilization items, Military Standard Requisitioning and Use Procedures ordering and delivery to multiple outer islands. Dispose of obsolete items in accordance with Army equipment disposition procedures. ***FY 2022 Plans:*** Continue to provided resources for property accountability of all GFE/CAP, reutilization items, Military Standard Requisitioning and Use Procedures ordering and delivery to multiple outer islands. Dispose of obsolete items in accordance with Army equipment disposition procedures. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funds one time replacement in critical equipment items.			
Title: Transportation Services ***Description:*** Provides the operation of installation transportation offices, transportation motor pools, and cost of rolling stock; also includes movement of privately-owned household goods of military personnel (and civilian personnel in overseas areas) in connection with assignment, reassignment, or termination of government-furnished family housing. ***FY 2021 Plans:*** Continue to provide resources for the operation of all transportation services to include 6 aircraft, 17 marine vessels, and over 200 pieces of rolling stock. Operate a centralized motor pool. Fund operations for movement of all international and intra atoll air and surface cargo to include mission critical equipment and supplies, household goods, HAZMAT, United States Postal Service (USPS) mail, medical, and food items. Safely ferry over 48,000 mission critical employees per month within the atoll on various USAGKA marine assets. ***FY 2022 Plans:*** Continue to provide resources for the operation of all transportation services to include 6 aircraft, 17 marine vessels, and over 200 pieces of rolling stock. Operate a centralized motor pool. Fund operations for movement of all international and intra atoll air and surface cargo to include mission critical equipment and supplies, household goods, HAZMAT, United States Postal Service (USPS) mail, medical, and food items. Safely ferry over 48,000 mission critical employees per month within the atoll on various USAGKA marine assets. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	18.259	3.015	2.960

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Economic Adjustments			
Title: Utilities	8.930	18.534	18.109
Description: Provides utility services - production and distribution of utilities including expenses for electricity, steam, hot water, fuels and other utilities, and operation of electrical, air conditioning, refrigeration, water distribution, and wastewater collection and treatment plants and systems. ***FY 2021 Plans:*** Continue to provide resources including fuel to operate and maintain seven Power generation and distribution systems on Kwajalein; nine on Roi, five on Meck, and eleven total on the outer islands of Carlos, Gagan, Illeginni, and Legan, distributing over 7.5 Million kilowatt hours / month. Operate, maintain, and repair all prime power plants, distribution systems, and ancillary equipment and related systems, including fixed and portable auxiliary generators. Provide reliable power during mission windows. Develop and implement a maintenance plan which includes operator maintenance, predictive maintenance, Program Management (PM), cyclical, and recurring maintenance, as well as periodic equipment and systems overhauls for all power production systems. Provide appropriate staff to operate power plants 24 hours a day. Operate and maintain potable and non-potable water production & distribution systems. Operate and maintain wastewater treatment plant water systems and storage including equipment. Distribute water to a population of approximately 1400 people consuming over 5.3 million gallons of water per month. Operate all wastewater treatment plants and equipment, collection and distribution systems, and all ancillary equipment and other related systems, including septic tanks. Develop, implement, and manage a waste management program including collection, incineration, landfill, compost, and recycling facilities. Provide preventative, cyclical and recurring, and unscheduled maintenance and repair of the Incinerator and all ancillary equipment and systems. ***FY 2022 Plans:*** Continue to provide resources including fuel to operate and maintain seven Power generation and distribution systems on Kwajalein; nine on Roi, five on Meck, and eleven total on the outer islands of Carlos, Gagan, Illeginni, and Legan, distributing over 7.5 Million kilowatt hours / month. Operate, maintain, and repair all prime power plants, distribution systems, and ancillary equipment and related systems, including fixed and portable auxiliary generators. Provide reliable power during mission windows. Develop and implement a maintenance plan which includes operator maintenance, predictive maintenance, Program Management (PM), cyclical, and recurring maintenance, as well as periodic equipment and systems overhauls for all power production systems. Provide appropriate staff to operate power plants 24 hours a day. Operate and maintain potable and non-potable water production & distribution systems. Operate and maintain wastewater treatment plant water systems and storage including equipment. Distribute water to a population of approximately 1400 people consuming over 5.3 million gallons of water per month. Operate all wastewater treatment plants and equipment, collection and distribution systems, and all ancillary equipment and other related systems, including septic tanks. Develop, implement, and manage a waste management program			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
including collection, incineration, landfill, compost, and recycling facilities. Provide preventative, cyclical and recurring, and unscheduled maintenance and repair of the Incinerator and all ancillary equipment and systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Environmental Quality ***Description:*** Provides manpower and funding necessary to achieve, evaluate, and sustain compliance with appropriate Compact of Free Association, national, and USAKA Environmental Standards, Executive Orders, DoD Directives, regulations, and overseas country-specific. Final Governing Standards, in order to protect human health and safety and reduce total cost to the Army through environmental compliance, conservation, and pollution prevention. Enables installations to comply with legal environmental mandates and critical stewardship responsibilities that impact management and modernization of installations, while sustaining natural and cultural resources in a manner that provides continued access and long-term use of training lands to support the Army's installation missions. Also includes costs associated with Range Military Construction (MILCON) to address one-time mitigation actions. ***FY 2021 Plans:*** Will provide necessary/routine environmental quality services to the Installation. ***FY 2022 Plans:*** Will provide necessary/routine environmental quality services to the Installation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments	1.631	2.149	2.129
Title: Anti-Terrorism (AT) ***Description:*** Funds the Army Antiterrorism program, a defensive program to protect against Terrorism. Supports the following: Antiterrorism installation and mission requirements: Combatant Commands (COCOM) Antiterrorism requirements (Army as Executive Agent (EA)), Antiterrorism Program Management, Antiterrorism Training and Awareness efforts (Area of Responsibility (AOR) specific, Level I Antiterrorism Awareness Training, Level II Antiterrorism Officers Training, Level III Pre-command training, and Level IV Antiterrorism Executive Seminar), protection of High Risk Personnel (HRP) to include support requirements (equipment), execution of Antiterrorism Assessments (Terrorism Vulnerability Assessments, Special Event Assessments, Pre-deployment Vulnerability Assessments, and Comprehensive Antiterrorism Reviews) designed to identify and fix protection vulnerabilities that will protect personnel and facilities from terrorist acts, intelligence support to Army Antiterrorism, conduct annual Antiterrorism Exercises designed to execute Antiterrorism plans, and the implementation of the Random Antiterrorism Measures Program (RAMP) and the Force Protection Condition (FPCON) system.	-	0.217	0.215

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW8 / *Army Kwajalein Atoll Installation Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Will provide antiterrorism programs. Will provide personnel with the necessary training and identify high risk individuals when appropriate. Will continue to identify and update vulnerabilities to our facilities and put protective measures in place to reduce risks to mission. ***FY 2022 Plans:*** Will provide antiterrorism programs. Will provide personnel with the necessary training and identify high risk individuals when appropriate. Will continue to identify and update vulnerabilities to our facilities and put protective measures in place to reduce risks to mission. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustments			
Title: Humanitarian Assistance and Disaster Relief (COVID Relief) ***Description:*** Funded incremental cost of COVID-19 Support	0.295	-	-
Accomplishments/Planned Programs Subtotals	125.771	119.581	135.120

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605301A / *Army Kwajalein Atoll*	Project (Number/Name) DW9 / *Army Kwajalein Atoll Restoration And Modernization*	

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
DW9: *Army Kwajalein Atoll Restoration And Modernization*	-	55.505	47.512	46.420	-	46.420	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the restoration and modernization of United States (U.S.) Army Kwajalein Atoll (USAKA) degraded infrastructure (Real Property/facilities) to working condition and upgrades facilities to meet current standards. Restoration consists of repair and replacement work to fix facilities degraded due to the effects of aging and previously deferred sustainment. Modernization supports upgrade of facilities to meet current codes, accommodate new functions, and/or replace building components that exceed the overall service life of the facilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Recapitalization Deficit R&M	55.505	47.512	46.420
Description: Provides facility restoration for facilities not specifically aligned to specified Facility Investment Strategy focus areas. Funds facilities quality improvement required to achieve elimination of Q4/Q3 Installation Status Report (ISR) rated facilities. In addition to major renovation costs, facility costs include project tails in accordance with AR 420-1 for: National Environmental Policy Act (NEPA) compliance. ***FY 2021 Plans:*** Will continue to provide resources against the HQDA-approved 15-year investment plan, focusing on completion of Phase II of the Bucholz Army Airfield runway, including repair of 1000 feet on both ends of the runway down to subgrade, resurfacing center section of runway, and repairing aged and deteriorating airfield pavements to include airfield lighting and back up generator. ***FY 2022 Plans:*** Will continue to provide resources against the HQDA-approved 15-year investment plan, focusing on completion of Phase II of the Bucholz Army Airfield runway, including repair of 1000 feet on both ends of the runway down to subgrade, resurfacing center section of runway, and repairing aged and deteriorating airfield pavements to include airfield lighting and back up generator. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decreased to balance projected funding against expected priorities across the program			
Accomplishments/Planned Programs Subtotals	55.505	47.512	46.420

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DW9 / *Army Kwajalein Atoll Restoration And Modernization*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605301A / *Army Kwajalein Atoll*	Project (Number/Name) DX2 / *Army Kwajalein Test Ranges and Mission Support*	

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
DX2: *Army Kwajalein Test Ranges and Mission Support*	-	10.377	9.515	11.538	-	11.538	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds Network Enterprise Technology Command (NETCOM) installation management-related Command, Control, Communications, Computers, and Information Management (C4IM) services at Army Kwajalein Test Ranges. NETCOM utilizes this Project to provide civilian pay, manpower service contracts, supporting Information technology (IT) equipment, and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Information Technology Services Management at Army Kwajalein Test Ranges. Project provides C4IM services in accordance with the Department of Army Pamphlet (DA PAM) PAM 25-1-1 and the Army C4IM Services List. Provides Base Communications Support (Service 701), Visual Information (Service 702), Information Assurance (Service 703), and Automation (Service 700). Includes the delivery of services consisting of secure and non-secure fixed voice communications, wireless voice, data and video connectivity services, and studio video conferencing services. Provides infrastructure support, including the design, installation, and maintenance of special circuits/systems in support of life safety/security systems and monitoring/control systems. Provides Collaboration and Messaging Services including services and tools for workforce to communicate and share information. Provides Application and Web-hosting including operation and management services required to support web and application hosting. Provides Desktop Management Support including management and support for end-user hardware and software services and tools. Includes Service Desk Support, Continuity of Operations, and Disaster Recovery support.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Contractor Support (C4IM Services)	8.770	7.788	9.807
Description: The Contractor shall provide non-personnel IT support to the 30th Signal Battalion NEC on Kwajalein Atoll. The NEC?s IT environment includes any hardware, software, application, tool, system, or network used by the Government, whether developed, leased, or commercially purchased. Although this is a level of effort service contract, there are currently 74 contractors supporting this capability at Kwajalein. The contract covers supply and small equipment replacement that are needed to perform C4IM services.			
FY 2021 Plans: Work will include current and new systems at various lifecycle stages, and any future applications and systems not currently identified in this PWS. The 30th Signal Battalion NEC requires support for unclassified and classified networked systems located throughout Kwajalein Atoll, including the islands of Kwajalein, Roi-Namur, Gagan, Omleck, Meck, Carlos, Legan, and Illeginni. Currently, the 30th Signal Battalion NEC supports approximately 2,000 users, computers, and notebooks with about 20 servers, both physical and virtual.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DX2 / *Army Kwajalein Test Ranges and Mission Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Provide Command, C4IM services in accordance with the DA PAM 25-1-1 and the Army C4IM Services List. Provide Base Communications Support (Service 701), Visual Information (Service 702), Information Assurance (Service 703), and Automation (Service 700). Delivery services consisting of secure and non-secure fixed voice communications, wireless voice, data and video connectivity services, and studio video conferencing services. Provide infrastructure support, including the design, installation, and maintenance of special circuits/systems in support of life safety/security systems and monitoring/control systems. Provide Collaboration and Messaging Services including services and tools for workforce to communicate and share information. Provide Application and Web-hosting including operation and management services required to support web and application hosting. Provide Desktop Management Support including management and support for end-user hardware and software services and tools, to include Service Desk Support, Continuity of Operations, and Disaster Recovery support. ***FY 2022 Plans:*** Work shall include current and new systems at various lifecycle stages, and any future applications and systems not currently identified in this PWS. The 30th Signal Battalion NEC requires support for unclassified and classified networked systems located throughout Kwajalein Atoll, including the islands of Kwajalein, Roi-Namur, Gagan, Omleck, Meck, Carlos, Legan, and Illeginni. Currently, the 30th Signal Battalion NEC supports approximately 2,000 users, computers, and notebooks with about 20 servers, both physical and virtual. Provide Command, C4IM services in accordance with the DA PAM 25-1-1 and the Army C4IM Services List. Provide Base Communications Support (Service 701), Visual Information (Service 702), Information Assurance (Service 703), and Automation (Service 700). Delivery services consisting of secure and non-secure fixed voice communications, wireless voice, data and video connectivity services, and studio video conferencing services. Provide infrastructure support, including the design, installation, and maintenance of special circuits/systems in support of life safety/security systems and monitoring/control systems. Provide Collaboration and Messaging Services including services and tools for workforce to communicate and share information. Provide Application and Web-hosting including operation and management services required to support web and application hosting. Provide Desktop Management Support including management and support for end-user hardware and software services and tools, to include Service Desk Support, Continuity of Operations, and Disaster Recovery support. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Cost Increase commensurate with inflation.			
Title: Civilian Pay ***Description:*** Civilian Pay ***FY 2021 Plans:***	0.307	0.287	0.291

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605301A / *Army Kwajalein Atoll*	**Project (Number/Name)** DX2 / *Army Kwajalein Test Ranges and Mission Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
The two civilians will continue to perform duties such as Site manager, COR, manages and performs Enterprise Information Technology (IT) Customer Services. Coordinates all aspects of effective Service Desk, Break Fix, Network Management, Systems Administration and Engineering, Project Management, Software Engineering, Video Teleconferencing, Information Management Officer (IMO) Support, Information Assurance, Telecommunications, and IT Logistics. Also responsible for incident management, problem management, availability management, configuration management, and change management. The positions are responsible for all inherently government functions. ***FY 2022 Plans:*** Cost Increase based on new CEAC rates. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The decrement is due to an Army decision to realign funding to other competing priorities.			
Title: ISSA (Installation Service Support Agreement) ***Description:*** ISSA with Garrison to provide all services that would normally be provided by the home station and other services specific to Kwajalein. ***FY 2021 Plans:*** Pay Garrison to provide housing, food support, etc. ***FY 2022 Plans:*** Pay Garrison to provide housing, food support, etc.	1.300	1.440	1.440
Accomplishments/Planned Programs Subtotals	10.377	9.515	11.538

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605326A *I Concepts Experimentation Program*							
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	-	35.403	50.394	79.710	-	79.710	-	-	-	-	-	-
312: *Army/Joint Experimentation*	-	7.407	10.021	43.110	-	43.110	-	-	-	-	-	-
317: *Current Force Capability Gaps*	-	27.851	40.373	36.600	-	36.600	-	-	-	-	-	-
33B: *Soldier-Centered Analyses For Future Force*	-	0.145	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Army Concepts Experimentation Program supports current and future concepts and capabilities involving Soldiers and Leaders within live, virtual, and constructive environments by exploring concepts, capability requirements and solutions across Doctrine, Organization, Training, Materiel, Leadership and Education, personnel, and Facilities (DOTMLPF) domains. The purpose of Concepts Experimentation is to clarify and mitigate risk for current and future forces. Experiments and projects inform Army futures concepts and assess high-risk conceptual assumptions in order to focus required capabilities and represent user requirements in the future Army. Army experiments use the combined resources of Army Battle Laboratories, operational units, research labs, materiel developers, industry and academia to collaborate in the development, refinement, and assessment of future force concepts. Simulated Experiments (SIMEX) will integrate and assess Army Concepts and Force Design phases with Army-level issues across the breadth of a campaign that highlights validation and integration of Force 2025 outcomes.

This Program Element (PE) enhances Joint Capabilities Integration and Development System (JCIDS) development in support of Program Executive Offices (PEOs) and Program Managers (PMs) for acquisition milestone decisions. This PE provides for Accelerated Capability Development (ACD) to address current critical operational needs, enabling development and deployment/employment of accelerated capabilities (both materiel and non-materiel) to the current force. Early Synthetic Prototyping enables a wargaming and experimentation capability that engages soldiers across the Army through early-fidelity game environments to gain their insights and recommendations in the development of future doctrine, organization, and materiel solutions. This PE provides funding for Army Warfighter Assessments (AWA) that physically integrate, assess and evaluate networked capability sets and other adaptive capabilities to accelerate the systems acquisition process of providing DOTMLPF recommendations to the Army. This PE also provides support to the Army Warfighting Challenges (AWFC) used by the Army to frame learning and collaboration.

The Soldier-Centered Analysis For Future Force Project (33B) will provide early application of human performance and human figure modeling tools in the development of Soldier-focused requirements to shape technology for Future Force development. These efforts include design analyses, constructive simulations, and Soldier-in-the loop assessments to ensure that manpower requirements and workload and skill demands are considered, avoiding information and physical task overloads and taking optimum advantage of aptitudes, individual and collective training, and numbers of Soldiers for an affordable Future Force.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605326A / *Concepts Experimentation Program*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	36.922	54.898	59.199	-	59.199
Current President's Budget	35.403	50.394	79.710	-	79.710
Total Adjustments	-1.519	-4.504	20.511	-	20.511
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.519	-2.004			
• Adjustments to Budget Years	-	-	20.511	-	20.511

Change Summary Explanation

Funds are increased for Project Convergence activities to support Multi Domain Operations, Global Defender 22 requirements and increased activities of JWA for FY22.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / *Concepts Experimentation Program*	Project (Number/Name) 312 / *Army/Joint Experimentation*	

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
312: *Army/Joint Experimentation*	-	7.407	10.021	43.110	-	43.110	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States Army Joint Modernization Command (JMC) is the Army and Army Futures Command lead for live field experimentation. Army and Joint Experimentation supports current and future concepts and capabilities involving Soldiers and Leaders within live, virtual, and constructive environments by exploring concepts, capability, and formation requirements, and solutions across Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) domains. The purpose of these efforts is to learn and mitigate risk for current and future forces. Experiments and multi-scale assessments inform Army future concepts and assess high-risk conceptual assumptions in order to focus required capabilities, formations and represent user requirements in the future Army. Army experiments use the combined resources of Army Battle Laboratories, operating force units, research laboratories, materiel developers, industry, and academia to collaborate in the development, refinement, and assessment of future force concepts, capabilities and formations at echelon. These experiments are typical in the Joint Warfighting Assessment (JWA), Army Live Prototype Assessments, and the Project Convergence series of events. This project also supports the Army's Simulation-Based Experiments (SIMEX) to integrate and assess near-, mid-, and far-term future force concepts, force designs, and capabilities. In support of the Army Vision and Army Modernization Strategy, experimentation focuses on the latest Multi-Domain Operations Concept, operational and organizational concepts for the Army of 2028 and beyond. To refine the Multi-Domain Operations Concepts, Army experimentation expands linkages to joint and multi-national experiments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Experimentation - High-Fidelity Live-Virtual-Constructive Experiments	7.407	10.021	43.110
Description: Experiments address concept and capability developments including integration of capabilities for all Brigade Combat Team (BCT) types; development of future DOTMLPF requirements and solutions; and acceleration and integration of capabilities for current force BCTs and above brigade. ***FY 2021 Plans:*** Experiments will address concept and capability developments including integration of capabilities for all BCT types; development of future DOTMLPF requirements and solutions; and acceleration and integration of capabilities for current force BCTs and above brigade. ***FY 2022 Plans:*** Experiments will address concept and capability developments including integration of capabilities for all BCT types; development of future DOTMLPF requirements and solutions; and acceleration and integration of capabilities for current force BCT's and above brigade.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605326A / *Concepts Experimentation Program*	**Project (Number/Name)** 312 / *Army/Joint Experimentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
The Joint Warfighting Assessment (JWA) is a capstone event, providing a venue for the Army to demonstrate and assess concepts and capabilities required for a more lethal, expeditionary and agile force. JWA is the only venue to experiment with the Multi-Domain Operations (MDO) concept and a multi-echelon, Joint and Multinational level exercise in the live, virtual, and constructive replicated operational environment with contested domains. Project Convergence ensures the Joint and Multinational force can rapidly and continuously integrate or ?converge? effects across all domains through intelligence gathering, data sharing, interoperable systems to decide and act more rapidly against adversaries in competition and conflict. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increases of $9.9M for Project Convergence, increase for MDO live and an adjustment to PC22 to meet Global Defender 22 requirements and Army Senior Leader guidance of $7.5M and $3.7M adjustment to JWA for FY22.			
Accomplishments/Planned Programs Subtotals	7.407	10.021	43.110

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / *Concepts Experimentation Program*	Project (Number/Name) 317 / *Current Force Capability Gaps*	

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
317: *Current Force Capability Gaps*	-	27.851	40.373	36.600	-	36.600	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables Army Futures Command (AFC) Futures and Concepts Center (FCC) Cyber Capability Development and Integration Directorate (CDID) to develop and integrate capability requirements in support of the Army, Network Cross Functional Team (CFT) and Assured-Positioning, Navigation, and Timing CFT. Funding ensures that the FCC acts independently and serves as the voice of the Warfighter, complementing the materiel developer in providing total capability management that integrates all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) considerations. Cyber requirements include Cyberspace, Networks and Services, Electromagnetic Spectrum Operations and Tactical Radios. This project also provides AFC and FCC resources to execute Battle Lab experimentation and Army Live Prototyping Assessments (ALPAs). These experiments and assessments enable live prototyping that engage soldiers across the Army to gain insights and recommendations in the development of future doctrine, organization, and materiel solutions. Funding in this project also enables FCC to maintain the Army Capability-based Architecture Development and Integration Environment (ArCADIE) providing storage, accessibility, production, and certification of authoritative architecture data and supporting systems. ArCADIE enables FCC to develop, verify and validate operational architecture for eight major BCT formations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: CDID/TCM JCIDS Requirements Documentation	19.758	27.365	23.097
Description: The AFC/FCC team facilitates requirements determination in coordination with the Joint Requirements Oversight Council (JROC) and in coordination with the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT) which directs and ensures Milestone acquisition decisions are formally staffed and fully integrated across the Future Force Modernization Enterprise. Funding ensures AFC/FCC serves as the voice of the warfighter and compliments the materiel developer in providing total capability management ensuring the integration of all DOTMLPF solutions.			
FY 2021 Plans: This project enables FCC in support of the AFC Commander to enhance processes to improve the JCIDS. It integrates the PEOs and PMs ensuring a coordinated and integrated acquisition milestone decisions met in a timely manner within the Future Force Modernization Enterprise (FFME). The AFC team facilitates requirements determination in coordination with the Joint Requirements Oversight Council (JROC) and in coordination with the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA (ALT) which directs and ensures Milestone acquisition decisions are formally staffed and fully integrated across the FFME. Funding ensures AFC/FCC acts independently and serves as the voice of the warfighter, this effort compliments the materiel developer in providing total capability management and ensures the integration of all DOTMLPF consideration. Funding ensures AFC/FCC acts independently and serves as the voice of the warfighter; this effort compliments the materiel			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605326A / *Concepts Experimentation Program*	**Project (Number/Name)** 317 / *Current Force Capability Gaps*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
developer in providing total capability management and ensures the integration of all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) considerations. This requirement provides AFC and FCC the resources to support any accelerated capability development through use of existing Army Live Prototype Assessment (ALPA) venues. Enable development and deployment/employment of accelerated capabilities (both materiel and non-materiel) to the future force of 2028 and beyond. Serves as AFC?s central coordinating organization for HQDA staff supporting requirements related to accelerated capabilities developments. Funding integrates ACD activities to ensure unity and priority of effort as well as synchronization and optimization of resources. Integrates accelerated capabilities development activities between proponent force modernization domains to include Joint/Service coordination. These requirements support critical research, development, test and evaluation for war gaming, and experimentation that engages soldiers across the Army. Enables the AFC/FCC leadership to gain insights and recommendations in the development of the future force in preparation for the CSA?s Army of 2028. FCC Integrates accelerated capabilities development activities between Army proponent force, modernization managers, and Joint/ Sister Service coordination. AFC/FCC JMC conducts Joint Warfighter Assessments and ALPA events to physically integrate, assess and evaluate the network, capability sets and other adaptive capabilities resulting in the acceleration of the systems acquisition process to providing DOTMLPF informed recommendations to the Army. ***FY 2022 Plans:*** Funding ensures requirement determination and integration in Cyber areas including Cyberspace, Networks and Services, Electromagnetic Spectrum Operations and Tactical Radios to support Army's Cyber priorities and CFT efforts. Funding also provides Sustainment CDID the ability to conduct requirements determination for watercraft and maneuver support vessels. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from $27.4M to $23.1M due to absorbing a portion of the decrement to Project 317 identified for "Re-phase to JBCP" of $6.4M and Project 317 inflation adjustments of $.5M.			
Title: Accelerated Capabilites Develpment ***Description:*** Prototyping events are coordinated with CFTs and other Industry and Academic partners and utilizes live, force on force prototype-based experiments to assess the operational relevance of developing technologies, refine initial Operational and Organizational concepts, and conduct early prototyping to retain current advantages over adversaries, accelerate investments on contested future capabilities, and mitigate risk to the force. ***FY 2021 Plans:*** Provide for AFC/FCC to serve as the lead Accelerated Capability Development to address current critical operational needs in enabling development and deployment of accelerated capabilities (both materiel and non-materiel) to the current force. Serve as AFC/FCC central coordinating organization for Headquarters Department of the Army HQDA staff support requirements related to accelerated capabilities developments. Integrate JMC activities to ensure unity and priority of effort and synchronization and	2.133	3.904	3.925

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605326A / *Concepts Experimentation Program*	**Project (Number/Name)** 317 / *Current Force Capability Gaps*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
optimization of resources. Integrate accelerated capabilities development activities between proponent force modernization domains to include Joint Service coordination. ***FY 2022 Plans:*** FCC conducts ALPA experiments to continue identification and assessment of Multi Domain Operations solutions and to refine operational and organizational concepts. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to economic adjustment.			
Title: Battle Lab Experimentation and Support ***Description:*** Funding allows Cyber Battle Lab to support Cyber Quest, the only annual prototyping event focused on Cyber, Signal and Electronic Warfare (EW) DOTMLPF-P solutions coordinated with CFTs and other Industry and Academic partners dedicated to Cyber, Signal, and EW oriented systems. This effort informs concepts, requirements, material solutions, and DOTMLPF-P changes for critical capability gaps facing Cyber, Signal and EW operational forces. Cyber Quest will generate capability enablers that can be integrated into other Army prototyping experiments as solutions mature (i.e. ALPAs and Joint Warfighting Assessments) ***FY 2022 Plans:*** Cyber Quest will be conducted via Cyber CDID Battle Lab to experiment with and evaluate potential Cyber, Signal, Intelligence and EW material and DOTMLPF-P solutions. Funding provides staff, 45 military experimental forces, equipment and testing material costs, and travel costs. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to Project 317 now capturing a separate line for Battle Lab Experimentation and Support resulting from previous approved POM submissions for Cyber RDTE requirements. This entry supports Cyber Quest which is technically an ALPA event; however, it is called out separate from other ALPA events due to the Army's Cyber priority and the fact that Cyber Quest solutions, recommendations and results directly support CFTs, Cyber ACMs, Cyber Battle Lab and all other ALPA events. Update April 2021: This requirement originally captured as $4M in FY22 but reduced to $1.5M during April 21 review to absorb a portion of the decrement to Project 317 identified for "Re-phase to JBCP" of $6.4M and Project 317 inflation adjustments of $.5M.	-	-	1.473
Title: Army Capability-based Architecture Development and Integration Environment (ArCADIE) ***Description:*** ArCADIE is the Army's authoritative source for architecture data and supports the community of practice requirement. ArCADIE provides a robust collaborative and common enterprise environment for architecture-related efforts in support of critical institutional processes throughout the TRADOC Centers of Excellence, AFC CDIDs and Army/Joint/Department	2.922	5.341	6.255

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605326A / *Concepts Experimentation Program*	**Project (Number/Name)** 317 / *Current Force Capability Gaps*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
of Defense (DOD) partners. Offers a single, federated web-based environment for the development and discovery of integrated architectures across warfighting functions, and organizations throughout the Army Enterprise. ***FY 2021 Plans:*** Enable FCC to maintain ArCADIE and develop, verify, and validate operational architecture for eight major BCT formations. Provide storage, accessibility, production, and certification of authoritative architecture data and supporting systems in accordance with DoD and DA information Assurance and management standards. ***FY 2022 Plans:*** Enable FCC to maintain ArCADIE and develop, verify, and validate operational architecture for eight major BCT formations. Provide storage, accessibility, production, and certification of authoritative architecture data and supporting systems in accordance with DoD and DA information Assurance and management standards. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to economic adjustment.			
Title: System of Systems Enhanced Small Unit (SESU) Focused Assessments ***Description:*** In support of HQDA EXORD 304-17 the SESU initiative will attempt to solve the following problem: how can the Army and DARPA create a SESU unit capable of defeating a heavy division by leveraging current and future capabilities while operating and synchronizing the efforts of DARPA and the Army? The scope of SESU is to create a concept for enhancing a small unit with capabilities to over match a heavy enemy division. ***FY 2022 Plans:*** Funding supports Focused Assessments, Models and Simulations, and Capstone Demonstration. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Addition of System of Systems Enhanced Small Unit (SESU) focused assessments ($1.8M) is in direct support of HQDA EXORD 304-17. Effort began in FY20, and was first POM'd during POM 21-25. This R form update captures current funding of the SESU initiative for AFC Futures and Concepts Center.	-	-	1.850
Title: Joint Warfighting Assessments ***FY 2021 Plans:*** Provide for AFC/FCC to serve as the lead Accelerated Capability Development to address current critical operational needs in enabling development and deployment of accelerated capabilities (both materiel and non-materiel) to the current force. Serve as AFC/FCC central coordinating organization for Headquarters Department of the Army HQDA staff support requirements related to accelerated capabilities developments. Integrate JMC activities to ensure unity and priority of effort and synchronization and	3.038	3.763	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605326A / *Concepts Experimentation Program*	**Project (Number/Name)** 317 / *Current Force Capability Gaps*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
optimization of resources. Integrate accelerated capabilities development activities between proponent force modernization domains to include Joint Service coordination. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Joint Warfighting Assessment requirements were reprogrammed to Project 312 to align all Joint Modernization Command RDTE experimentation requirements under one umbrella (RDTE VAWE 665326312) during POM 22-26 as a part of the TRADOC/AFC Split and subsequent realignment/reprogramming.			
Accomplishments/Planned Programs Subtotals	27.851	40.373	36.600

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / *Concepts Experimentation Program*	Project (Number/Name) 33B / *Soldier-Centered Analyses For Future Force*	

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
33B: *Soldier-Centered Analyses For Future Force*	-	0.145	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project will provide early application of human performance and human figure modeling tools in the development of Soldier-focused requirements to shape technology for Future Force development. Efforts include design analyses, constructive simulations, and Soldier-in-the-loop assessments to ensure that manpower requirements and workload and skill demands are considered, avoiding information and physical task overloads and taking optimum advantage of aptitudes, individual and collective training, and numbers of Soldiers for an affordable Future Force.

The cited work is consistent with the Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP).

Work in this Project is performed by the United States (U.S.) Army Combat Capabilities Development Command (CCDC) Data and Analysis Center (DAC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Manpower and Personnel Integration (MANPRINT) ***Description:*** Provide dedicated modeling and analysis cell for early and accurate MANPRINT estimates to the U.S. Army Materiel Command (AMC), CCDC and its Centers, the Research and Analysis Center, Schools and Centers of Excellence (CoEs), Army Test and Evaluation Command (ATEC) and other service laboratories.	0.145	-	-
Accomplishments/Planned Programs Subtotals	0.145	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605502A / *Small Business Innovative Research*							
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	-	392.999	369.715	-	-	-	-	-	-	-	-	-
861: *SMALL BUS TECH - AMC*	-	47.999	45.581	-	-	-	-	-	-	-	-	-
M40: *SMALL BUSINESS-AMC*	-	345.000	324.134	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program is a United States Government program, coordinated by the Small Business Administration, in which 3.2% of the total extramural research budgets of all federal agencies with extramural research budgets in excess of $100 million are reserved for contracts or grants to small businesses. A similar program, the Small Business Technology Transfer Program (STTR), uses a similar approach to the SBIR program to expand public/private sector partnerships between small businesses and nonprofit U.S. research institutions, and is currently funded at .45% of the relevant agencies' extramural research budgets.

There is no Fiscal Year (FY) 2020 or FY 2021 budget programming for Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR). Funds for SBIR / STTR are redistributed in the year of execution from across the Army Research, Development, Test & Evaluation portfolio.

This Program Element is used exclusively to account for SBIR / STTR program funding in the year of execution.

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	392.999	369.715	0.000	-	0.000
Total Adjustments	392.999	369.715	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	-			
• SBIR/STTR Transfer	393.000	369.715			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605502A / *Small Business Innovative Research*	Project (Number/Name) 861 / *SMALL BUS TECH - AMC*	

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
861: *SMALL BUS TECH - AMC*	-	47.999	45.581	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program is a United States Government program, coordinated by the Small Business Administration, in which 3.2% of the total extramural research budgets of all federal agencies with extramural research budgets in excess of $100 million are reserved for contracts or grants to small businesses. A similar program, the Small Business Technology Transfer Program (STTR), uses a similar approach to the SBIR program to expand public/private sector partnerships between small businesses and nonprofit U.S. research institutions, and is funded at present at .45% of the relevant agencies' extramural research budgets.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605502A / *Small Business Innovative Research*	Project (Number/Name) M40 / *SMALL BUSINESS-AMC*	

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
M40: *SMALL BUSINESS-AMC*	-	345.000	324.134	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (or SBIR) program is a United States Government program, coordinated by the Small Business Administration, in which 3.2% of the total extramural research budgets of all federal agencies with extramural research budgets in excess of $100 million are reserved for contracts or grants to small businesses. A similar program, the Small Business Technology Transfer Program (STTR), uses a similar approach to the SBIR program to expand public/private sector partnerships between small businesses and nonprofit U.S. research institutions, and is funded at present at .45% of the relevant agencies' extramural research budgets.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605601A *I Army Test Ranges and Facilities*							
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	-	356.231	390.351	354.227	-	354.227	-	-	-	-	-	-
F30: *Army Test Ranges & Facilities*	-	356.231	390.351	354.227	-	354.227	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides the institutional funding required to operate test activities in accordance with Public Law 107-314 (National Defense Authorization Act for Fiscal Year 2003) Section 232 ("Objective for institutional funding of test and evaluation facilities") in support of Department of Defense (DoD) Program Executive Officers, Program and Product Managers, Research, Development, and Engineering Centers and to the Army Futures Command (AFC). Resources provided by this PE operate six elements of the DoD Major Range and Test Facility Base (MRTFB): White Sands Test Center (WSTC) - White Sands Missile Range (WSMR), New Mexico; Aberdeen Test Center (ATC) - Aberdeen Proving Ground (APG), Maryland; Electronic Proving Ground (EPG) - Fort Huachuca, Arizona; Yuma Test Center (YTC) - Yuma Proving Ground (YPG), Arizona; Cold Regions Test Center (CRTC) - Fort Greely, Alaska; and Tropic Regions Test Centers (TRTC) at various locations. This PE also funds the Army's test capability at Redstone Test Center (RTC) - Redstone Arsenal, Alabama.

This PE finances the overhead (institutional) test operating costs not billable to DoD test customers per DoD Instruction (DoDI) 3200.18 and DoD Financial Management Regulation (DoDFMR) 7000.14-R, which include: recurring test infrastructure/capability sustainment requirements; replacement of test equipment; test operating procedures; and test revitalization/upgrade projects to maintain $8.7 billion of testing capabilities; and improvements to the safety, environmental protection, and efficiency of test operations. The test capabilities at these ranges have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded acquisition programs, and are required to assure technical performance, adherence to safety requirements, reliability, logistics supportability, Title 10 Live Fire Test and Evaluation, transportability, environmental effects, cyber, electromagnetic effects, and quality of materiel in development and in production.

This PE sustains the T&E capabilities required to support Army as well as Joint Service or Other Service systems, materiel, and technologies. Types of systems scheduled for testing include, but are not limited to: Aircraft, Air Delivery, Unmanned Aerial Systems, Counter Unmanned Aerial Systems, Unmanned Ground Vehicles, Air and Missile Defense Systems, Engineering Equipment, Direct fire, Indirect fire, Nonlethal weapons, Ammunition, Automotive Systems, Intelligence Surveillance and Reconnaissance, Ground Soldier Systems, Missiles, Rockets, Mission Command Network, Tactical Command, Control, and Communications, and Robotics/Unmanned Autonomous Systems. These T&E capabilities enable AFC modernization efforts and readiness.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	336.468	350.359	352.011	-	352.011
Current President's Budget	356.231	390.351	354.227	-	354.227
Total Adjustments	19.763	39.992	2.216	-	2.216
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	40.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	25.337	-			
• SBIR/STTR Transfer	-5.574	-0.008			
• Adjustments to Budget Years	-	-	2.216	-	2.216

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: F30: *Army Test Ranges & Facilities*		
Congressional Add: *Soil Research for Army Training Ranges*	2.000	-
Congressional Add: *Integrated Directed Energy Testing*	-	15.000
Congressional Add: *Distributed Environment for System-of-System Cybersecurity Testing*	-	25.000
Congressional Add Subtotals for Project: F30	2.000	40.000
Congressional Add Totals for all Projects	2.000	40.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605601A / *Army Test Ranges and Facilities*	Project (Number/Name) F30 / *Army Test Ranges & Facilities*	

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
F30: *Army Test Ranges & Facilities*	-	356.231	390.351	354.227	-	354.227	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides the institutional funding required to operate test activities IAW Public Law 107-314 (National Defense Authorization Act for Fiscal Year 2003) Section 232 ("Objective for institutional funding of test and evaluation facilities") in support of DoD Program Executive Officers, Program and Product Managers, Research, Development, and Engineering Centers and to the AFC. Resources provided by this Project operate six elements of the DoD MRTFB: WSTC - WSMR, New Mexico; ATC - APG, Maryland; EPG - Fort Huachuca, Arizona; YTC - YPG, Arizona; CRTC - Fort Greely, Alaska; and TRTC at various locations. This Project also funds the Army's test capability at RTC - Redstone Arsenal, Alabama.

This Project finances the overhead (institutional) test operating costs not billable to DoD test customers per DoDI 3200.18 and DoDFMR 7000.14-R, which include: recurring test infrastructure/capability sustainment requirements; replacement of test equipment; test operating procedures; test revitalization/upgrade projects to maintain $8.7 billion of testing capabilities; and improvements to the safety, environmental protection, and efficiency of test operations. The test capabilities at these ranges have been uniquely established, are in place to support T&E requirements of funded acquisition programs, and are required to assure technical performance, adherence to safety requirements, reliability, logistics supportability, Title 10 Live Fire Test and Evaluation, transportability, environmental effects, cyber, electromagnetic effects, and quality of materiel in development and in production.

This Project sustains the T&E capability required to support Army as well as Joint Service or Other Service systems, materiel, and technologies. Types of systems scheduled for testing include, but are not limited to: Aircraft, Air Delivery, Unmanned Aerial Systems, Counter Unmanned Aerial Systems, Unmanned Ground Vehicles, Air and Missile Defense Systems, Engineering Equipment, Direct fire, Indirect fire, Nonlethal weapons, Ammunition, Automotive Systems, Intelligence Surveillance and Reconnaissance, Ground Soldier Systems, Missiles, Rockets, Mission Command Network, Tactical Command, Control, and Communications, and Robotics/Unmanned Autonomous Systems. These T&E capabilities enable AFC modernization efforts and readiness.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Mission Support	78.397	80.987	80.097
Description: Funds support: test capability sustainment and maintenance of equipment, test facility maintenance, calibration requirements, handling and disposal of hazardous materials, transportation, postage, administrative supplies, tools, software, spare parts, test support vehicle maintenance, mission unique installation costs, temporary duty/training of civilian and contractor personnel, certifications, printing and reproduction, communications, land leases, and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) IAW DoDI 3200.18 and DoDFMR 7000.14-R.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Funds will continue to support test capability sustainment and maintenance of equipment; test facility maintenance; calibration requirements; handling and disposal of hazardous materials, transportation, postage, administrative supplies; tools; software; spare parts; test support vehicle maintenance; mission unique installation costs; temporary duty/training of civilian and contractor personnel; certifications; printing and reproduction; communications; land leases; and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) IAW DODI 3200.18 and DODFMR 7000.14-R. ***FY 2022 Plans:*** Funds will continue to support test capability sustainment and maintenance of equipment, test facility maintenance, calibration requirements, handling and disposal of hazardous materials, transportation, postage, administrative supplies, tools, software, spare parts, test support vehicle maintenance, mission unique installation costs, temporary duty/training of civilian and contractor personnel, certifications, printing and reproduction, communications, land leases, and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) IAW DODI 3200.18 and DODFMR 7000.14-R. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to PB22 inflation rates for non-pay and non-fuel purchases and fuel pricing adjustments.			
Title: T&E Civilian Pay ***Description:*** This funding supports the overhead costs of the civilian labor for Program Budget Guidance (PBG) authorizations. The balance is customer funded. The test customer pays all direct costs that are directly attributable to the use of a test facility or resource for testing of a particular program. Funding is essential to maintain core T&E skills as part of the Government civilian workforce used in support of Army modernization. ***FY 2021 Plans:*** Funds will continue to support the overhead costs of the civilian labor for PBG authorizations. The balance will be customer funded. The test customer will pay all direct costs directly attributable to the use of a test facility or resource for testing of a particular program. Funding will be essential to maintain core T&E skills as part of the Government civilian workforce. ***FY 2022 Plans:*** Funds will continue to support the overhead costs of the civilian labor for PBG authorizations. The balance will be customer funded. The test customer will pay all direct costs directly attributable to the use of a test facility or resource for testing of a particular program. Funding will be essential to maintain core T&E skills as part of the Government civilian workforce. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	153.193	154.931	163.947

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase due to inflation for civilian pay; the majority of the workforce is in the Acquisition Demonstration Program.			
Title: Contractor Support ***Description:*** This funding supports contractor labor costs not billable to customers. Contract labor is essential to augment core civilian T&E personnel with additional capabilities and/or capacity. Functions performed include range operations, automotive test support, radar maintenance, warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and data acquisition support. ***FY 2021 Plans:*** Funds will continue to support contractor labor costs not billable to the customer. Contract labor will be essential to augment core civilian T&E personnel. Functions performed will include range operations, automotive test support, radar maintenance, warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and data acquisition support. ***FY 2022 Plans:*** Funds will continue to support contractor labor costs not billable to the customer. Contract labor will be essential to augment core civilian T&E personnel. Functions performed will include range operations, automotive test support, radar maintenance, warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and data acquisition support. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increased contract workforce will allow ATEC to support the AFC prioritized ATEC workload and all AFC and other high priority programs.	57.796	58.689	60.535
Title: Revitalization/Upgrade ***Description:*** Funds support the revitalization/upgrade of critical test infrastructure and capabilities. MRTFB elements are required to use institutional funding to sustain, upgrade or create capabilities that support multiple customers. Funding will be focused on improving T&E capabilities for Army Modernization Programs and other high priority acquisition systems. ***FY 2021 Plans:*** Funds will continue to support the revitalization/upgrade of critical test infrastructure and capabilities. MRTFB elements will be required to use institutional funding to sustain or upgrade capabilities that support multiple customers. Funding will be focused on improving T&E capabilities for the highest priority Army programs such as PrSM and Future Long Range Assault Aircraft (FLRAA). ***FY 2022 Plans:***	7.532	18.740	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Funds will continue to support the revitalization/upgrade of critical test infrastructure and capabilities. MRTFB elements will be required to use institutional funding to sustain or upgrade capabilities that support multiple customers. Funding will be focused on improving T&E capabilities for the highest priority Army programs such as PrSM and Future Long Range Assault Aircraft (FLRAA). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY21 MILCON MUE funding programmed in support of ATEC's deferred MILCON projects was realigned during this budget year to fund Revitalization/Upgrade requirements of critical test infrastructure and capabilities at ATEC's MRTFBs.			
Title: Physical Security Guards and Equipment	11.157	11.492	11.836
Description: Funding supports security guard forces mandated by regulations and annual vulnerability assessments for ATEC?s surety-related test sites. Funding supports required training and exercises, to include annual vulnerability assessments and guard force support to NAIRAIA and CARIAs. These guards secure and protect ATEC's Fast Burst Nuclear Reactor (FBR) at White Sands Test Center (WSTC) located at White Sands Missile Range (WSMR) IAW Army Regulation (AR) 190-54 (Security of Nuclear Reactors and Special Nuclear Materials). The guards also secure and protect the Chemical and Biological (Chem/Bio) facilities at West Desert Test Center (WDTC) located at Dugway Proving Ground (DPG) IAW AR 190-59 (Chemical Agent Security Program) and AR 190-17 (Biological Agents and Toxins Security Program). These surety facilities maintain chemical, biological, radiological, nuclear, and explosive (CBRNE) materials and agents in order to test the effects and effectiveness of defensive or protective equipment and measures. Physical security equipment consists of electronic security systems (ESS) composed of access/egress control systems, various camera systems, sensors and detection arrays, and Intrusion Detection Systems (IDS). Costs include sustainment of maintenance contracts for equipment not included in the Army inventory. This equipment is necessary to secure arms rooms, ammunition, explosives (AA&E) storage facilities at the FBR, and Chem/Bio surety sites. Physical security equipment is critical to maintain current security requirements as directed in: AR 190-54, AR 190-56, AR 190-59, AR 190-17, AR 190-11, AR 190-13, and AR 190-51. Funding provides training and certification of guards to operate and maintain ESS equipment and qualification of all weapon systems and surety-related personal protective equipment (PPE) requisite to their surety security missions. ***FY 2021 Plans:*** Funds will support physical security guard operations, mandatory training and qualifications and for maintenance and sustainment of equipment at the FBR at WSTC located at WSMR and Chem/Bio facilities at WDTC located at DPG. ***FY 2022 Plans:*** Funds will support physical security guard operations, mandatory training and qualifications and for maintenance and sustainment of equipment at the FBR at WSTC located at WSMR and Chem/Bio facilities at WDTC located at DPG. ***FY 2021 to FY 2022 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase due to inflation for civilian pay and routine program adjustments.			
Title: UH-60 Aircraft ***Description:*** This funding supports the Aviation Restructure Initiative endorsed by the SECDEF. Funding supports aircraft maintenance, aircrew labor, mandatory training, and aircraft flying hours. IAW DoDI 3200.18 and DoDFMR 7000.14-R, these costs are not billable to the test customers. UH-60 helicopters are used to provide essential logistical, sensor platform and aerial photo/video documentation support for developmental testing. ***FY 2021 Plans:*** Funds will support UH-60 helicopter maintenance, aircrew labor, mandatory training and aircraft flying hours. ***FY 2022 Plans:*** Funds will support UH-60 helicopter maintenance, aircrew labor, mandatory training and aircraft flying hours. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to inflation and program requirements.	4.493	5.246	5.325
Title: Network Enterprise Center (NEC) ***Description:*** This funding supports the NEC operations for WSMR and YPG. Funding supports manpower and contracts, support equipment and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Communication, Network, and Information Technology Services Management. ***FY 2021 Plans:*** Funds will support all labor, support equipment, and training required for the NEC operations at WSMR and YPG. ***FY 2022 Plans:*** Funds will continue to support all labor, support equipment, and training required for the NEC operations at WSMR and YPG. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to inflation and routine program adjustments.	12.587	13.786	14.002
Title: Cybersecurity Service Provider (CSSP) ***Description:*** This requirement supports compliance with DoD Directive (DoDD) 8530.1 and DoDI, which directed that all component information systems and computer networks be assigned to a certified CSSP and that all information systems and computer networks must enter into a service agreement with a CSSP. United States (U.S.) Army Cyber Command (ARCYBER) Operations Order (OPORD) 2014-224 directed all Commands/Direct Reporting Units (DRU) to take immediate measures to ensure Army assets connected to Defense Research and Engineering Network (DREN) and Secure Defense Research and	1.615	1.679	1.704

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Engineering Network (SDREN) enclaves are aligned with the U.S. Army Research Laboratory as their CSSP to ensure cyber defense oversight and information security continuous monitoring going forward. ***FY 2021 Plans:*** Funds will support cyber defense oversight and continuous monitoring of information security. ***FY 2022 Plans:*** Funds will continue to support cyber defense oversight and continuous monitoring of information security. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to inflation.			
Title: Military Construction Mission Unique Equipment (MUE) ***Description:*** In 2017, the Army programmed ATEC's top six Military Construction (MILCON) projects in response to Congressional interest in the lack of investment and sustainment of MRTFBs and the associated risk to the development of future technology. This unanticipated event resulted in an emergent requirement for the necessary MUE associated with each project. MUE includes items that are movable and not affixed as an integral part of the facility, but are required to perform the mission of the facility. Since then, two additional MILCON projects were programmed; one in FY24 and the other in FY25. In 2019, ATEC?s FY18 and FY19 MILCON projects were deferred due to the National Emergency at the Southern Border, but were subsequently restored by the SECDEF; one each in FY20 and FY21. In 2020, ATEC?s FY22-26 MILCON projects were deferred out of the POM with the exception of two projects in FY23. ***FY 2021 Plans:*** Funds will provide MUE for the WSTC Information Systems Facility programmed MILCON project. The White Sands Test Center (WSTC) Information Systems Facility (ISF) will serve as the main hub to inter-connect internal and external White Sands Missile Range (WSMR) data and voice networks used by all test programs, range operations, and other DOD organizations. ***FY 2022 Plans:*** Funds will provide for the EPG Ground Transport Equipment Building (GTEB), the WSTC Information Systems Facility, and the RTC Aircraft Test Instrumentation and Integration Facility (ATIIF) programmed MILCON projects in FY22. The ATIIF will play a vital role in RTC's ability to support three high priority programs - all related to Future Vertical Lift (FVL). The programs are the Future Attack Reconnaissance Aircraft (FARA), Future Long-Range Assault Aircraft (FLRAA), and Improved Turbine Engine (ITE) equipment. The GTEB will support the testing, evaluation, instrumentation, and integration of all ground support equipment with electronic warfare and intelligence, surveillance and reconnaissance systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	-	0.064	6.950

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase based on program requirements of three MILCON projects at EPG, WSMR, and RTC.			
Title: MRTFB Logistics Activities	1.774	4.369	4.459
Description: In FY20, Army policy changes requiring organizational logistics functions be funded by organizational units and not LRCs. This funding supports those organizational logistics activities previously provided by LRCs to WSTC located at WSMR, YTC located at YPG and WDTC located at DPG. These activities provide a wide range of logistics support services including but not limited to asset management/property book support; equipment maintenance/ repair of ATEC owned maintenance significant items; small arms gaging and repair, dispatch of Army Owned/General Services Administration (GSA) vehicles and equipment; forward fuel support for vehicles and ground power generation equipment; driver's licensing; and transportation support for inbound and outbound equipment, freight and cargo. ***FY 2021 Plans:*** Funds will support organizational logistics requirements for WSTC located at WSMR, YTC located at YPG, and WDTC located at DPG that that were previously funded by LRCs . These organizational logistics requirements include but are not limited to asset management/property book support; equipment maintenance/repair of ATEC owned maintenance significant items; small arms gaging and repair, dispatch of Army Owned/GSA vehicles and equipment; forward fuel support for vehicles and ground power generation equipment; driver's licensing; and transportation support for inbound and outbound equipment, freight and cargo. ***FY 2022 Plans:*** Funds will support organizational logistics requirements for WSTC located at WSMR, YTC located at YPG and WDTC located at DPG that were previously funded by LRCs. These organizational logistics requirements include but are not limited to asset management/ property book support; equipment maintenance/repair of ATEC owned maintenance significant items; small arms gaging and repair, dispatch of Army Owned/GSA vehicles and equipment; forward fuel support for vehicles and ground power generation equipment; driver's licensing; and transportation support for inbound and outbound equipment, freight and cargo. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funds are allocated based on program requirements.			
Title: ARCYBER- C4IM Services Support to WSMR	0.199	0.205	0.210
Description: 3 CMEs- Provide contract support (C4IM services) at WSMR to non-Defense Research and Engineering Network (DREN) customers IAW MOA with ATEC. Supports IMCS contract for touch labor. ***FY 2021 Plans:*** The Fort Bliss Network Enterprise Center (NEC) will continue to migrate users and services from the White Sands network to the Fort Bliss Network. Fort Bliss does not have enough storage and computing capacity to migrate all the Servers and User			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Data to Fort Bliss. The NEC requires additional storage and computing capacity to support these requirements. The system must integrate into the existing VMware platform, IFN architecture, and GFN architecture. ***FY 2022 Plans:*** The Fort Bliss Network Enterprise Center (NEC) shall continue to migrate users and services from the White Sands network to the Fort Bliss Network. Fort Bliss does not have enough storage and computing capacity to migrate all the Servers and User Data to Fort Bliss. The NEC requires additional storage and computing capacity to support these requirements. The system must integrate into the existing VMware platform, IFN architecture, and GFN architecture. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Change is due to program requirement adjustments.			
Title: AMC / AFC Physical Security Officer Civ Pay ***Description:*** AMC / AFC Physical Security Officer Civ Pay ***FY 2021 Plans:*** AMC / AFC Physical Security Officer Civ Pay ***FY 2022 Plans:*** AMC / AFC Physical Security Officer Civ Pay ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.	0.151	0.163	0.162
Title: Coronavirus Aid, Relief, and Economic Security (CARES) Act ***Description:*** Supports Section 3610 of HR748, the CARES Act, to fund civilian and contractor labor shortfall resulting from lost customer reimbursements due to customers cancelling/delaying tests as the result of the COVID-19. Test cancellations and delays due to COVID-19 have caused an unfunded increase to ATEC?s projected institutional operating account.	25.337	-	-
Accomplishments/Planned Programs Subtotals	354.231	350.351	354.227

	FY 2020	FY 2021
Congressional Add: Soil Research for Army Training Ranges ***FY 2020 Accomplishments:*** FY20 Congressional Add for Soil Research for Army Training Ranges.	2.000	-
Congressional Add: Integrated Directed Energy Testing	-	15.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605601A / *Army Test Ranges and Facilities*	**Project (Number/Name)** F30 / *Army Test Ranges & Facilities*

	FY 2020	FY 2021
FY 2021 Plans: Program increase supporting management support for test, and evaluation efforts and funds to sustain and/or modernize test ranges by creating a center for high energy laser testing at White Sands Missile Range. Immediate upgrades required to meet increased demand to enable T&E and experimentation of advanced directed energy weapon systems. Funding will provide new equipment and infrastructure needed to meet imminent time frames to address three of the six Army modernization priorities, while delivering a foundation for more comprehensive long term solutions to meet future requirements. Work executed under the direction of the Rapid Capabilities and Critical Technologies Office.		
Congressional Add: Distributed Environment for System-of-System Cybersecurity Testing ***FY 2021 Plans:*** Congressional Add to support Cybersecurity Vulnerability and Assessment Test Environment (CVATE) at Redstone Test Center.	-	25.000
Congressional Adds Subtotals	2.000	40.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605602A *I Army Technical Test Instrumentation and Targets*							
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	-	60.170	81.829	49.253	-	49.253	-	-	-	-	-	-
628: *Developmental Test Technology & Sustainment*	-	46.977	38.124	34.739	-	34.739	-	-	-	-	-	-
62C: *Modeling and Simulation Instrumentation*	-	13.193	43.705	14.514	-	14.514	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides critical front-end investments for development of: new test methodologies; test standards; advanced test technology concepts for long range requirements; future test capabilities; advanced development of Modeling and Simulation and Instrumentation (MS&I) prototypes; and the full development of test instrumentation for the United States (U.S) Army Test and Evaluation Command (ATEC), which includes the Operational Test Command (OTC) at Ft Hood, Texas; Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; White Sands Test Center (WSTC) at White Sands Missile Range (WSMR), New Mexico; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; Yuma Test Center (YTC) at Yuma Proving Grounds (YPG), Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska and the Tropics Regions Test Center (TRTC), at various locations); and Redstone Test Center (RTC), Redstone Arsenal, Alabama. OTC consists of four forward Test Directorates (Airborne and Special Operations Test Directorate, Fort Bragg, North Carolina; Air and Missile Defense Test Directorate, Fort Bliss, Texas; Fires Test Directorate, Fort Sill, Oklahoma; and the Intelligence Electronic Warfare Test Directorate, Fort Huachuca, Arizona) together with four other Test Directorates (Aviation; Maneuver; Mission Command; Maneuver Support and Sustainment) at Ft Hood, Texas. These activities enable Army Futures Command (AFC) modernization efforts and readiness and support the development and fielding cycle of all Army acquisition programs including rapid fielding initiatives and programs of record. Sustainment funding maintains existing testing capabilities at all locations by replacing unreliable, uneconomical, and irreparable instrumentation, as well as incremental upgrades of hardware and software for MS&I systems to assure adequate test data collection capabilities. This data supports acquisition milestone decisions for all test mission areas throughout the Army including programs such as the 105-mm Mobile Howitzer, 30mm/40mm ammunition, Active Protection System (APS), AH-64 Block III, APR-39C(V)1 Radar, Armored Multi-Purpose Vehicle (AMPV), Army Integrated Air-Missile Defense (AIAMD), Army Tactical Missile System (ATACMS), CH-47F Chinook, Command Post Computing Environment (CPCE), Common Infrared Counter Measures (CIRCM), Counter Unmanned Aircraft System (c-UAS), Counter Rocket Artillery Mortar (C-RAM), Dismounted Assured PNT System (DAPS), Distributed Common Ground System - Army (DCGS-A), Enhanced Night Vision Goggle- Binocular (ENVG-B), Expedient Leader Follower, Extended Range Cannon Artillery (ERCA), Family of Medium Tactical Vehicles (FMTV), Guided Multiple Launch Rocket System (GMLRS), Integrated Tactical Network (ITN), Javelin, Joint Air-to- Ground Missile (JAGM) for US Navy, Joint Assault Bridge (JAB), Joint Light Tactical Vehicle (JLTV), Leader Radio, M109A7 Paladin/M992A3, M1A2 Abrams, M-2/3 Bradley Expedited Active Protection System (ExAPS), M-2/3 Bradley Fist, M776 Chrome Tube, M777 Long Range Cannon, Maneuver Short Range Air Defense (M-SHORAD), ManPack (MP), Mounted Assured PNT System (MAPS), Mobile Protected Firepower (MPF), Optionally Manned Fighting Vehicle, Patriot 3 (PAC-3), Precision Guidance Kit (PGK), Precision Strike Missile (PrSM), Robotic Combat Vehicle (RCV), Shadow Tactical Unmanned Aircraft System (TUAS), Stinger Shelf life Extension Program (SLEP), Stryker, Systems for Assured Position, Navigation and Timing (PNT), Terminal High-Altitude Area Defense (THAAD), UH-60M Black Hawk, and XM113. Also supports AFC and Army Modernization events to include Project Convergence and PNTAX.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605602A / *Army Technical Test Instrumentation and Targets*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	61.974	48.475	49.774	-	49.774
Current President's Budget	60.170	81.829	49.253	-	49.253
Total Adjustments	-1.804	33.354	-0.521	-	-0.521
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	35.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.804	-1.646			
• Adjustments to Budget Years	-	-	-0.521	-	-0.521

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 628: *Developmental Test Technology & Sustainment*		
Congressional Add: *Developmental Test Technology & Sustainment*	15.000	-
Congressional Add: *Cyber Space Threats*	-	5.000
Congressional Add Subtotals for Project: 628	15.000	5.000
Project: 62C: *Modeling and Simulation Instrumentation*		
Congressional Add: *Space and Missile Cyber Security*	-	30.000
Congressional Add Subtotals for Project: 62C	-	30.000
Congressional Add Totals for all Projects	15.000	35.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605602A / *Army Technical Test Instrumentation and Targets*	Project (Number/Name) 628 / *Developmental Test Technology & Sustainment*	

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
628: *Developmental Test Technology & Sustainment*	-	46.977	38.124	34.739	-	34.739	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides critical front-end investments for development of new test methodologies, test standards, advanced test technology concepts for long range requirements, future test capabilities, and advanced instrumentation prototypes for subordinate commands of the Army Test and Evaluation Command (ATEC). These capabilities are required to support developmental testing requirements of high priority Army systems supporting Army modernization efforts. Where practical, efficiencies will be gained through the common use of developmental instrumentation in operational testing. A key element is sustaining aging instrumentation which maintains existing capabilities at test facilities by replacing unreliable, uneconomical and irreparable instrumentation, as well as lifecycle replacement and incremental upgrades of instrumentation and software, reducing their average age to assure adequate testing capabilities. This Project develops and sustains developmental test instrumentation and capabilities that provide the data necessary to support acquisition milestone decisions for all test mission areas throughout the Army. Significant examples include new instrumentation for the testing of Command, Control, Communication and Computer (C4) systems, upgrades to existing radars to extend their economic life, common data collection and analysis tools, non-intrusive instrumentation to test Unmanned Ground Vehicles and sensors, high speed - high definition digital imaging systems to capture missile flight events, and automation software to improve data collection of reliability, availability, and maintainability (RAM) testing.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Developmental Test Technology Investment	31.977	33.124	34.739
Description: Develops, acquires, and sustains critical test technology and instrumentation. Provides the necessary test instrumentation, computer and communications systems, data collection, analysis and reporting equipment, and other special test capabilities to successfully develop and test Army weapons and equipment. Provides the necessary live, virtual and constructive environment, hardware-in-the-loop capabilities, and modeling and simulation (M&S) needed for testing Army materiel solutions. Acquires instrumentation to measure performance of Command, Control, Communication and Computer (C4) systems; reliability, availability, and maintainability (RAM) data collection on tracked and wheeled vehicles; ballistic transducers for measuring chamber pressures during ammunition and barrel tests; supports development of common data collection instrumentation and data management systems used in testing across all test commodity areas and lifecycles; continues replacement and upgrade of range control instrumentation, radar, optics and telemetry used in missile testing; acquires data recorders, signal conditioning equipment, data processing equipment and other instrumentation for various aircraft tests; upgrades natural environments test instrumentation used for testing weapon systems, vehicles, munitions and support equipment in extreme hot desert environments as well as extreme cold conditions; continues upgrade of survivability/vulnerability test capabilities in support of live fire testing; upgrades and replaces mobile range communications equipment and digital end devices; and improves test efficiency through the use of smart devices as data collectors.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605602A / *Army Technical Test Instrumentation and Targets*	**Project (Number/Name)** 628 / *Developmental Test Technology & Sustainment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Test centers will continue to provide, acquire, and upgrade instrumentation for Command, Control, Communications, and Computers Intelligence, Surveillance and Reconnaissance (C4ISR), RAM, automotive, ballistics, missile, aviation and environmental testing across all test commodity areas and enhance/expand the use of common data collectors, smart devices, and enterprise data management tools. Examples include ATC Crew Survivability Instrumentation during LFT&E; EPG Phoenix Architecture project for future data demand; RTC ASE Data Processing and Analysis; WSMR Long Range Precision Fires (LRPF) and Air Missile Defense (AMD) test support equipment; and YTC test capability for cUAS which can detect, track, identify and collect data on hostile UAS. ***FY 2022 Plans:*** Test centers will continue to provide, acquire, and upgrade instrumentation for C4ISR, RAM, automotive, ballistics, missile, aviation and environmental testing across all test commodity areas and enhance/expand the use of common data collectors, smart devices, and enterprise data management tools. Examples include Aberdeen Test Center (ATC) Crew Survivability Instrumentation during Live Fire Test and Evaluation (LFT&E) to support NGCV; Electronic Proving Ground (EPG) Phoenix Architecture project for support to C4 network systems; Yuma Proving Ground (YPG) Long Range Precision Fires (LRPF) test support equipment; White Sands Missile Range (WSMR) Directed Energy Laser test modernization, and Redstone Test Center's (RTC) Modular Open System Architecture (MOSA) for supporting Future Vertical Lift (FVL) testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase is due to inflation.			
Accomplishments/Planned Programs Subtotals	31.977	33.124	34.739

	FY 2020	FY 2021
Congressional Add: Developmental Test Technology & Sustainment ***FY 2020 Accomplishments:*** Congressional Add funding	15.000	-
Congressional Add: Cyber Space Threats ***FY 2021 Plans:*** Congressional Add for Cyber Space Threats.	-	5.000
Congressional Adds Subtotals	15.000	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605602A / *Army Technical Test Instrumentation and Targets*	**Project (Number/Name)** 628 / *Developmental Test Technology & Sustainment*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605602A / *Army Technical Test Instrumentation and Targets*	Project (Number/Name) 62C / *Modeling and Simulation Instrumentation*	

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
62C: *Modeling and Simulation Instrumentation*	-	13.193	43.705	14.514	-	14.514	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States Army Test and Evaluation Command (U.S. ATEC) plans, executes, and reports on operational tests, assessments and experiments in order to provide essential information for the acquisition and fielding of Army systems. A subordinate unit of ATEC, the Operational Test Command (OTC) provides support to Army Future Command (AFC), Cross Functional Teams (CFT), and Programs of Record. OTC employs Modeling, Simulation, and Instrumentation (MS&I) to provide a realistic multi-domain operational (MDO) test environment with modern threat effects, conduct test monitoring and control, and perform data analysis. OTC performs Risk Management Framework (RMF) functions on all technology tools across OTC and develops and adapts Army training simulations (such as Multiple Integrated Laser Engagement System (MILES) Real Time Casualty Assessment (RTCA), One Semi-Automated Forces (OneSAF) Live-Virtual-Constructive (LVC), Extensible Command, Control, Communications, and Computers Intelligence (C4I) Instrumentation Suite (ExCIS), and others for use in Operational Tests (OTs). By using MS&I tools, OTC reduces test cost and the demand for Army test units by simulating tactical engagements, adjacent and higher headquarters units, mission command message traffic, and battlefield kinetic and non-kinetic effects. OTC provides test monitoring and control through video monitoring, Global Positioning System (GPS)-enabled networks, and integration with Army mission command systems to collect real-time position location and status tracking to ensure test safety and provide status of data collection devices. OTC uses video equipment, appended data collection devices, and embedded software to collect and analyze system performance during test. MS&I funding is used to adapt/integrate current Army training simulation capabilities to function with new Army systems, purchase commercial off-the-shelf systems, and develop and sustain OT-unique simulation and instrumentation systems. The MS&I program also funds the technical expertise and hardware to sustain cyber security of OTC's technology capabilities, and provides for minor data collection device development and sustainment to support systems undergoing OT.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: MS&I	13.193	13.705	14.514
Description: Develops and enhances ATEC's simulation/stimulation of Mission Command; Fire Support; Air Defense; Command, Control, Communications, and Computers Intelligence, Surveillance and Reconnaissance (C4ISR); and Network systems. Improves and sustains Real-Time Casualty Assessment (RTCA). Develops, enhances, and sustains Performance Instrumentation Systems, Time Space Positioning Information (TSPI), Telemetry Systems, and Imaging Systems together with their associated data management enabling capabilities.			
FY 2021 Plans: Continue to sustain and invest in ATEC's Fire Support, Air and Missile Defense, C4ISR, and Network OT tools to support Army Modernization. Will improve OTC's RTCA secure network and tactical engagement simulation system capabilities to support future Mobile Protected Firepower (MPF), Infantry Squad Vehicle (ISV), Command Post Computing Environment (CPCE),			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605602A / *Army Technical Test Instrumentation and Targets*	**Project (Number/Name)** 62C / *Modeling and Simulation Instrumentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Integrated Visual Augmentation System (IVAS), Joint Assault Bridge (JAB), Leader Radio/Manpack (LR/MP), Joint Light Tactical Vehicle (JLTV), 120mm Advanced Multi-Purpose (AMP), and Bradley OTs. Will also support the Army Integrated Air and Missile Defense (AIAMD), Extended Range Cannon Artillery (ERCA), Positioning, Navigation, and Timing Assessment Exercise (PNTAX), Distributed Common Ground System-Army (DCGS-A), Shadow (RQ-7BVN), Chinook (CH-47F), and Soldier-Centered Design Events. Will sustain Performance Instrumentation Systems, TSPI, and Telemetry and Imaging Systems and associated data management (e.g. collection, reduction, analysis, and visualization) enabling capabilities. Will execute life cycle replacement of legacy MS&I systems which have reached end of useful life. Will sustain and upgrade MS&I systems used for operational tests. ***FY 2022 Plans:*** Plan is to sustain and invest in ATEC's test capabilities to provide operationally realistic multi-domain operations with modern kinetic and non-kinetic threat effects during test events for the following Army modernization efforts: Extended Range Cannon Artillery, Armored Multi-Purpose Vehicle, Patriot, Lower Tier Air Missile Defense Sensor/Radar Set, Assured Position Navigation and Timing, Guided Multiple Launch Rocket System - Extended Range (GMLRS-ER), Next Generation Squad Weapons, Synthetic Training Environment, Command Post Integrated Infrastructure, Blackhawk (UH-60V), Global Combat Support System, Distributed Common Ground System - Army (DCGS-A), Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade Chemical Surface Detector, and Cross-Functional Team Soldier-Centered Design events. Program will align requirements with Army modernization priorities in support of the National Defense Strategy. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase was due to: new mandated cybersecurity requirements, life cycle replacements that have been previously deferred, and minor upgrades to test capabilities.			
Accomplishments/Planned Programs Subtotals	13.193	13.705	14.514

	FY 2020	FY 2021
Congressional Add: Space and Missile Cyber Security	-	30.000
FY 2021 Plans: Congressional Add for Space and Missile Cyber Security.		
Congressional Adds Subtotals	-	30.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605604A / *Survivability/Lethality Analysis*							
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	-	33.632	36.001	36.389	-	36.389	-	-	-	-	-	-
675: *Army Survivability Analysis & Evaluation Supp*	-	33.632	36.001	36.389	-	36.389	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds objective vulnerability assessment products necessary for the inherently-governmental Army Test & Evaluation Command/Army Evaluation Center (ATEC/ AEC) mission and for the Research and Development and analysis communities. Products result from investigating, analyzing, assessing, experimenting and reporting on the survivability of Soldiers, and on the survivability, lethality and vulnerability (SLV) of the highest-priority Army and threat systems. Products are leveraged within the Army Futures Command (AFC), the Cross Functional Teams (CFTs) and Program Managers / Program Executive Offices (PM/PEO) to exercise constructive design influence over materiel development and to provide credible engineering-level underpinning and input to the Army Analytical Community.

This PE provides quantitative analyses and data for fielded and developmental systems as the Army pursues its modernization priorities and ensures readiness through the fielding of lethal and survivable systems for multi-domain operations. This PE funds engineering level analysis and experimentation supporting all CFTs including Long Range Precision Fires systems, Next Generation Combat Vehicles, Future Vertical Lift, Network / Command, Control, Communications (C3I), Air & Missile Defense, Soldier Lethality, and other high Army priority efforts. Principal data and analysis domains are integrated materiel performance, cyber resilience, human engineering and performance, Electronic Warfare threat defense, and mission threat analysis.

Assessments funded by this PE are conducted across the spectrum of multi-domain battlefield threats to include: guns, missiles, mines and other methods of inflicting physical damage; jammers, countermeasures, and other electronic warfare techniques; cyber threats from insiders to nation states; and directed energy weapons. Many different kinds of technical capabilities are used to generate these analyses, including specialized equipment, modeling & simulation, and experimental facilities. This PE ensures these capabilities can represent a live, virtual, or constructive hostile environment required for credible assessment, thus enabling evaluators, developers, users, and decision makers to make informed acquisition judgments. This technical data from earliest AFC experimentation to final operational test is retained and serves as AFC's repository of analysis and information for supporting an ever-improving body of evidence to drive Milestone Decisions. This body of evidence enables properly informed decisions concerning acquisition and production; maximizes Army overmatch in systems and tactics; informs investment priorities; and mitigates system weaknesses prior to actual combat.

Technical data and analysis results funded by this PE are efficiently leveraged for many different Army uses, reducing total cost to the Army by eliminating the need for duplicative capabilities funded by individual system developers. Central funding of this mission assures accurate and consistent technical treatment across all formal system Evaluations, and across the Army's analytical community as it conducts analyses of alternatives and other studies. The United States (U.S.) Army Combat Capabilities Development Command (CCDC) and ATEC/AEC integrate the results from the work program into Army's formal Evaluation process to ensure ATEC can comply with its legally-mandated responsibility to assess system survivability along with effectiveness and suitability.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605604A / *Survivability/Lethality Analysis*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	35.075	36.001	36.839	-	36.839
Current President's Budget	33.632	36.001	36.389	-	36.389
Total Adjustments	-1.443	0.000	-0.450	-	-0.450
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.443	-			
• Adjustments to Budget Years	-	-	-0.450	-	-0.450

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605604A / *Survivability/Lethality Analysis*	Project (Number/Name) 675 / *Army Survivability Analysis & Evaluation Supp*	

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
675: *Army Survivability Analysis & Evaluation Supp*	-	33.632	36.001	36.389	-	36.389	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds objective vulnerability assessment products necessary for the inherently-governmental Army Test & Evaluation Command/Army Evaluation Center (ATEC/ AEC) mission, and for the Research and Development and analysis communities. Products result from investigating, analyzing, assessing, experimenting and reporting on the survivability of Soldiers, and on the survivability, lethality and vulnerability (SLV) of the highest-priority Army and threat systems. Products are leveraged within the Army Futures Command (AFC), the Cross-Functional Teams (CFTs), and Program Managers / Program Executive Offices (PM/PEO) to exercise constructive design influence over materiel development and to provide credible engineering-level underpinning and input to the Army Analytical Community.

This Project provides quantitative analyses and data for fielded and developmental systems as the Army pursues its modernization priorities and ensures readiness through the fielding of lethal and survivable systems for multi-domain operations. PE funds engineering level analysis and experimentation supporting all CFTs including Long Range Precision Fires systems, Next Generation Combat Vehicles, Future Vertical Lift, Network / Command, Control, Communications (C3I), Air & Missile Defense, Soldier Lethality, and other highest Army priority efforts Principal data and analysis domains are integrated materiel performance, cyber resilience, human engineering and performance, Electronic Warfare threat defense, and mission threat analysis.

Assessments funded by this PE are conducted across the spectrum of multi-domain battlefield threats to include: guns, missiles, mines and other methods of inflicting physical damage; jammers, countermeasures, and other electronic warfare techniques; cyber threats from insiders to nation states; and directed energy weapons. Many different kinds of technical capabilities are used to generate these analyses, including specialized equipment, modeling & simulation, and experimental facilities. This PE ensures these capabilities can represent a live, virtual, or constructive hostile environment required for credible assessment, thus enabling evaluators, developers, users, and decision makers to make informed Acquisition judgments. This technical data from earliest AFC experimentation to final operational test is retained and serves as AFC's repository of analysis and information for supporting an ever-improving body of evidence to drive Milestone Decisions. This body of evidence enables properly informed decisions concerning acquisition and production; maximizes Army overmatch in systems and tactics; informs investment priorities; and mitigates system weaknesses prior to actual combat.

Technical data and analysis results funded by this PE are efficiently leveraged for many different Army uses, reducing total cost to the Army by eliminating the need for duplicative capabilities funded by individual system developers. Central funding of this mission assures accurate and consistent technical treatment across all formal system Evaluations, and across the Army's analytical community as it conducts analyses of alternatives and other studies. The United States (U.S.) Army Combat Capabilities Development Command (CCDC) and ATEC/AEC integrate the results from the work program into Army's formal Evaluation process to ensure ATEC can comply with its legally-mandated responsibility to assess system survivability along with effectiveness and suitability.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605604A / *Survivability/Lethality Analysis*	**Project (Number/Name)** 675 / *Army Survivability Analysis & Evaluation Supp*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Survivability, Lethality, Vulnerability Analyses (SLVA) for Ground, Aviation, Munitions, and Soldier Systems ***Description:*** This activity provides integrated multi-domain SLV for highest priority Ground, Aviation, Munitions, and Soldier Systems. ***FY 2021 Plans:*** Conduct SLVA on Long Range Precision Fires, Next Generation Combat Vehicle, Future Vertical Lift, and Soldier lethality systems, and on AEC and CCDC's highest priority platform and weapon systems. For systems supported, work with materiel developers to constructively influence system design and provide relevant data to Army analytical community for supporting Analyses of Alternatives and other Army studies. ***FY 2022 Plans:*** Will conduct essential analysis on Long Range Precision Fires, Next Generation Combat Vehicle, Future Vertical Lift, and Soldier lethality systems, and on AFC?s, AEC?s, and CCDC's highest priority platform and weapon systems. For systems supported, working with materiel developers to constructively influence system design and providing relevant data to Army analytical community for supporting Analyses of Alternatives and other Army studies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic adjustment	15.604	16.370	16.703
Title: Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) System Survivability Assessments ***Description:*** This effort produces assessments of the survivability of C4ISR systems in EW and cyber threat environments and conducts Electronic Attack (EA) and cyber analyses that reveal critical vulnerabilities in C4ISR systems. It also defines, demonstrates, and recommends mitigation options to proponents and evaluators of C4ISR. A cyber vulnerability database is maintained for the benefit of the community. ***FY 2021 Plans:*** Will conduct cyber and EW SLVA on network components as specified by the Network C3I CFT and AEC and on CCDC's highest priority Network/C3 and other systems. For systems supported working with materiel developers to constructively influence system design and providing relevant data to Army analytical community to support Analyses of Alternatives and other Army studies. Cyber support includes resiliency assessments of systems and Soldiers together and verification of fixes to identified vulnerabilities. ***FY 2022 Plans:***	17.156	18.075	18.108

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605604A / *Survivability/Lethality Analysis*	**Project (Number/Name)** 675 / *Army Survivability Analysis & Evaluation Supp*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will conduct cyber and EW analysis on network components as specified by the Network C3I CFT, AFC, AEC, and on CCDC's highest priority Network/C3 and other systems. For systems supported working with materiel developers to constructively influence system design and providing relevant data to Army analytical community to support Analyses of Alternatives and other Army studies. Cyber support includes resiliency assessments of systems and Soldiers together and verification of fixes to identified vulnerabilities. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Title: Survivability, Lethality, Vulnerability (SLV) Analyses for Developmental Air and Missile Defense Systems ***Description:*** Conduct integrated SLV analyses for developmental air and missile defense systems, pre-planned product improvements of current systems, and recently fielded systems. ***FY 2021 Plans:*** Conduct high-priority SLVA on AMD systems and components as specified by AEC and CCDC. For systems supported, work with materiel developers to constructively influence system design and providing relevant data to Army analytical community to support Analyses of Alternatives and other Army studies. ***FY 2022 Plans:*** Will conduct high-priority measurements and analysis on AMD systems and components as specified by AFC, AEC, and CCDC. For systems supported working with materiel developers to constructively influence system design and providing relevant data to Army analytical community to support Analyses of Alternatives and other Army studies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment	0.872	1.556	1.578
Accomplishments/Planned Programs Subtotals	33.632	36.001	36.389

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605606A *I Aircraft Certification*							
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	-	3.319	2.736	2.489	-	2.489	-	-	-	-	-	-
092: *Aircraft Certification*	-	3.319	2.736	2.489	-	2.489	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Airworthiness Certification Program Element (PE) assures safe flight operation of Army aircraft and aviation systems by means of technical design approval and qualification of systems to appropriate airworthiness standards. This PE supports independent airworthiness qualification for all assigned developmental and in-production Army aircraft, both manned and unmanned, as required by Army Regulation (AR) 70-62 ("Airworthiness of Aircraft Systems"), and is essential for assuring the safe operation of Army aircraft. This PE performs engineering functions (design, analysis, testing, demonstrations, and system specification compliance) essential for certifying the airworthiness of nearly 20,000 assigned Army aircraft. This PE also supports: management/execution of the Army's Aeronautical Design Standards (ADS) program; management/execution of airworthiness approval for new systems and materiel changes for all assigned Army aircraft systems; airworthiness engineering support for major development/modification and future systems/ subsystems requirements of the Program Executive Officer for Aviation (PEO AVN) and U.S. Army Special Operations Command's Technology Applications Program Office (TAPO); and management of test and evaluation processes in support of the airworthiness qualification process. The Airworthiness Certification PE also performs general research and development in support of aircraft qualification and overarching airworthiness projects that involve multiple aircraft models, and supports the application of other critical aviation subsystems onto Army aircraft.

This PE also supports: airworthiness certification for military-use civil derivative aircraft technical qualification through the Federal Aviation Administration's Military Certification Office; development of airworthiness procedures, specifications, critical standards, and other design and qualification documents; participation in senior leadership mandated airworthiness tri-service activities (e.g., National Airworthiness Council) and international airworthiness related activities mandated by treaty (e.g., Flight Into Non-segregated Airspace (FINAS)); and early airworthiness involvement in Technology Transition projects such as the Future Attack Reconnaissance Aircraft, Future Long Range Assault Aircraft, Advanced Unmanned Aircraft Systems, Modular Open System Architecture, and other Office of the Secretary of Defense (OSD) initiatives.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605606A / *Aircraft Certification*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	3.461	2.736	2.726	-	2.726
Current President's Budget	3.319	2.736	2.489	-	2.489
Total Adjustments	-0.142	0.000	-0.237	-	-0.237
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.142	-			
• Adjustments to Budget Years	-	-	-0.237	-	-0.237

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605606A / *Aircraft Certification*	Project (Number/Name) 092 / *Aircraft Certification*	

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
092: *Aircraft Certification*	-	3.319	2.736	2.489	-	2.489	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Airworthiness Certification Project assures safe flight operation of Army aircraft and aviation systems by means of technical design approval and qualification of systems to appropriate airworthiness standards. This Project supports independent airworthiness qualification for all assigned developmental and in-production Army aircraft, both manned and unmanned, as required by Army Regulation (AR) 70-62 ("Airworthiness of Aircraft Systems"), and is essential for assuring the safe operation of Army aircraft. This Project performs engineering functions (design, analysis, testing, demonstrations, and system specification compliance) essential for certifying the airworthiness of nearly 20,000 assigned Army aircraft. This Project also supports: management/execution of the Army's Aeronautical Design Standards (ADS) program; management/execution of airworthiness approval for new systems and materiel changes for all assigned Army aircraft systems; airworthiness engineering support for major development/modification and future systems/ subsystems requirements of the Program Executive Officer for Aviation (PEO AVN) and U.S. Army Special Operations Command's Technology Applications Program Office (TAPO); and management of test and evaluation processes in support of the airworthiness qualification process. The Airworthiness Certification Project also performs general research and development in support of aircraft qualification and overarching airworthiness projects that involve multiple aircraft models, and supports the application of other critical aviation subsystems onto Army aircraft.

This Project also supports: airworthiness certification for military-use civil derivative aircraft technical qualification through the Federal Aviation Administration's Military Certification Office; development of airworthiness procedures, specifications, critical standards, and other design and qualification documents; participation in senior leadership mandated airworthiness tri-service activities (e.g., National Airworthiness Council) and international airworthiness related activities mandated by treaty (e.g. Flight Into Non-segregated Airspace (FINAS)); and early airworthiness involvement in Technology Transition projects such as the Future Attack Reconnaissance Aircraft, Future Long Range Assault Aircraft, Advanced Unmanned Aircraft Systems, Modular Open System Architecture, and other Office of the Secretary of Defense (OSD) initiatives.

Work in this Project is performed by the United States Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Certification Assessments and Studies Force Modernization Aircraft ***Description:*** Perform assessments and studies in support of Force Modernization Aircraft Systems	0.011	-	-
Title: Certification Requirements and Studies for Force Modernization Aircraft, Future Aircraft, and Advanced Aircraft Technologies ***Description:*** Perform studies to support airworthiness certification requirements for Force Modernization and Future Aircraft Systems.	0.419	0.815	1.270

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605606A / *Aircraft Certification*	**Project (Number/Name)** 092 / *Aircraft Certification*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Refine Army Military Airworthiness Certification Criteria (AMACC) document. Conduct technical and airworthiness qualification assessments, projects, and studies to demonstrate airworthiness and system performance for Army force modernization aircraft systems and multi-system programs (e.g. AH-64E, UH-60M, MH-47G, MH-60M, etc.). Conduct studies of Airworthiness Certification requirements for future aircraft systems and other advanced technology transition programs (e.g. Future Attack Reconnaissance Aircraft, Future Long Range Assault Aircraft, Advanced Unmanned Aircraft Systems, Modular Open System Architecture). These efforts include extensive, multi-faceted interactions and collaborations with government Research, Development, test, and Evaluation (RDTE) Centers, academia, United States (US) industry, professional aerospace technical societies, and international partners to fully understand advanced aviation technologies and proposed airworthiness certification criteria, standards, and methods of compliance. ***FY 2022 Plans:*** Will refine AMACC document. Will conduct technical and airworthiness qualification assessments, projects, and studies to demonstrate airworthiness and system performance for Army force modernization aircraft systems and multi-system programs (e.g. AH-64E, UH-60M, MH-47G, MH-60M, etc). Will conduct studies of Airworthiness Certification requirements for future aircraft systems and other advanced technology transition programs (e.g. Future Attack Reconnaissance Aircraft, Future Long Range Assault Aircraft, Advanced Unmanned Aircraft Systems, Modular Open System Architecture). These efforts will include extensive, multi-faceted interactions and collaborations with government RDTE Centers, academia, US industry, professional aerospace technical societies, and international partners to fully understand advanced aviation technologies and proposed airworthiness certification criteria, standards, and methods of compliance. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increased to focus on efforts related to modernization and advanced technologies studies. Funding realigned from Design Standards effort within this project.			
Title: Design Standards ***Description:*** Support the development, implementation and maintenance of Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching Airworthiness qualification documentation. ***FY 2021 Plans:*** Develop, implement, and maintain Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching airworthiness qualification documentation. ***FY 2022 Plans:***	1.906	1.437	0.777

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605606A / *Aircraft Certification*	**Project (Number/Name)** 092 / *Aircraft Certification*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will develop, implement, and maintain Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching airworthiness qualification documentation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding decreased to focus on efforts related to modernization and advanced technologies studies. Funding realigned to "Certification Requirements and Studies for Force Modernization Aircraft, Future Aircraft, and Advanced Aircraft Technologies" effort within this project.			
Title: Certification Assessments of Technology Upgrades ***Description:*** Perform certification assessments of technology upgrades.	0.011	-	-
Title: Commercial Derivative Aircraft ***Description:*** Technical and airworthiness qualification for Commercial Derivative Aircraft. ***FY 2021 Plans:*** Provide technical and airworthiness qualification for Commercial Derivative Aircraft through the Federal Aviation Administration. ***FY 2022 Plans:*** Will provide technical and airworthiness qualification for Commercial Derivative Aircraft through the Federal Aviation Administration. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease reflects adjustment for inflation and decrement in support of higher Army priorities.	0.296	0.242	0.221
Title: Aircraft Fleet Airworthiness Certification Advancement and Synchronization ***Description:*** Support efforts to establish and maintain aircraft safety for a fleet of aircraft. ***FY 2021 Plans:*** Lead and participate in national and international airworthiness certification committees, conferences and working groups responsible for establishing, maintaining, and synchronizing aircraft safety for fleets of aircraft (e.g. National Airworthiness Council, Joint Propulsion Coordinating Committee, North Atlantic Treaty Organization (NATO) Airworthiness working groups, Air Force Interoperability Council (AFIC) Airworthiness working groups, and Global Air Traffic Management working groups.) ***FY 2022 Plans:*** Will lead and participate in national and international airworthiness certification committees, conferences and working groups responsible for establishing, maintaining, and synchronizing aircraft safety for fleets of aircraft (e.g. National Airworthiness Council,	0.676	0.242	0.221

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605606A / *Aircraft Certification*	**Project (Number/Name)** 092 / *Aircraft Certification*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Joint Propulsion Coordinating Committee, NATO Airworthiness working groups, AFIC Airworthiness working groups, and Global Air Traffic Management working groups.) ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease reflects adjustment for inflation and decrement in support of higher Army priorities.			
Accomplishments/Planned Programs Subtotals	3.319	2.736	2.489

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605702A / *Meteorological Support to RDT&E Activities*							
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	-	6.094	6.360	6.689	-	6.689	-	-	-	-	-	-
128: *Meteorological Support To RDT&E Activities*	-	6.094	6.360	6.689	-	6.689	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides meteorological support to research, development, test, and evaluation (RDTE) activities and provides standard and specialized weather forecasts and data to satisfy Army/Department of Defense (DoD) RDTE test requirements for modern weaponry. Types of support include: (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, and ballistic meteorological measurements; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target-to-background measurements, and predictions for electro-optical testing and ballistic artillery/mortar firing; and (3) advisory and warning products such as go/no-go test recommendations for ballistic and atmospheric probe missiles, smoke/obscurant tests, hazard predictions for chemical agent munitions disposal, monitoring dispersion of simulant clouds for chemical/biological detector tests, simulated nuclear blasts, and weather warnings for test range safety. This PE provides technical weather support to Army and Joint Program Executive Officers (PEOs), Project Managers (PMs), and the Army test ranges and sites at: White Sands Test Center (WSTC), White Sands Missile Range, New Mexico; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; West Desert Test Center (WDTC), Dugway Proving Ground, Utah; Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; Redstone Test Center (RTC), Redstone Arsenal, Alabama; Yuma Test Center (YTC), Yuma Proving Ground, Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska); Operational Test Command (OTC), Fort Hood, Texas and Fort Bragg, North Carolina. This PE develops methodologies and acquires instrumentation and systems that allow meteorological teams to support current and future Army/DoD RDTE requirements. It finances indirect meteorological support operating costs not billable to customers along with replacement/ upgrade of meteorological instrumentation and support systems. Direct costs for meteorological support services are not funded by this PE, but are borne by the customer (i.e., materiel/weapons developers and project/product managers) in accordance with DoD Directive 7000.14R (Department of Defense Financial Management Regulations). This PE enables more effective test scheduling and execution, and is essential to the accomplishment of the Army's developmental and operational test mission in that precise weather modeling and measurements directly influence test item performance and quantify test item weather dependencies and vulnerabilities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605702A / *Meteorological Support to RDT&E Activities*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	6.233	6.488	6.694	-	6.694
Current President's Budget	6.094	6.360	6.689	-	6.689
Total Adjustments	-0.139	-0.128	-0.005	-	-0.005
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.139	-0.128			
• Adjustments to Budget Years	-	-	-0.005	-	-0.005

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605702A / *Meteorological Support to RDT&E Activities*	Project (Number/Name) 128 / *Meteorological Support To RDT&E Activities*	

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
128: *Meteorological Support To RDT&E Activities*	-	6.094	6.360	6.689	-	6.689	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides meteorological support to research, development, test, and evaluation (RDTE) activities and provides standard and specialized weather forecasts and data to satisfy Army/Department of Defense (DoD) RDTE test requirements for modern weaponry. Types of support include: (1) unique atmospheric analysis and sampling to include atmospheric transmittance, extinction, optical scintillation, infrared temperature, aerosol/smoke cloud dispersion characteristics, and ballistic meteorological measurements; (2) test event forecasting to include prediction of sound propagation for ballistic firing tests, specialized prediction of light levels and target-to-background measurements, and predictions for electro-optical testing and ballistic artillery/mortar firing; and (3) advisory and warning products such as go/ no-go test recommendations for ballistic and atmospheric probe missiles, smoke/obscurant tests, hazard predictions for chemical agent munitions disposal, monitoring dispersion of simulant clouds for chemical/biological detector tests, simulated nuclear blasts, and weather warnings for test range safety. This Project provides technical weather support to Army and Joint Program Executive Officers (PEOs), Project Managers (PMs), and the Army test ranges and sites at: White Sands Test Center (WSTC), White Sands Missile Range, New Mexico; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; West Desert Test Center (WDTC), Dugway Proving Ground, Utah; Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; Redstone Test Center (RTC), Redstone Arsenal, Alabama; Yuma Test Center (YTC), Yuma Proving Ground, Arizona (including the Cold Regions Test Center (CRTC), Fort Greely, Alaska); Operational Test Command (OTC), Fort Hood, Texas and Fort Bragg, North Carolina. This PE develops methodologies and acquires instrumentation and systems that allow meteorological teams to support current and future Army/DoD RDTE requirements. It finances indirect meteorological support operating costs not billable to customers along with replacement/ upgrade of meteorological instrumentation and support systems. Direct costs for meteorological support services are not funded by this PE, but are borne by the customer (i.e., materiel/weapons developers and project/product managers) in accordance with DoD Directive 7000.14R (Department of Defense Financial Management Regulations). This PE enables more effective test scheduling and execution, and is essential to the accomplishment of the Army's developmental and operational test mission in that precise weather modeling and measurements directly influence test item performance and quantify test item weather dependencies and vulnerabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Civilian Pay and Support Costs	2.112	2.175	2.280
Description: Funding related to Civilian Pay and associated indirect costs for meteorological support. ***FY 2021 Plans:*** Will provide indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings and advisories; staff meteorological services; and atmospheric measurements in support of Army/DoD tests and projects at eight Army test sites and alternate test sites as required. Will provide program management for meteorological support to the Army RDTE community and technical review/assistance to ranges and meteorological support teams. Will provide technical meteorological support to the			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605702A / *Meteorological Support to RDT&E Activities*	**Project (Number/Name)** 128 / *Meteorological Support To RDT&E Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Army RDTE community including collaboration between Army meteorologists and NCAR toward improvements to the 4DWX System and associated system administration. ***FY 2022 Plans:*** Will provide indirect costs (personnel salaries) for generating weather forecasts, severe weather warnings and advisories; staff meteorological services; and atmospheric measurements in support of Army/DoD tests and projects at eight Army test sites and alternate test sites as required. Will provide program management for meteorological support to the Army RDTE community and technical review/assistance to ranges and meteorological support teams. Will provide technical meteorological support to the Army RDTE community including collaboration between Army meteorologists and NCAR toward improvements to the 4DWX System and associated system administration. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to inflation for civilian pay and routine program adjustments.			
Title: Four Dimensional Weather System and Instrumentation	3.982	4.185	4.409
Description: Provides funding for meteorological instrumentation and technology to support RDTE activities at Army test sites. Includes funding for sustainment and enhancement of the 4DWX system, an advanced meteorological support system that provides high-resolution weather forecasts and analyzes. The 4DWX analyzes and forecasts the 3-dimensional structure of the atmosphere over time (4th dimension) and is used in test planning, conduct, and forensic analyses. ***FY 2021 Plans:*** Will continue 4DWX system sustainment and modernization to improve forecast accuracy in support of Army RDTE mission requirements, including development of a full-grid climatography using 4DWX final-analysis data, and further development of probabilistic modeling; improved data assimilation procedures, and configuration of 4DWX to optimize test range-specific accuracy. Instrumentation funding will be used to continue a multi-year effort to replace/upgrade obsolete instrumentation, including upper-air sounding systems, surface atmospheric meteorological system, and radar wind profilers at several ATEC sites. ***FY 2022 Plans:*** Will continue 4DWX system sustainment and modernization to improve forecast accuracy in support of Army RDTE mission requirements, including development of a full-grid climatography using 4DWX final-analysis data, and further development of probabilistic modeling; improved data assimilation procedures, and configuration of 4DWX to optimize test range-specific accuracy. Instrumentation funding will be used to continue a multi-year effort to replace/upgrade obsolete instrumentation, including upper-air sounding systems, surface atmospheric meteorological system, and radar wind profilers at several test centers. ***FY 2021 to FY 2022 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605702A / *Meteorological Support to RDT&E Activities*	**Project (Number/Name)** 128 / *Meteorological Support To RDT&E Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase due to inflation; program funding aligns 4DWX and Instrumentation requirements with Army modernization priorities in support of the National Defense Strategy.			
Accomplishments/Planned Programs Subtotals	6.094	6.360	6.689

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605706A *I Materiel Systems Analysis*							
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	-	21.233	21.830	21.558	-	21.558	-	-	-	-	-	-
541: *Materiel Sys Analysis*	-	21.233	21.830	21.558	-	21.558	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) resources the Combat Capabilities Development Command (CCDC) Data and Analysis Center (DAC) to conduct integrated material performance analyses to support Army decisions in technology, materiel acquisition, and the design, development, fielding and sustainment of Army materiel systems. The analysis products funded by this PE are leveraged to support Materiel Acquisition decisions and influence the design, development, and sustainment of Army weapon/materiel systems in support of the current and future force in the areas of Long Range Precision Fires, Next Generation Combat Vehicles, Future Vehicle Lift, Network/Command, Control, Communications and Intelligence, Air and Missile Defense, Soldier Lethality and other Army Priority efforts.

As the Army's center for integrated materiel performance analysis, the CCDC DAC supports Army and Department of Defense (DoD) decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. The DAC's unique in-house, consistent, integrated analytical capability provides the Army Futures Command (AFC) and Army leadership with timely, independent, unbiased, reliable, and high quality analysis to support complex decisions required for Current Operations and the development of the Future Force. The DAC's integrated set of skills, tools, and data repository are focused on the highest Army Priorities with a core mission to build the body of evidence and deliver objective analysis and experimentation across the entire life cycle to ensure Readiness today and a more lethal Future Force tomorrow.

This PE develops and certifies system level, and systems-of-systems level, performance and effectiveness data across a broad range of capabilities such as target acquisition, probability of inflicting catastrophic damage, personnel and vehicle survivability, mobility, network, system reliability, and several additional capability areas used in Army studies. The PE funds the development of item-level performance methodology, and Models and Simulations (M&S) for the current and future operational environments and emerging threats. The M&S capabilities support the development, linkage and accreditation of live, virtual, and constructive simulations, and provide unique tools that support systems analysis of individual systems and the combined arms environment. This M&S infrastructure provides a hierarchical modeling framework that is unique to the DAC and allows for a comprehensive performance and effectiveness analysis and prediction capability that can be utilized to support trade-off and investment decisions prior to extensive and expensive hardware testing of proposed systems/technologies.

This PE funds the Center for Reliability Growth (CRG), to develop critical tools, methodologies, policies, guidance and educational materials required to help acquisition programs achieve required reliability during the acquisition process. The CRG develops and applies engineering approaches to assess the reliability of Army materiel and provides recommendations on ways to improve reliability, thereby, reducing logistics footprints and life cycle costs, and extending failure-free periods for materiel. The CRG has developed an integrated set of skills and tools focused on its core competencies to be responsive in delivering objective data and analysis across the entire life cycle to ensure Readiness today and a more lethal future force tomorrow.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605706A / *Materiel Systems Analysis*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	21.342	21.859	21.824	-	21.824
Current President's Budget	21.233	21.830	21.558	-	21.558
Total Adjustments	-0.109	-0.029	-0.266	-	-0.266
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.109	-0.029			
• Adjustments to Budget Years	-	-	-0.266	-	-0.266

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605706A / *Materiel Systems Analysis*				Project (Number/Name) 541 / *Materiel Sys Analysis*			
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**
541: *Materiel Sys Analysis*	-	21.233	21.830	21.558	-	21.558	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) resources the Combat Capabilities Development Command (CCDC) Data and Analysis Center (DAC) to conduct integrated material performance analyses to support Army decisions in technology, materiel acquisition, and the design, development, fielding and sustainment of Army materiel systems. The analysis products funded by this PE are leveraged to support Materiel Acquisition decisions and influence the design, development, and sustainment of Army weapon/materiel systems in support of the current and future force in the areas of Long Range Precision Fires, Next Generation Combat Vehicles, Future Vehicle Lift, Network/Command, Control, Communications and Intelligence, Air and Missile Defense, Soldier Lethality and other Army Priority efforts.

As the Army's center for integrated materiel performance analysis, the CCDC DAC supports Army and Department of Defense (DoD) decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. The DAC's unique in-house, consistent, integrated analytical capability provides Army Futures Command (AFC) and Army leadership with timely, independent, unbiased, reliable, and high quality analysis to support complex decisions required for Current Operations and the development of the Future Force. The DAC's integrated set of skills, tools and data repository are focused on the highest Army Priorities with a core mission to build the body of evidence and deliver objective analysis and experimentation across the entire life cycle to ensure Readiness today and a more lethal Future Force tomorrow.

This PE develops and certifies system level, and systems-of-systems level, performance and effectiveness data across a broad range of capabilities such as target acquisition, probability of inflicting catastrophic damage, personnel and vehicle survivability, mobility, network, system reliability, and several additional capability areas used in Army studies. The PE funds the development of item-level performance methodology, and Models and Simulations (M&S) for the current and future operational environments and emerging threats. The M&S capabilities support the development, linkage and accreditation of live, virtual, and constructive simulations, and provide unique tools that support systems analysis of individual systems and the combined arms environment. This M&S infrastructure provides a hierarchical modeling framework that is unique to the DAC and allows for a comprehensive performance and effectiveness analysis and prediction capability that can be utilized to support trade-off and investment decisions prior to extensive and expensive hardware testing of proposed systems/technologies.

This PE funds the Center for Reliability Growth (CRG), to develop critical tools, methodologies, policies, guidance and educational materials required to help acquisition programs achieve required reliability during the acquisition process. The CRG develops and applies engineering approaches to assess the reliability of Army materiel and provides recommendations on ways to improve reliability, thereby, reducing logistics footprints and life cycle costs, and extending failure-free periods for materiel. The CRG has developed an integrated set of skills and tools focused on its core competencies to be responsive in delivering objective data and analysis across the entire life cycle to ensure Readiness today and a more lethal future force tomorrow.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Materiel Systems Analysis	21.233	21.830	21.558

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605706A / *Materiel Systems Analysis*	**Project (Number/Name)** 541 / *Materiel Sys Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: This activity provides for systems and engineering analyses to support the entire Future Force Modernization Enterprise decisions in technology, materiel acquisition, and the design, development, fielding and sustainment of Army materiel systems; the development of system level performance and effectiveness data and item-level performance methodology, and models and simulations; and the development of critical tools, methodologies, policies and guidance as the Center for Reliability Growth to improve reliability, extend failure-free periods, and reduce support costs.			
FY 2021 Plans: Continue to conduct materiel systems analysis through the development and enhancement of comprehensive sets of system performance data and essential verified and validated item/system level methodologies, tools, and models and simulations. Continue to provide analytical support to Test and Evaluation (T&E) planning, to reduce testing through the use of modeling and simulation, and to provide software analysis and reliability capabilities to support T&E. Conduct follow-on studies for major Army programs undergoing engineering change proposals and continue to provide essential certified weapons system performance data for all major Army studies. Continue to provide critical tools, policies and educational materials as the Army?s Center for Reliability Growth to improve system reliability throughout the acquisition process. Continue to provide extensive analytical support to the Cross Functional Teams (CFTs) to include Analysis of Alternatives (AoA's), system cost/performance tradeoffs, early technology trade-offs, weapons/systems mix analyses, system Technical and Schedule risk assessments, business case analyses, cost benefit analyses, requirements analyses, technology insertion studies, reliability growth studies, and Physics of Failure (PoF) analyses. Conduct systems analysis and assessments in support of multiple efforts including Mobile-Short-Range Air Defense (M-SHORAD), Future Vehicle Lift (FVL), Assured-Positioning, Navigation and Timing (A-PNT), Network, Next Generation Combat Vehicle Quarterback, Directed Energy systems, Autonomous Vehicles, Artificial Intelligence, Multi-Domain Operations, Active Protection Systems, and Electronic Warfare, and Army Futures Command/Combat Capabilities Development Command?s highest priority platforms, technologies and weapon systems. For systems analyzed, provide relevant data and results to materiel developers and senior decision makers to support acquisition decisions.			
FY 2022 Plans: Will conduct integrated material performance analysis by developing, collecting, and retaining technology and system performance data as AFC?s repository for the body of evidence concerning Army technologies and systems. Will develop and maintains essential verified and validated item/system level methodologies, tools, and models and simulations. Will provide extensive analytical support to the CFTs to include AoA's, system cost/ performance tradeoffs, early technology trade-offs, weapons/systems mix analyses, system Technical and Schedule risk assessments, business case analyses, cost benefit analyses, requirements analyses, technology insertion studies, reliability growth studies, and PoF analyses. Will provide analytical support to the planning and conduct of T&E). Will perform follow-on studies for major Army programs undergoing engineering change proposals and provide essential certified weapons system performance data for all major Army studies. Will provide critical tools, policies and educational materials as the Army's Center for Reliability Growth to improve system reliability throughout the acquisition process. Will conduct systems analysis and assessments in support of multiple high-priority programs			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605706A / *Materiel Systems Analysis*	**Project (Number/Name)** 541 / *Materiel Sys Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
including Long Range Precision Fires systems, Next Generation Combat Vehicles, Future Vertical Lift, Network / Command, Control, Communications and intelligence (C3I), Air & Missile Defense, Soldier Lethality, and other highest Army priority efforts. For systems and technologies analyzed will provide relevant data and results to materiel developers, evaluators, senior decision makers, and downstream force-on-force modelers to support acquisition decisions. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease reflects adjustment for inflation.			
Accomplishments/Planned Programs Subtotals	21.233	21.830	21.558

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605709A / *Exploitation of Foreign Items*

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	-	11.168	8.936	13.631	-	13.631	-	-	-	-	-	-
C28: *Acq/Exploit Threat Items*	-	11.168	8.936	13.631	-	13.631	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Fiscal Year (FY) 2022 Direct War/Enduring Operations dollars in the amount of $1.994 million in Project C28 will continue to support the acquisition, exploitation, and inventory of foreign ground materiel with potential advanced technology threats to United States (U.S.) systems, as well as emerging and destructive threats such as cyber vulnerabilities, biometric systems, and evolving improvised explosive devices. The primary aim of the PE is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties associated with these threats. The PE also answers scientific and technical intelligence requirements, provides materiel for realistic testing and training, and aids in the development of countermeasures to threat systems, materiel, and technologies. Operations have increased the amount of captured threat materiel that require immediate exploitation to develop countermeasures and force protection measures for U.S. forces. Acquisition and exploitation are executed according to Army Foreign Materiel Program (FMP) Plan prioritization and with the approval of the Army Deputy Chief of Staff for Intelligence (G2).

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	11.168	8.936	12.801	-	12.801
Current President's Budget	11.168	8.936	13.631	-	13.631
Total Adjustments	0.000	0.000	0.830	-	0.830
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.830	-	0.830

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605709A / *Exploitation of Foreign Items*	Project (Number/Name) C28 / *Acq/Exploit Threat Items*	

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
C28: *Acq/Exploit Threat Items*	-	11.168	8.936	13.631	-	13.631	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for the acquisition, exploitation, and inventory of foreign ground materiel with potential advanced technology threats to United States (U.S.) systems, as well as emerging and destructive threats. The primary aim of the Project is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties associated with these threats. The Project also answers scientific and technical intelligence requirements, provides materiel for realistic testing and training, and aids in the development of countermeasures to threat systems, materiel, and technologies. Operations have increased the amount of captured threat materiel that require immediate exploitation to develop countermeasures and force protection measures for U.S. forces. Acquisition and exploitation are executed according to Army Foreign Materiel Program (FMP) Plan prioritization and with the approval of the G2.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Foreign Materiel Program (FMP) Acquisition	3.685	2.628	4.498
Description: This effort provides for the acquisition of foreign ground materiel with potential advanced technology threats to U.S. systems, as well as emerging and destructive threats. The primary aim of the effort is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties associated with these threats. The effort also answers scientific and technical intelligence requirements, provides materiel for realistic testing and training, and aids in the development of countermeasures to threat systems, materiel, and technologies. Operations have increased the amount of captured threat materiel that require immediate exploitation to develop countermeasures and force protection measures for US forces. Acquisition and exploitation are executed according to Army FMP Plan prioritization and with the approval of the G2. ***FY 2021 Plans:*** Conducting Foreign Materiel Acquisition of threat related foreign ground materiel systems and state of the art technologies of military significance. ***FY 2022 Plans:*** Will conduct Foreign Materiel Acquisition of threat related foreign ground materiel systems and state of the art technologies of military significance. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The increase from FY21 to FY22 is driven by research needed to identify technological gaps in support of Army modernization.			
Title: Army Foreign Materiel Program (FMP) Exploitation	7.483	6.308	9.133
Description: This effort provides for the exploitation and inventory of foreign ground materiel with potential advanced technology threats to U.S. systems, as well as emerging and destructive threats such as cyber vulnerabilities, biometric systems, and			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605709A / *Exploitation of Foreign Items*	**Project (Number/Name)** C28 / *Acq/Exploit Threat Items*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
evolving improvised explosive devices. The primary aim of the effort is to maximize the efficiency of research and development for force and materiel development by reducing the uncertainties associated with these threats. The effort also answers scientific and technical intelligence requirements, provides materiel for realistic testing and training, and aids in the development of countermeasures to threat systems, materiel, and technologies. Operations have increased the amount of captured threat materiel that require immediate exploitation to develop countermeasures and force protection measures for US forces. Acquisition and exploitation are executed according to Army FMP Plan prioritization and with the approval of the G2. ***FY 2021 Plans:*** Conducting Foreign Materiel Exploitation of threat related foreign ground materiel systems and state of the art technologies of military significance. ***FY 2022 Plans:*** Will conduct Foreign Materiel Acquisition of threat related foreign ground materiel systems and state of the art technologies of military significance. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The increase from FY21 to FY22 is driven by research needed to identify technological gaps in support of Army modernization.			
Accomplishments/Planned Programs Subtotals	11.168	8.936	13.631

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605712A / *Support of Operational Testing*							
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	-	52.280	54.116	55.122	-	55.122	-	-	-	-	-	-
001: *ATEC Joint Tests And Follow-On Test & Eval*	-	0.292	0.303	0.355	-	0.355	-	-	-	-	-	-
V02: *ATEC Activities*	-	51.988	53.813	54.767	-	54.767	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides resources to the United States (U.S.) Army Test and Evaluation Command (ATEC) to operate the Army's Operational Test Command (OTC). OTC conducts independent operational tests that provide significant data to Army decision-makers on key Army systems and concepts. This PE finances recurring costs for OTC that are essential for conducting realistic and continuous testing in the critical areas of equipment, doctrine, force design and training. These recurring costs include civilian pay, requirements for test support contracts, temporary duty, training, supplies and equipment. It also provides funding to the U.S. Army Futures Command to operate the Army Joint Test Element (JTE). JTE examines Joint Service, Combatant Command (COCOM) and Department of Defense (DoD) agencies' mission gaps, tactics and doctrine, resulting in the development of Tactics, Techniques and Procedures (TTP), Concept of Operations (CONOPS) and assessment documents. Products are developed through operational non-materiel solutions to urgent, specific, Joint Warfighter problems.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	52.723	54.470	55.444	-	55.444
Current President's Budget	52.280	54.116	55.122	-	55.122
Total Adjustments	-0.443	-0.354	-0.322	-	-0.322
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.443	-0.354			
• Adjustments to Budget Years	-	-	-0.322	-	-0.322

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605712A / *Support of Operational Testing*	Project (Number/Name) 001 / *ATEC Joint Tests And Follow-On Test & Eval*	

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
001: *ATEC Joint Tests And Follow-On Test & Eval*	-	0.292	0.303	0.355	-	0.355	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Modernization Command (JMC) plans and executes worldwide multi-echelon, joint and multi-national field experiments in support of the Army's modernization strategy enabling a multi-domain operations Aimpoint Force. This Project provides funding for the Joint Modernization Command - Aberdeen Proving Grounds (JMC-APG) which supports assessments of operational solutions to urgent, specific, Joint Warfighter problems through a short-term, rigorous experiment process. This support is principally through the AFC Experiment program. The office further manages Army resources in support of joint assessments. The objective of JMC-APG is to develop, in operational environments, methods for Warfighters to accomplish their missions more effectively with today's equipment, organizations, and doctrine. JMC-APG achieves this by evaluating new concepts for tactics, techniques, and procedures, and addressing Combatant Commanders' needs and issues in the joint military environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Joint Test Element (JTE) Management Support	0.292	0.303	0.355
Description: Funds the civilian salaries and related non-labor requirements that support the JMC-APG. ***FY 2021 Plans:*** Will continue to fund civilian labor and non-labor requirements such as supplies and travel in support of JTE initiatives, program support from remote joint test stations, and Combatant Command (COCOM) engagements. ***FY 2022 Plans:*** Will continue to fund civilian labor and non-labor requirements such as supplies and travel in support of JMC-APG initiatives, program support from remote joint test stations, and COCOM engagements. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Change due to inflation for civilian pay and program adjustments required to meet non-labor support to program requirements.			
Accomplishments/Planned Programs Subtotals	0.292	0.303	0.355

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605712A / *Support of Operational Testing*	**Project (Number/Name)** 001 / *ATEC Joint Tests And Follow-On Test & Eval*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605712A / *Support of Operational Testing*	Project (Number/Name) V02 / *ATEC Activities*	

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
V02: *ATEC Activities*	-	51.988	53.813	54.767	-	54.767	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding to the Army Test and Evaluation Command (ATEC) to operate the Operational Test Command (OTC) which conducts independent operational tests that provide significant data to Army decision makers on key systems in support of the Army's modernization priorities. These operational tests are required by public law (Title 10 USC 2399). This Project finances recurring costs for OTC that are essential to conduct realistic and continuous testing in the critical areas of equipment, doctrine, force design and training. These recurring costs include civilian pay, requirements for test support contracts, temporary duty, training, supplies and equipment.

OTC consists of four forward Test Directorates (Airborne and Special Operations Test Directorate, Fort Bragg, North Carolina; Air and Missile Defense Test Directorate, Fort Bliss, Texas; Fires Support Test Directorate, Fort Sill, Oklahoma; and the Intelligence Electronic Warfare Test Directorate, Fort Huachuca, Arizona) together with four additional Test Directorates (Aviation; Maneuver; Mission Command; Maneuver Support and Sustainment) and OTC Headquarters at Fort Hood, Texas. These activities support the development and fielding cycle of all Army acquisition programs including rapid fielding initiatives in support of the Army's modernization priorities. The primary mission of these test directorates is to perform detailed planning, execution, and reporting of Customer Tests, Early User Tests, Limited User Tests (LUT), Initial Operational Test and Evaluation (IOTE), and Follow-On Operational Tests (FOT). OTC also supports Army Futures Command's Soldier Touch Points and other early assessments of potential new systems the Army seeks to acquire.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Operational Test Command Civilian Pay	40.895	42.001	43.420
Description: This funding supports the cost of civilian labor for OTC Program Budget Guidance (PBG) authorizations. ***FY 2021 Plans:*** Will continue to support the costs of civilian labor for OTC PBG authorizations. ***FY 2022 Plans:*** Will continue to support the costs of civilian labor for OTC PBG authorizations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in funding is due to inflation.			
Title: Operational Test Command Operations Support	11.093	11.812	11.347
Description: OTC operational costs including: support contracts, temporary duty, training, supplies and equipment.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605712A / *Support of Operational Testing*	**Project (Number/Name)** V02 / *ATEC Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Continue to support operational costs including support contracts, temporary duty, training, supplies and equipment. ***FY 2022 Plans:*** Continue to support operational costs including support contracts, temporary duty, training, supplies and equipment. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in funding is due to fact of life adjustments for fuel pricing and inflation rates for non-pay and non-fuel purchases.			
Accomplishments/Planned Programs Subtotals	51.988	53.813	54.767

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605716A *I Army Evaluation Center*							
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	-	60.474	56.827	65.854	-	65.854	-	-	-	-	-	-
302: *Army Evaluation Center*	-	60.474	56.827	65.854	-	65.854	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides the resources to operate the Army Evaluation Center (AEC), the Army's independent evaluator for Army Futures Command (AFC) Cross Functional Team (CFT) efforts and all other Army and Joint Service programs (currently over 700 programs in total). AEC is the lead agent to plan, direct and evaluate all required program testing and is the unbiased, independent authority for reporting on system progress. AEC is the focal point in test strategy development, system safety verification, and data analyses from early developmental consumer tests through operational tests. AEC develops Critical Operational Issues and Criteria (COIC) in conjunction with AFC to narrow the focus of testing to what is essential. AEC reviews and shapes system requirements to ensure they do not drive unnecessary testing. AEC provides critical independent assessments on the effectiveness, suitability, survivability, and safety to include cybersecurity and electronic warfare (EW); artificial intelligence (AI); safety of materiel solutions; and viability of emerging technologies and engineering change proposals in order to support major acquisition/fielding decisions including but not limited to acquisition milestones, materiel changes, and materiel releases.

AEC is responsible for all assigned developmental and independent operational evaluations of Army materiel, information, and acquisition systems, an inherently governmental mission. This core evaluation mission cannot be reimbursable. AEC must remain independent from the development community. AEC assists the Chief of Staff of the Army decision making process by supporting Army Capabilities Integration Development System (A-CIDS) processes as well as supporting the AFC through the CFT concept. AEC evaluates operational effectiveness by determining if the system provides intended benefits to the Force. AEC assesses, confirms, and releases system safety for use by Soldiers upon fielding and during government sponsored experiments and demonstrations. AEC determines impacts to readiness through Human Systems Integration (HSI), Unit Systems Integration (USI), and Army Systems Integration (ASI), as well as doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy (DOTMLPF-P) impacts. AEC evaluates ballistics survivability and lethality missions, adversarial assessments/ threat computer network operations (TCNO), cooperative vulnerability and penetration assessments (CVPA), and EW (attack, support) countermeasures in support of the National Defense Authorization Act (NDAA) 2016 Section 1647, establishment of Cybersecurity and Electromagnetic Affects (CEMA). AEC manages, plans, and executes Information Assurance (IA) operational assessments during annual Combatant Command and Army Service exercises in support of the congressionally mandated Office of the Secretary of Defense (OSD) Director, Operational Test and Evaluation (DOT&E) assessment, and performs operational test agency (OTA) duties for the Ballistic Missile Defense System (BMDS).

This PE funds direct civilian labor and minimum non-labor requirements to include: Temporary Duty (TDY) travel, personnel training, career development, supplies and equipment, hardware, software, and other external Other Government Agency (OGA) support as well as methodology development required to evaluate emerging technologies and instrumentation requirements.

AEC consists of seven directorates - Aviation-Fires Evaluation Directorate; Ballistic Missile Defense Evaluation Directorate (primarily funded by the Missile Defense Agency (MDA); Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Evaluation Directorate; Mounted Systems Evaluation Directorate; Readiness and Analytics Evaluation Directorate; Soldier Evaluation Directorate; and Survivability Evaluation Directorate - and a lean

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605716A *I Army Evaluation Center*

headquarters element as AEC receives staff services from the Army Test and Evaluation Command (ATEC) Headquarters (HQ). AEC provides direct support to AFC with personnel geographically co-located with eight CFTs - Long Range Precision Fires; Next Generation Combat Vehicle; Future Vertical Lift; Network; Assured Positioning, Navigation, and Timing; Air and Missile Defense; Soldier Lethality; and Synthetic Training Environment - and the Rapid Capabilities-Critical Technology Office and the Artificial Intelligence Task Force.

The AEC primary competencies are: identify what decision makers need to know; plan and direct test and evaluation (T&E) strategies; evaluate operational effectiveness, suitability, survivability, and safety; and provide senior leadership unbiased advice on Army and Joint Service programs.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	60.815	63.141	65.217	-	65.217
Current President's Budget	60.474	56.827	65.854	-	65.854
Total Adjustments	-0.341	-6.314	0.637	-	0.637
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.314			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.341	-			
• Adjustments to Budget Years	-	-	0.637	-	0.637

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605716A / *Army Evaluation Center*				Project (Number/Name) 302 / *Army Evaluation Center*			
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**
302: *Army Evaluation Center*	-	60.474	56.827	65.854	-	65.854	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides the resources to operate the Army Evaluation Center (AEC), the Army's independent evaluator for Army Futures Command (AFC) Cross Functional Team (CFT) efforts and all other Army and Joint Service programs (currently over 700 programs in total). AEC is the lead agent to plan, direct, and evaluate all required program testing and is the unbiased, independent authority for reporting on system progress. AEC is the focal point in test strategy development, system safety verification, and data analyses from early developmental consumer tests through operational tests. AEC develops Critical Operational Issues and Criteria (COIC) in conjunction with AFC to narrow the focus of testing to what is essential. AEC reviews and shapes system requirements to ensure they do not drive unnecessary testing. AEC provides critical independent assessments on the effectiveness, suitability, survivability, and safety to include cybersecurity and electronic warfare (EW); artificial intelligence (AI); safety of materiel solutions; and viability of emerging technologies and engineering change proposals in order to support major acquisition/ fielding decisions including but not limited to acquisition milestones, materiel changes, and materiel releases.

AEC is responsible for all assigned developmental and independent operational evaluations of Army materiel, information, and acquisition systems, an inherently governmental mission. This core evaluation mission cannot be reimbursable. AEC must remain independent from the development community. AEC assists the Chief of Staff of the Army decision making process by supporting Army Capabilities Integration Development System (A-CIDS) processes as well as supporting the AFC through the CFT concept. AEC evaluates operational effectiveness by determining if the system provides intended benefits to the Force. AEC assesses, confirms, and releases system safety for use by Soldiers upon fielding and during government sponsored experiments and demonstrations. AEC determines impacts to readiness through Human Systems Integration (HSI), Unit Systems Integration (USI), and Army Systems Integration (ASI), as well as doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy (DOTMLPF-P) impacts. AEC evaluates ballistics survivability and lethality missions, adversarial assessments/ threat computer network operations (TCNO), cooperative vulnerability and penetration assessments (CVPA), and EW (attack, support) countermeasures in support of the National Defense Authorization Act (NDAA) 2016 Section 1647, establishment of Cybersecurity and Electromagnetic Affects (CEMA). AEC manages, plans, and executes Information Assurance (IA) operational assessments during annual Combatant Command and Army Service exercises in support of the congressionally mandated Office of the Secretary of Defense (OSD) Director, Operational Test and Evaluation (DOT&E) assessment, and performs operational test agency (OTA) duties for the Ballistic Missile Defense System (BMDS).

This Project funds direct civilian labor and minimum non-labor requirements to include: Temporary Duty (TDY) travel, personnel training, career development, supplies and equipment, hardware, software, and other external Other Government Agency (OGA) support as well as methodology development required to evaluate emerging technologies and instrumentation requirements.

AEC consists of seven directorates - Aviation-Fires Evaluation Directorate; Ballistic Missile Defense Evaluation Directorate (primarily funded by the Missile Defense Agency (MDA); Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Evaluation Directorate; Mounted Systems Evaluation Directorate; Readiness and Analytics Evaluation Directorate; Soldier Evaluation Directorate; and Survivability Evaluation Directorate - and a lean headquarters element as AEC receives staff services from the Army Test and Evaluation Command (ATEC) Headquarter (HQ). AEC provides direct support to AFC with

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605716A / *Army Evaluation Center*	**Project (Number/Name)** 302 / *Army Evaluation Center*

personnel geographically co-located with eight CFTs - Long Range Precision Fires; Next Generation Combat Vehicle; Future Vertical Lift; Network; Assured Positioning, Navigation, and Timing; Air and Missile Defense; Soldier Lethality; and Synthetic Training Environment - and the Rapid Capabilities-Critical Technology Office and the Artificial Intelligence Task Force.

The AEC primary competencies are: Identify what decision makers need to know; plan and direct test and evaluation (T&E) strategies; evaluate operational effectiveness, suitability, survivability, and safety; and provide senior leadership unbiased advice on Army and Joint Service programs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Evaluation Center Civilian Pay	55.636	56.702	60.530

Description: AEC provides integrated technical and operational evaluations and continuous evaluation of assigned weapon systems and major automated information systems for major milestone decisions, materiel changes, and materiel releases in support of the Army Acquisition Executive and force development. AEC develops the evaluation strategy, designs technical and operational tests, and evaluates the test results to address the combat effectiveness, suitability, survivability, and safety factors pertinent to the decision process for more than 700 systems/programs across the Army, other Services, and Agencies. AEC prepares integrated System Evaluation Plans and conducts integrated technical and operational evaluations for all assigned systems. In support of Overseas Contingency Operations (OCO) and other real-world events, AEC provides Capability & Limitation Reports and safety verification documents. AEC assists the Chief of Staff of the Army decision making process by supporting the Army Capabilities Integration Development System (A-CIDS) processes.

AEC exercises enterprise authority to prioritize, synchronize, and resource evaluations and assessments in support of Army Modernization and in accordance with AFC priorities. As a principle member of the ATEC Board of Directors (BOD), AEC partners with other ATEC organizations to provide enterprise oversight and decision making and coordinate enterprise initiatives to accelerate and reduce the cost of evaluations and assessments. AEC supports the A-CIDS process by reviewing and shaping COIC that are operationally relevant, total system focused, and that can be evaluated while driving essential T&E. AEC provides direct support to AFC by resourcing coordinators geographically co-located with eight CFTs, the Rapid Capabilities Critical Technology Office (RCCTO), and the AI Task Force. AEC resources eight integrators dedicated to each CFT to lead synchronization efforts across the T&E enterprise. AEC enables rapid capability development by partnering with and dedicating coordination efforts with RCCTO. AEC employs innovative and adaptive T&E processes through applying flexibility given limited resources and shifting priorities while leveraging all credible data sources. AEC develops and deploys enhanced T&E capabilities focusing on modernizing T&E capabilities while refining the investment process. AEC partners with analytic and strategic partner organizations to share resources, gain evaluation and assessment efficiencies, and increase capacity to support AFC. AEC applies new and innovative techniques in data mining, data visualization, and presentation of large data sets; and develops methodologies for the evaluation of artificial intelligence and hypersonic weapons.

FY 2021 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605716A / *Army Evaluation Center*	**Project (Number/Name)** 302 / *Army Evaluation Center*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will continue to support the costs of civilian labor for AEC PBG authorizations. Assist AFC in developing operationally relevant, total system focused COIC that can be evaluated. Develop and apply new techniques in data mining, data visualization and presentation of large data sets. Continue research and development of evaluation metrics for new and emerging technologies such as artificial intelligence, signature management, hypersonics, directed energy, and human cognition. AEC will establish and resource dedicated integration and coordination support for RCCTO will coordination efforts geographically co-located with RCCTO. AEC will establish and resource dedicated coordination support to the AI Task Force to partner with analytic and strategic partner organizations to develop and define strategies and methodologies for test and evaluation of integrated artificial intelligence system competencies and capabilities. AEC will establish and resource professional competency development in cloud computing and data sharing and invest in cloud computing and storage infrastructure. AEC will establish and resource the Sensor to Shooter Cell to dedicate integration and coordination support for Project Convergence events in support of Army Modernization. AEC will provide evaluation and assessment of system safety in support of up to 16 government sponsored experiments and demonstrations.			
FY 2022 Plans: Will continue to support the costs of civilian labor for AEC PBG authorizations. AEC will continue to leverage AFC's Top-Down Futures Development Process (TDFDP) to shape requirements continuously. AEC will continue to develop evaluation metrics in support of Army Modernization priorities for new and emerging technologies such as artificial intelligence, signature management, hypersonics, directed energy, and human cognition. AEC will continue to provide dedicated integration and on-site coordination support for RCCTO and all eight AFC CFTs. AEC will continue to partner with analytic and strategic organizations through participation in the AI Task Force to develop and define strategies and methodologies for test and evaluation of integrated artificial intelligence system competencies and capabilities. AEC will continue to develop personnel competencies in cloud computing and data management and will continue to identify opportunities for and invest in efforts to develop cloud computing and data sharing/storage infrastructure. AEC will continue to resource dedicated integration and coordination for Project Convergence and Army Modernization through the Sensor to Shooter Cell. AEC will continue to provide evaluation and assessment of system safety in support for government sponsored experiments and demonstrations to test and evaluate system integration events. AEC will continue to develop talent and culture changes that support organic Army T&E expertise in the modernized environment. Leverage advanced analytics/data mining for knowledge management and transfer. Continue to support a leadership-driven decision making process through resourcing high priority efforts, identifying T&E efficiencies, and identifying and allocating T&E resources required for modernization. Continue to leverage strategic partnerships. Establish processes to ensure enduring change, develop and maintain policy and tools, and provide governance and oversight.			
FY 2021 to FY 2022 Increase/Decrease Statement: The Army?s directed Acquisition Reform EXORD established AEC?s Direct Support role to AFC and levied additional tasks for AEC such as CFTs, Army Oversight Council, Review and Analysis documents, and Increased Cyber Security. In POM 20-24 civilian authorizations and associated funding was realigned into this account and the funding increase began in FY20. The FY21 Appropriation Conference reduced this account by $6.314M which was more than the increase provided for the additional			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605716A / *Army Evaluation Center*	**Project (Number/Name)** 302 / *Army Evaluation Center*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
24 civilian authorizations. The FY22 funding will support the additional authorizations and tasks as directed by the Acquisition Reform EXORD.			
Title: Army Evaluation Center Operations Support ***Description:*** AEC operational support costs. Contract services include facilities maintenance and repair and custodial support to ensure safety, health and hygiene of the AEC workforce; sustainment services such as grass cutting, snow removal, and security for AEC facilities; software licenses required for scientific and statistical methods in developing rigorous, defensible test plans and evaluating the results; training for the highly technical civilian and military workforce (450 total number); life cycle replacement of IT equipment, printers, VTC equipment, wireless communications; contract support services for IT helpdesk, network, cybersecurity, etc.; and annual consumable supplies. ***FY 2021 Plans:*** Funding will continue to support AEC operational support costs including contract support, software licenses, training, life cycle replacement of equipment. ***FY 2022 Plans:*** Funding will continue to support AEC operational support costs including contract support, software licenses, training, life cycle replacement of equipment. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The Army?s directed Acquisition Reform EXORD established AEC?s Direct Support role to AFC and levied additional tasks for AEC such as CFTs, Army Oversight Council, Review and Analysis documents, and Increased Cyber Security. In POM 20-24 civilian authorizations and associated funding was realigned into this account and the funding increase began in FY20. The FY21 Appropriation Conference reduced this account by $6.314M which was more than the increase provided for the additional 24 civilian authorizations. The FY22 funding will support the additional authorizations and tasks as directed by the Acquisition Reform EXORD.	4.838	0.125	5.324
Accomplishments/Planned Programs Subtotals	60.474	56.827	65.854

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605718A *I Army Modeling & Sim X-Cmd Collaboration & Integ*							
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	-	2.423	2.478	2.633	-	2.633	-	-	-	-	-	-
S03: *Analysis M&S Tools and Services*	-	2.423	2.478	2.633	-	2.633	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) promotes the Army's Modeling and Simulation (M&S) strategy, defined by five guiding priorities: (1) formulate Army M&S policies; (2) develop and employ management processes for models, simulations and data; (3) develop M&S standards, architectures, networks and environments; (4) develop/ employ new M&S tools and simulation technology; (5) develop an M&S workforce. Specifically, this PE focuses on priorities 3 and 4.

M&S Standards, Architectures, Networks and Environments: The consistent use of standards, architectures, networks and environments advances the goal of interoperability. The Army coordinates with Joint, Interagency, Intergovernmental, and Multinational (JIIM) partners along with industry and academia to develop/employ standards that promote collaboration and facilitate the sharing of tools, data and information. The Army oversees procedures and processes for the appropriate use of standards to foster common formats and increase M&S and data reuse. The Army ensures these standards, architectures, networks and environments are readily accessible and can be reliably applied by users.

M&S Tools and Simulation Technology: The Army must have credible M&S tools and data to support the full range of Army organizational missions and functional responsibilities. M&S results that are timely and credible enhance decision making. The Army must develop and accredit reliable M&S tools so that decision makers and senior leaders benefit from the results and thus support the continued development, integration and use of such tools. To ensure credibility and reliability of results, M&S managers, developers and users must make the capabilities, constraints, limitations and assumptions of their M&S tools readily accessible. PE 0605718A provides for the development and employment of tools in the form of models, simulations and data that support the full range of Army interests and deliver timely information to enhance effective decision making. Moreover, these tools can be documented, verified, validated and accredited for their intended purpose in order to provide timely, credible results.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605718A *I Army Modeling & Sim X-Cmd Collaboration & Integ*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	2.527	2.572	2.665	-	2.665
Current President's Budget	2.423	2.478	2.633	-	2.633
Total Adjustments	-0.104	-0.094	-0.032	-	-0.032
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.104	-0.094			
• Adjustments to Budget Years	-	-	-0.032	-	-0.032

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605718A / *Army Modeling & Sim X-Cmd Collaboration & Integ*	Project (Number/Name) S03 / *Analysis M&S Tools and Services*	

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
S03: *Analysis M&S Tools and Services*	-	2.423	2.478	2.633	-	2.633	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project has two functions:

Function 1 (Priority 3 of the "Army Modeling and Simulation (M&S) Strategy") -- Develop M&S standards, architectures, networks and environments that promote sharing, interoperability, access, and reliable application of tools, formats, data and information among/for users.

Function 2 (priority 4 of the "Army M&S Strategy") -- Develop and improve tools and technology in the form of models, simulations and data that support the full range of Army interests and deliver timely information to enhance effective decision making. These tools can be documented, verified, validated and accredited for their intended purpose.

Resources under Project S03 support the M&S communities (Acquisition, Analysis, Experimentation, Test & Evaluation, Training, Intelligence) at the enterprise level through enabling efforts. These efforts include the following: (a) design models, simulations, data and tools that are resident within one organization but reusable and trusted by M&S users and specialists across the Army M&S enterprise; (b) leverage industry and academia; (c) promote interoperability within M&S and between M&S and operational capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Develop M&S standards, architectures, networks and environments	0.770	0.826	0.869
Description: Develop M&S standards, architectures, networks and environments that promote sharing, interoperability, access, and reliable application of tools, formats, data and information among/for users. ***FY 2021 Plans:*** Fiscal Year (FY) 2021 funds are distributed among activities that promote the Army M&S Strategy: develop M&S standards, architectures, networks and environments. Specific FY 2021 plans include: a.) development and access to cyber/electronic warfare simulated environments, b.) development of an enhanced fires training and testing environment, c.) development of an Operational Environment (OE) signal architecture, d.) enhancement and access to a network modeling architecture that bridges multiple modeling and simulation environments. FY 2021 M&S standards, architectures, networks and environment plans will be developed to maximize reuse across the Army M&S-enabled communities. ***FY 2022 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605718A / *Army Modeling & Sim X-Cmd Collaboration & Integ*	**Project (Number/Name)** S03 / *Analysis M&S Tools and Services*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY22 funds will be distributed among activities that promote the third priority of the Army M&S Strategy: develop M&S standards, architectures, networks and environments. Specific FY22 plans include: a.) development and access to cyber/electronic warfare simulated environments, b.) development of an enhanced fires training and testing environment, c.) development of an OE signal architecture, d.) enhancement and access to a network modeling architecture that bridges multiple modeling and simulation environments. FY22 M&S standards, architectures, networks and environment plans will be developed to maximize reuse across the Army M&S-enabled communities. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Inflation adjustment.			
Title: Develop M&S tools and technology ***Description:*** Develop and improve tools and technology in the form of models, simulations and data that support the full range of Army interests and deliver timely information to enhance effective decision making. These tools can be documented, verified and validated for their intended purpose. ***FY 2021 Plans:*** Fiscal Year (FY) 2021 funds are distributed among activities that promote the priorities of the Army M&S Strategy: develop M&S tools and technology. Specific FY 2021 plans include: a.) development of an Army Fires Community Army Effectiveness Model (AEM); b.) development of network modeling scenarios and models for the test/evaluation and analysis network communities; c.) update and enhancement of intelligence models for existing simulations and Mission Command Information Systems (MCIS). FY 2021 M&S tools and technology plans are being developed to maximize reuse across the five Army M&S-enabled communities. ***FY 2022 Plans:*** FY22 funds will be distributed among activities that promote the fourth priority of the Army M&S Strategy: develop M&S tools and technology. Specific FY22 plans include: a.) development of an Army Fires Community AEM; b.) development of network modeling scenarios and models for the test/evaluation and analysis network communities; c.) update and enhance intelligence models for existing simulations and Mission Command Information Systems (MCISs). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Inflation adjustment.	1.653	1.652	1.764
Accomplishments/Planned Programs Subtotals	2.423	2.478	2.633

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605718A / *Army Modeling & Sim X-Cmd Collaboration & Integ*	**Project (Number/Name)** S03 / *Analysis M&S Tools and Services*

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605801A *I Programwide Activities*							
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	-	56.800	84.510	96.589	-	96.589	-	-	-	-	-	-
EU9: *Army Science Board*	-	2.158	2.166	2.220	-	2.220	-	-	-	-	-	-
M02: *Med Cmd Spt (Non-AMHA)*	-	23.931	20.431	23.406	-	23.406	-	-	-	-	-	-
M15: *ARI Mgmt/ADM Act*	-	1.486	1.584	5.769	-	5.769	-	-	-	-	-	-
M16: *Standardization Groups*	-	4.214	4.264	4.219	-	4.219	-	-	-	-	-	-
M23: *US Army Corps of Engineers Base Operations*	-	-	31.525	35.308	-	35.308	-	-	-	-	-	-
M42: *ARDEC Cmd/Ctr Support*	-	7.114	7.270	7.379	-	7.379	-	-	-	-	-	-
M44: *CECOM Cmd/Ctr Spt*	-	3.662	3.902	3.933	-	3.933	-	-	-	-	-	-
M46: *AMCOM Cmd/Ctr Spt*	-	3.448	3.432	3.490	-	3.490	-	-	-	-	-	-
M47: *TACOM Cmd/Ctr Spt*	-	3.480	2.954	3.759	-	3.759	-	-	-	-	-	-
M55: *Edgewood Chemical Biological Center*	-	2.958	2.611	2.664	-	2.664	-	-	-	-	-	-
M58: *SECOM CMD/CTR Spt*	-	2.253	2.232	2.250	-	2.250	-	-	-	-	-	-
M76: *Armament Group Support*	-	2.096	2.139	2.192	-	2.192	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) supports the non-Army Management Headquarters Activity (non-AMHA) Research, Development, Test, and Evaluation (RDTE) functions incident to the local operation and management of United States (U.S.) Army Combat Capabilities Development Command (CCDC) Centers, not identifiable with specific research and development projects. This PE also supports the management and operation of multiple, globally-located CCDC International Technology Centers (ITCs). The ITCs play an integral role in the U.S. Army efforts for international cooperative research, development and interoperability, and fulfill international memoranda of understanding requirements.

Programwide activities also include: Army Science Board studies; non-AMHA Medical Command support at the U.S. Army Medical Research and Development Command (USAMRDC); non-AMHA management and administrative functions at the U.S. Army Research Institute (ARI); and travel and administrative support to the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG).

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	58.175	87.472	91.558	-	91.558
Current President's Budget	56.800	84.510	96.589	-	96.589
Total Adjustments	-1.375	-2.962	5.031	-	5.031
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.375	-1.462			
• Adjustments to Budget Years	-	-	5.031	-	5.031

Change Summary Explanation

In Fiscal Year 2022, funding was increased to further align with the Congressional intent to fund the Headquarters of the US Army Medical Research and Development Command operational and administrative costs in a more sustainable and transparent fashion. These functions are related to Project M02 (Medical Command Support (non-Army Management Headquarters Account)).

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) EU9 / *Army Science Board*	

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
EU9: *Army Science Board*	-	2.158	2.166	2.220	-	2.220	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Army Science Board (ASB) is a federal advisory committee, organized under the Federal Advisory Committee Act (FACA) and the Government in the Sunshine Act, which provides the Secretary of the Army and Secretary of Defense with independent and transparent advice and recommendations on matters relating to scientific, technical, manufacturing, acquisition, logistics, and business management functions. The ASB dates to November 1951 when the Secretary of the Army, Honorable Frank Pace Jr., appointed twelve outstanding scientists and industrialists to a scientific advisory panel to assist him and the Army's leadership in creating an effective, economical, and progressive fighting force using existing technology and industrial resources. Three years later, this panel was expanded and officially designated the Army Scientific Advisory Panel (ASAP), with its first formal meeting held on November 16, 1954. In 1977, with the passage of FACA, the ASB was created to replace the ASAP.

The ASB provides the Army with a resource of world-class scientists, engineers, technologists and operational experts as well as business, policy and managerial specialists from the private sector, academia, non-Department of Defense (DoD) government agencies and former senior military officers. Its members volunteer their expertise and time to address those critical national security challenges for which the Army's leadership seeks independent and unbiased technical advice. The ASB focuses on issues of importance to large segments of the Army, and its products are delivered in a candid and timely manner.

The Board is composed of 20 voting and 20 non-voting members, each serving three-year terms, and consultants who serve one-year terms. Membership is carefully monitored to ensure that diverse disciplines and points of view are represented. The Secretary of the Army appoints the Chair and Vice Chair from the ASB membership. The ASB Chair also serves as a non-voting observer to the Defense Science Board. ASB membership is augmented by consultants who are appointed to provide specialized expertise for ASB studies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Science Board	2.158	2.166	2.220
Description: The ASB Charter sets the estimated number of Board meetings at four per year. Board members serve without compensation, with the exception of reimbursement for official Board-related travel and per diem. Funds are therefore required to facilitate Board activities and related subcommittee activities. The ASB Charter states that annual requirements will typically entail a personnel cost of seven Full-Time Equivalents. Currently, the Secretary of the Army has approved four permanent subcommittees to the Board: 1) The Army Science Board Basic Science and Disruptive Technologies Subcommittee is composed of not more than 15 members and addresses issues relating to the Army's basic research and disruptive technologies, including Soldier performance			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** EU9 / *Army Science Board*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
enhancement, cognition improvement, and training; autonomous systems and human-machine teaming; Chemical, Biological, Radiological, Nuclear and high-yield Explosives (CBRNE); and counter Weapons of Mass Destruction. 2) The Army Science Board Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Subcommittee is composed of not more than 15 members and addresses issues relating to the Army's C41SR core competency, including the tactical edge Command, Control, and Communications (C3), situational awareness overmatch, and electronic warfare. 3) The Army Science Board Systems Engineering, Integration, and Sustainment Subcommittee is composed of not more than 15 members and addresses relating to the Army's core competency in systems engineering and integration; advanced prototyping and experimentation in operational environments; and sustainment, including engineered resilient systems, agile logistics and health management. These competencies are essential to the performance of the entire acquisition community. 4) the Army Science Board Weapon Systems Subcommittee is composed of not more than 15 members and addresses issues relating to the Army's weapon systems core competency in: Rotorcraft Design Synthesis & Performance Assessment (DS&PA) and airworthiness/safety; ground combat vehicle DS&PA, Soldier interaction, and system integration; lethality, including impact physics, energetics, warhead DS&PA, effects modeling and simulation; survivability and protection, including armor and balanced approach for detection/hit/kill avoidance; and air and missile defense DS&PA, precision fires, seekers, and precision guidance. ***FY 2021 Plans:*** Conduct four to six studies on behalf of the Secretary of the Army; likely in areas of Basic Science and Disruptive Technology; Weapons Systems; C4ISR; and Systems Engineering, Integrations, and Sustainment or other concerns related to the future of the force. ***FY 2022 Plans:*** Conduct four to six studies on behalf of the Secretary of the Army; likely in areas of Basic Science and Disruptive Technology; Weapons Systems; C4ISR; and Systems Engineering, Integrations, and Sustainment or other concerns related to the future of the force. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Differences in FYs 21 and 22 are a function of inflation and NET after annual Joint adjustments			
Accomplishments/Planned Programs Subtotals	2.158	2.166	2.220

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** EU9 / *Army Science Board*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M02 / *Med Cmd Spt (Non-AMHA)*	

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
M02: *Med Cmd Spt (Non-AMHA)*	-	23.931	20.431	23.406	-	23.406	-	-	-	-	-	-
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 (U.S.) 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 U.S. 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	23.931	20.431	23.406
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 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.			
FY 2021 Plans: Funds authorized civilian salaries and associated expenses (supplies, equipment, travel, etc.) at USAMRDC and USAMRAA. Also provides regulatory, clinical monitoring and data support for the Special Immunization Program (SIP). This program provides non-licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases.			
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 SIP as necessary. This program will provide non licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M02 / *Med Cmd Spt (Non-AMHA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Funding increase to further align with Congressional intent to fund HQ USAMRDC operational and administrative costs in a more sustainable and transparent fashion.			
Accomplishments/Planned Programs Subtotals	23.931	20.431	23.406

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*				Project (Number/Name) M15 / *ARI Mgmt/ADM Act*			
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**
M15: *ARI Mgmt/ADM Act*	-	1.486	1.584	5.769	-	5.769	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States (U.S.) Army Research Institute for the Behavioral and Social Sciences (ARI) is the only Science and Technology (S&T) laboratory that conducts research to enhance the Soldier lifecycle (e.g., selection, assignment, training, leader development) and human relations (e.g., culture of dignity, respect, and inclusion). This Project supports the non-Army Management Headquarters Activity (non-AMHA) management and administrative functions to enable ARI to accomplish its research mission and includes activities such as budget execution, procurement oversight, Research, Development, Test, and Evaluation (RDTE) program planning and evaluation, management control, security/safety, logistics, information technology, and personnel/manpower execution and oversight. ARI's behavioral and social science research provides effective non-materiel solutions to help the Army adjust to changes in force size and structure, a variety of mission demands and contexts, challenges in human relations, and budgetary constraints.

The cited work is consistent with the Assistant Secretary of Defense (Research and Engineering) priority focus areas, the Army Vision, the Army's Talent Management Strategy, and the Army Modernization Strategy.

Work is performed by ARI at Fort Belvoir, VA.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: ARI Management/Administrative Actions	1.486	1.584	5.769
Description: Supports the non-AMHA management and administrative functions. This project provides enduring management and support functions for the execution of ARI?s science and technology activities.			
FY 2021 Plans: Providing operation of management, administrative, personnel, budget, and support functions at a level consistent with Army and mission requirements to meet the needs of ARI as an Army Science and Technology Reinvention Laboratory (STRL), to include emphasis on the hardware and software requirement to build and sustain data analytic capabilities throughout the laboratory.			
FY 2022 Plans: Will provide operation of management, administrative, personnel, budget, and support functions at a level consistent with Army and mission requirements to meet the needs of ARI as an STRL, to include emphasis on the hardware and software requirement to build and sustain data analytic capabilities throughout the laboratory.			
FY 2021 to FY 2022 Increase/Decrease Statement: In FY19, APE 665898XW7 funded 25 personnel authorizations to provide critical management and research support activities for the US Army Research Institute for the Behavioral and Social Sciences (ARI). Effective 1 OCT 20, these 25 authorizations			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M15 / *ARI Mgmt/ADM Act*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
transfer to 665801M15 (23) and to 622785790 (2) on ARI's TDA. On 1 OCT 20, 665801M15 will fund both critical personnel and other mission essential requirements (e.g., network operations support, utilities).			
Accomplishments/Planned Programs Subtotals	1.486	1.584	5.769

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*				Project (Number/Name) M16 / *Standardization Groups*			
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**
M16: *Standardization Groups*	-	4.214	4.264	4.219	-	4.219	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports nine International Technology Centers (ITCs) (formerly known as Standardization Groups) in North America, South America, Asia, and Europe for personnel, travel and overhead costs, leases on buildings, and mandatory permanent change of station.

The mission of the ITCs is to support the United States (U.S.) Army Rationalization, Standardization and Interoperability (RSI) mission around the globe as specified in Army Regulation (AR) 34-1 "Interoperability" and AR 70-41 "Armaments Cooperation". ITCs represent the U.S. Army in their geographic areas of responsibility (AOR) with foreign ministries of defense on International Cooperative Research, Development, and Acquisition (ICRDA) programs. ITCs also facilitate U.S. Army interaction in their geographic AOR with foreign non-governmental entities, such as foreign private industry and academia.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: International Technology Centers Management	4.214	4.264	4.219
Description: This activity funds the U.S. RSI mission conducted by the nine ITCs around the globe. These funds support the infrastructure, personnel and travel requirements to support the mission.			
FY 2021 Plans: Promote interoperability by representing the U.S. Army's interests in engagements with foreign ministries of defense on International Cooperative RDA programs that address, harmonize and advance technology development, and materiel interoperability. Facilitate U.S. Army interaction with foreign non-government entities, such as foreign private industry and academia. Supervise the International Technology Centers to promote interoperability by assisting in establishing international agreements that address, harmonize, and advance technology development, materiel interoperability, logistics, concepts, doctrine, organization, and training in multinational operations.			
FY 2022 Plans: Will continue to promote interoperability by representing the U.S. Army's interests in engagements with foreign ministries of defense on ICRDA programs that address, harmonize and advance technology development, and materiel interoperability. Will facilitate U.S. Army interaction with foreign non-government entities, such as foreign private industry and academia. Will continue to supervise the ITCs to promote interoperability by assisting in establishing international agreements that address, harmonize, and advance technology development, materiel interoperability, logistics, concepts, doctrine, organization, and training in multinational operations.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M16 / *Standardization Groups*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Decrease reflects adjustment for inflation and decrement in support of higher Army priorities.			
Accomplishments/Planned Programs Subtotals	4.214	4.264	4.219

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M23 / *US Army Corps of Engineers Base Operations*	

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
M23: *US Army Corps of Engineers Base Operations*	-	-	31.525	35.308	-	35.308	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for authorized civilian workforce performing engineer research, development, management and oversight that support the engineer Research, Development, Test, and Evaluation (RDTE) programs at the United States (U.S.) Engineer Research and Development Center (ERDC). This Project supports the non-Army Management Headquarters Activity (non-AMHA) management and administrative functions to enable ERDC to accomplish its research mission and includes activities such as procurement oversight, RDTE programming and budget execution, management control and oversight, security/safety, information management and technology, personnel/manpower execution and oversight, research laboratory/facility management and maintenance, and High Performance Computing Modernization Program (HPCMP) facility operations and management

ERDC research in civil and military engineering, blast and weapons effects, battlespace terrain mapping and characterization, computational prototyping of military platforms, and cold regions science and engineering provides effective non-materiel and materiel solutions to enable the Army to achieve its modernization priorities of Air and Missile Defense, Next Generation Combat Vehicle, Future Vertical Lift, Network, Long Range Precision Fires, and Soldier Lethality.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: ERDC Management and Administrative Actions and Other Operational Requirements	-	31.525	35.308
Description: Supports the non-AMHA management and administrative functions as follows.			
FY 2021 Plans: Will provide operation of management, administrative, personnel, budget, and support functions at a level consistent with Army and mission requirements to meet the needs of ERDC conducting the Army's engineer research and development (R&D) program supporting all six of the Army?s Modernization Priorities..			
FY 2022 Plans: Provide operation of management, administrative, personnel, budget, logistics and support functions at a level consistent with Army and mission requirements to meet the needs of ERDC conducting the Army's engineer R&D program supporting all six of the Army's Modernization Priorities. Will transition U.S. Army Corps of Engineers (USACE) Logistics Activity (ULA) mission requirements supporting supply logistics and transportation services from OMA to RDTE.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M23 / *US Army Corps of Engineers Base Operations*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Funding increase from FY21 to FY22 is due to ULA mission requirements transitioning from OMA to RDTE.			
Accomplishments/Planned Programs Subtotals	-	31.525	35.308

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*				Project (Number/Name) M42 / *ARDEC Cmd/Ctr Support*			
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**
M42: *ARDEC Cmd/Ctr Support*	-	7.114	7.270	7.379	-	7.379	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the non-Army Management Headquarters Activity (non-AMHA) functions incident to the local operation and management of the United States (U.S.) Army Combat Capabilities Development Command (CCDC) Armaments Center (AC), Picatinny Arsenal, NJ, not identifiable with specific research and development Projects financed under other Program Elements.

Funds only select, critical, overarching functions that enable the CCDC AC to accomplish its research, development and engineering mission, to include CCDC AC headquarters staff, safety, physical security, anti-terrorism, operations security (OPSEC), information security and intelligence services.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management Support	7.114	7.270	7.379
Description: CCDC Armaments Center (AC) management / administrative efforts. ***FY 2021 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC AC. ***FY 2022 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC AC. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Accomplishments/Planned Programs Subtotals	7.114	7.270	7.379

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M44 / *CECOM Cmd/Ctr Spt*	

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
M44: *CECOM Cmd/Ctr Spt*	-	3.662	3.902	3.933	-	3.933	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Supports the non-Army Management Headquarters Activity (non-AMHA) functions incident to the local operation and management of the United States (U.S.) Army Combat Capabilities Development Command (CCDC) Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Center, located at Aberdeen Proving Ground, MD. These efforts are not identifiable with specific research and development projects financed under other program elements.

Funds only select, critical, overarching functions that enable CCDC C5ISR to accomplish its research, development and engineering mission, to include CCDC C5ISR headquarters staff, resource management, human resources, safety, security, protocol, public affairs, information management, facility management and audit readiness.

This is a test

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management Support	3.662	3.902	3.933
Description: CCDC Command, Control, Communications, Computers, Cyber Intelligence, Surveillance and Reconnaissance (C5ISR) Center management and administrative efforts. ***FY 2021 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC C5ISR Center. ***FY 2022 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC C5ISR Center. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Accomplishments/Planned Programs Subtotals	3.662	3.902	3.933

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M44 / *CECOM Cmd/Ctr Spt*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M46 / *AMCOM Cmd/Ctr Spt*	

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
M46: *AMCOM Cmd/Ctr Spt*	-	3.448	3.432	3.490	-	3.490	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the non-Army Management Headquarters Activity (non-AMHA) functions incident to the local operation and management of the United States (U.S.) Army Combat Capabilities Development Command (CCDC) Aviation and Missile Center (AvMC), Redstone Arsenal, AL. Such functions are not identifiable with specific research and development Projects financed under other Program Elements.

Funds only select, critical, overarching functions in support of CCDC AvMC accomplishing its research, development and engineering mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management Support	3.448	3.432	3.490
Description: CCDC Aviation and Missile Center (AvMC) management and administrative efforts. ***FY 2021 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC AvMC. ***FY 2022 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC AvMC. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Accomplishments/Planned Programs Subtotals	3.448	3.432	3.490

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M47 / *TACOM Cmd/Ctr Spt*	

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
M47: *TACOM Cmd/Ctr Spt*	-	3.480	2.954	3.759	-	3.759	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the non-Army Management Headquarters Activity (non-AMHA) functions incident to the local operation and management of the United States Army Combat Capabilities Development Command (CCDC) Ground Vehicle Systems Center (GVSC), Warren, MI, not identifiable with specific research and development Projects financed under other Program Elements.

Funds only select, critical, overarching management functions that enable CCDC GVSC to accomplish its research, development and engineering mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management Support	3.480	2.954	3.759
Description: CCDC Ground Vehicle Systems Center (GVSC) management and administrative efforts. ***FY 2021 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC GVSC. ***FY 2022 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at CCDC GVSC. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Accomplishments/Planned Programs Subtotals	3.480	2.954	3.759

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M55 / *Edgewood Chemical Biological Center*	

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
M55: *Edgewood Chemical Biological Center*	-	2.958	2.611	2.664	-	2.664	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the non-Army Management Headquarters Activity (non-AMHA) functions incident to the local operation and management of the United States Army Combat Capabilities Development Command (CCDC) Chemical Biological Center (CBC), Aberdeen Proving Ground, MD, not identifiable with specific research and development Projects financed under other Program Elements.

Funds only select, critical, overarching functions that enable CCDC CBC to accomplish its mission to include CCDC CBC headquarter staff, resource management, safety, and surety programs. In addition, this program includes the management and oversight of Army chemical surety operations as directed by Department of Defense (DoD) Instruction 5210.65, "Minimum Security Standards for Safeguarding Chemical Agents".

This is a test.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management Support	2.958	2.611	2.664
Description: CCDC Chemical Biological Center (CBC) management and administrative efforts. ***FY 2021 Plans:*** Provide continued management and administrative functions at a level consistent with mission requirements and support needs at CCDC CBC. ***FY 2022 Plans:*** Will provide continued management and administrative functions at a level consistent with mission requirements and support needs at CCDC CBC. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic adjustment.			
Accomplishments/Planned Programs Subtotals	2.958	2.611	2.664

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M55 / *Edgewood Chemical Biological Center*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*				Project (Number/Name) M58 / *SECOM CMD/CTR Spt*			
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**
M58: *SECOM CMD/CTR Spt*	-	2.253	2.232	2.250	-	2.250	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the non-Army Management Headquarters Activity (non-AMHA) functions incident to the local operation and management of the United States Army Combat Capabilities Development Command (CCDC) Soldier Center (SC), Natick, MA, not identifiable with specific research and development Projects financed under other Program Elements.

Funds only select, critical, overarching functions that enable CCDC SC to accomplish its research, development and engineering mission, to include: Manpower/ Personnel, Intelligence/Security, Operations, Logistics, Training, Resource Management and Headquarters administrative staff.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management Support	2.253	2.232	2.250
Description: CCDC Soldier Center (SC) management and administrative functions. ***FY 2021 Plans:*** Provide continued management and administrative functions at a level consistent with mission requirements and support needs at CCDC SC. ***FY 2022 Plans:*** Will provide continued management and administrative functions at a level consistent with mission requirements and support needs at CCDC SC. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment			
Accomplishments/Planned Programs Subtotals	2.253	2.232	2.250

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605801A / *Programwide Activities*	Project (Number/Name) M76 / *Armament Group Support*	

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
M76: *Armament Group Support*	-	2.096	2.139	2.192	-	2.192	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goal of this Project is to expand worldwide allied standardization and interoperability through cooperative research and development (R&D) and technology sharing per Secretary of Defense guidance and especially in support of the United States (U.S.) Army. This Project partially funds the travel costs and administrative support (studies, analysis, interpretation, equipment, etc.) required to participate in international forums, such as the North Atlantic Treaty Organization (NATO) Army Armaments Group (NAAG), Defense Against Terrorism (DAT) and to pursue new cooperative R&D initiatives and international cooperative agreements such as memoranda of understanding. This Project also includes the United States' share of costs of the NATO Civil Budget, Chapter IX, which funds the NATO Industrial Advisory Group (NIAG) and the Special Fund for Cooperative Planning (U.S. Army is Executive Agent for this NATO bill). This Project also partially funds the Five Power Senior National Representatives, Army (SNR (A)), the Technical Cooperative Program, Bilateral SNR(A)s, and Army armaments working groups with many nations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army Scientific Support NATO Army Armaments Group ***Description:*** Funds supported Army subject matter experts to attend scientific and technological exchange, meetings, demonstrations, and/or simulations having military application and mutual benefits to the U.S. and its Allies. ***FY 2021 Plans:*** Funds support Army Subject Matter Experts (SMEs) to attend scientific and technological exchange, meetings demonstrations, and/or simulations having military application and mutual benefits to the United States and its Allies and will fund 8 different working/capability groups that will meet twice a year. ***FY 2022 Plans:*** Funds support Army SMEs to attend scientific and technological exchange, meetings demonstrations, and/or simulations having military application and mutual benefits to the United States and its Allies and will fund 8 different working/capability groups that will meet twice a year. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic Adjustment	0.215	0.318	0.433
Title: Executive Agent ***Description:*** Funds the U.S. share of the Mandatory NATO Civil Budget, Chapter IX (Defense Support Programs). U.S. Army is Executive Agent for this Mandatory NATO bill. ***FY 2021 Plans:***	1.881	1.821	1.759

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M76 / *Armament Group Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Funds support the United States share of the NATO Civil Budget, Chapter IX (Defense Support Program). U.S. Army is the Executive Agent for this mandatory NATO Bill. ***FY 2022 Plans:*** Funds support the United States share of the NATO Civil Budget, Chapter IX (Defense Support Program). U.S. Army is the Executive Agent for this mandatory NATO Bill. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** US Dollars currency exchange rate is stronger than Euros.			
Accomplishments/Planned Programs Subtotals	2.096	2.139	2.192

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*							
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	-	30.434	25.487	26.808	-	26.808	-	-	-	-	-	-
727: *Tech Info Activities*	-	11.464	10.761	11.582	-	11.582	-	-	-	-	-	-
731: *Army High Performance Computing Centers*	-	1.913	2.007	2.075	-	2.075	-	-	-	-	-	-
733: *Acquisition Tech Act*	-	8.894	4.624	4.808	-	4.808	-	-	-	-	-	-
CC2: *Expeditionary Technologies*	-	-	4.817	4.938	-	4.938	-	-	-	-	-	-
DW3: *Army Geospatial Enterprise Implementation*	-	8.163	3.278	3.405	-	3.405	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) supports upgrading the accuracy, timeliness, availability, and accessibility of scientific, technical, and management information at all levels of the Army Research and Development (R&D) community. Management of this information is critical to achieve the goals established by the Army's Senior Leadership. Use of accurate and timely technical information is essential to successfully meeting the milestones required on the path to the future force, allowing Army Science and Technology (S&T) leadership to refine investment strategy and quickly react to emerging opportunities and issues. This PE includes initiatives to improve information derivation, storage, access, display, validation, transmission, distribution, and interpretation, along with initiatives to develop and enhance a single business model for Army S&T knowledge management information technology and to provide for Independent Review Team analysis of technology maturity as part of the Technology Readiness Assessment. Develops and publishes Army S&T strategy and policies, sets Army S&T priorities, establishes and tracks S&T metrics to determine earned value and return on investment, and performs S&T studies in support of the ASA(ALT) in Project 727. Project 731 provides funding for support for Army high performance computing centers. Project 733 provides funding for improvements to the Army's acquisition process. Project CC2 provides funding for Expeditionary Technologies (X-Tech Search) to evaluate the feasibility and potential application of disruptive technologies to Army capability gaps. Project DW3 supports Army Geospatial Enterprise (AGE) Implementation with systems engineering, architecture, and test and certification of Army Acquisition Systems.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering Science and Technology Modernization Priorities and the Army Modernization Strategy.

Work in this PE is performed by the Army Corps of Engineers' Engineer Research and Development Center (ERDC), Vicksburg, MS; the Army Geospatial Center (AGC) in Alexandria, VA; the Information Management Office, Arlington, VA; the Office of the Assistant Secretary of the Army, Acquisition, Logistics and Technology (ASA(ALT)), The Pentagon, Arlington, VA; Army Futures Command (AFC) Combat Capabilities Development Command (CCDC) Army Research Laboratory (ARL), Aberdeen Proving Ground, MD; and AFC CCDC Ground Vehicle Systems Center, Warren, MI.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	30.060	26.244	22.032	-	22.032
Current President's Budget	30.434	25.487	26.808	-	26.808
Total Adjustments	0.374	-0.757	4.776	-	4.776
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.274	-			
• SBIR/STTR Transfer	-0.900	-0.757			
• Adjustments to Budget Years	-	-	4.776	-	4.776

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: DW3: *Army Geospatial Enterprise Implementation*		
Congressional Add: *Program Increase*	5.000	-
Congressional Add Subtotals for Project: DW3	5.000	-
Congressional Add Totals for all Projects	5.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) 727 / *Tech Info Activities*	

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
727: *Tech Info Activities*	-	11.464	10.761	11.582	-	11.582	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the governance, strategy development and oversight of science, research, and technology investments within the Department of the Army. These efforts include developing strategic direction, policy development, supervision and management of the Army's S&T portfolio including resource allocation. This project includes civilian manpower and contractor support required to implement a set of management decision aids and tools to support technical and budgetary decisions at the Department of the Army (DA). Includes the research and development planning, programming and execution for the Army Applied SBIR program, the Army Manufacturing Technology program, Technology Maturation Initiatives program, Technology Transition policy, and Laboratory Management policy. Covers the development and tracking of S&T metrics across the enterprise and supports development if Army plans, programs and policies for OSD and Congress. Most of the efforts in this project are on-going activities to support Army Research, Development, and Acquisition programs. Effective exploitation of Science and Technology (S&T) information is critical to achieving the goals established by Senior Army Leadership for the future force. Funding in this program supports Independent Review Team analysis of technology maturity as part of Technology Maturation Initiative and Technology Area Readiness Assessments.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering Science and Technology Modernization Priorities and the Army Modernization Strategy.

Work in this Project is performed by the Office of the Assistant Secretary of the Army, Acquisition, Logistics and Technology (ASA(ALT)), The Pentagon, Washington, DC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Conduct and support S&T program portfolio assessments and analysis.	2.725	4.100	4.585
Description: Supports identification, development and demonstration of technology options that inform and enable effective and affordable capabilities for the Soldier Providing Soldiers with the technology to win. Support Air, C3I, Ground Maneuver, Soldier, Basic Research and Fires Portfolio Directors, responding to scientific, technical and programmatic challenges. Support Independent Review Team analysis of technology maturity as part of Technology Area Readiness Assessments. Serve as Office of the Deputy Assistant Secretary of the Army, Research and Technology (DASA(R&T)) central point of contact for S&T Metrics, Strategic Portfolio Analysis Review, evaluate technical risks, assess earned value and technical and financial health of S&T projects.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 727 / *Tech Info Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Track, manage and provide programmatic support for applied research and advanced technology development efforts across the Army modernization priorities; act as the S&T SMEs to provide Portfolio leads what is forecasted for critical science and technology 'outputs' to align with Programs of Record; ensure tight alignment and coupling to existing PoRs and identify where misalignment between Portfolio technology projections/timelines and/or emerging technology options are not yet reflected at the PoR level. Perform cross portfolio coordination and assessment; and evaluate and assess cost, schedule and technical progress against metrics to determine project health. Assess progress of S&T projects, support Cross-functional team deep dives, evaluate technical risks and assess earned value for S&T projects. Identify technology for effective and affordable capabilities in all the S&T portfolios: Basic Research; Medical; Soldier; Command, Control, Communications, Computers and Intelligence (C3I); Air; Lethality; and Ground Maneuver. Conduct studies of merging topics based on Army S&T strategy and senior leader initiatives through the Board on Army Research and Development (BOARD) and the National Academies. ***FY 2022 Plans:*** Continue to supervise, manage and provide programmatic support for applied research and advanced technology development efforts across the Army modernization priorities; act as the S&T SMEs to provide Portfolio leads what is forecasted for critical science and technology 'outputs' to align with Programs of Record; will ensure tight alignment and coupling to existing PoRs and will identify where misalignment between Portfolio technology projections/timelines and/or emerging technology options are not yet reflected at the PoR level. Will perform cross portfolio coordination and assessment; and evaluate and assess cost, schedule and technical progress against metrics to determine project health. Will assess progress of S&T projects, support Cross-functional team deep dives, evaluate technical risks and assess earned value for S&T projects. Will identify technology for effective and affordable capabilities in all the S&T portfolios: Basic Research; Medical; Soldier; Command, Control, Communications, Computers and Intelligence (C3I); Air; Fires; and Ground Maneuver. Will conduct studies of emerging topics based on Army S&T strategy and senior leader initiatives through the Board on Army Research and Development (BOARD) and the National Academies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Change is due to civilian pay increases and program requirement adjustments.			
Title: Support Army S&T strategic planning, analysis, and prioritization. ***Description:*** Coordinates efforts with and across the Army S&T portfolios; manage proposal nomination and selection process; track and provide oversight of ongoing efforts; recommend resolutions/prioritization in the event of conflicting requirements and/or resource constraints; support the full spectrum of Planning, Programming and Budget Execution (PPBE) as it relates to the Army S&T Program. Provide senior level technical and analytical support for the Joint Capability Technology Demonstration (JCTD) program and Technology Maturation Initiative (TMI) by assisting with investment analysis, strategies and oversight. Provide financial management recommendations and insights with regards to JCTDs, TMI, Manufacturing Technology (ManTech) and	4.634	5.211	5.547

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 727 / *Tech Info Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Defense Manufacturing Initiatives. A variety of scientific and technical taxonomies applied at the task level allow responsive reporting on S&T programs to Congressional, OSD and Army leadership. ***FY 2021 Plans:*** Develop strategic analyses to look across the S&T portfolios and will provide recommendations to the Director of Integration for S&T efficiencies and collaborative opportunities; ensure that resources align to strategy; support S&T policy development; support ODASA(R&T) lead for future force; coordinate efforts within and across the Army S&T portfolios and engage in tri service leveraging; support the PDM process, tasks and guidance for Equipping PEG; develop prioritized decrement lists and recommend alternatives for a balanced portfolio; and support the plan and execution of the S&T Oversight Committees. Evaluate projects within ManTech to support potential joint Service efforts and activities of Joint Defense ManTech. Support Army Prototyping Board planning and execution, and evaluation and tracking implementation of transition agreement policy. ***FY 2022 Plans:*** Will develop strategic analyses to look across the S&T portfolios and will provide recommendations to the Director of Integration for S&T efficiencies and collaborative opportunities; will ensure that resources align to strategy; will support S&T policy development; will support ODASA(R&T) lead for future force; will coordinate efforts within and across the Army S&T portfolios and engage in tri service leveraging; will support the PDM process, tasks and guidance for Equipping PEG; will develop prioritized decrement lists and recommend alternatives for a balanced portfolio; and will support the plan and execution of the S&T Oversight Committees. Evaluate projects within ManTech to support potential joint Service efforts and activities of Joint Defense ManTech. Support Army Prototyping Board planning and execution, and evaluation and tracking implementation of transition agreement policy. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to inflation.			
Title: Provide funding and support for Army Acquisition Program Technology Readiness Assessments for Program Milestone Decisions. ***Description:*** Coordination and alignment with Programs of Record. Demonstrate technical feasibility at system and subsystem level. As path for technology spirals to acquisition, ensure a rapid insertion of new technology. ***FY 2021 Plans:*** Support the S&T investment strategy for the entire Army; provide options for the future across to sustain overmatch against adversaries and to create opportunities to meet new challenges and fight in new ways; continue Independent Review Team (IRT) analysis of technology maturity as part of Technology Area Readiness Assessments; provide oversight and management of the	1.000	1.250	1.250

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 727 / *Tech Info Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Army's Technology Maturation Initiative; develop and track S&T metrics across the enterprise; identify S&T transitions in SPAR to identify follow-on funding requirements. ***FY 2022 Plans:*** Continue to support the S&T investment strategy for the entire Army; provide options for the future across to sustain overmatch against adversaries and to create opportunities to meet new challenges and fight in new ways; continue Independent Review Team (IRT) analysis of technology maturity as part of Technology Area Readiness Assessments; provide oversight and management of the Army's Technology Maturation Initiative; develop and track S&T metrics across the enterprise; will identify S&T transitions in SPAR to identify follow-on funding requirements.			
Title: Provide Army support to Assistant Secretary of Defense for Research and Engineering Executive Staff for Department of Defense (DoD) wide Science and Technology oversight. ***Description:*** Supports Army engagement in DoD/Under Secretary of Defense for Research and Engineering and cross agency Communities of Interest (COI) and committees. ***FY 2021 Plans:*** Participate in DoD Communities of Interest engagements and awareness of COI Programs with links to Army S&T; support Army S&T Engagements with USDRE Managers and Leadership; and support execution of ongoing programs, events and functional responsibilities, effectively communicating with all Army stakeholders and partners including other services, OSD, industry and academia. ***FY 2022 Plans:*** Participate in ongoing DoD Communities of Interest engagements and awareness of COI Programs with links to Army S&T; support Army S&T Engagements with USDRE Managers and Leadership; and support execution of ongoing programs, events and functional responsibilities, effectively communicating with all Army stakeholders and partners including other services, OSD, industry and academia.	0.200	0.200	0.200
Title: Conduct and support technology wargaming ***Description:*** Crowd-sources future capabilities from the Army S&T enterprise, academia, and non-traditional DoD thinkers. Provides context and analysis on emerging national and international S&T trends in annual Emerging Trends report. Develops predictive technologies to identify disruptive technologies earlier. Analyzes international efforts in army S&T priorities and create a report to help inform decisions involving research partnerships.	2.905	-	-
Accomplishments/Planned Programs Subtotals	11.464	10.761	11.582

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 727 / *Tech Info Activities*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) 731 / *Army High Performance Computing Centers*	

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
731: *Army High Performance Computing Centers*	-	1.913	2.007	2.075	-	2.075	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for the High Performance Computing (HPC) research environment, as well as the research, education, infrastructure sustainment, and outreach support associated with Army High Performance Computing Centers at the United States (U.S.) Army Combat Capabilities Development Command (CCDC), specifically, CCDC Army Research Laboratory (ARL) and CCDC Ground Vehicle Systems Center (GVSC). The Army High Performance Computing Centers provide high fidelity modeling, simulation, and analysis of materials, systems, and operational constructs. The Centers work with researchers at Army laboratories and centers to explore new HPC computing environments and algorithms in the computational sciences to address critical technology issues in computational research areas.

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

Work is performed by CCDC ARL, Aberdeen Proving Ground, MD and CCDC GVSC, Warren, MI.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Sustain the High Performance Computing Environment and Infrastructure in Support of the CCDC Army Research Laboratory (ARL)	1.913	2.007	2.075
Description: The HPC center provides levels of computational capacity to the Army's tactical operational realms and provides innovative HPC capabilities to increase the effectiveness of Army Soldiers around the world. Algorithm design and software engineering approaches are investigated to effectively partition and use binary processing cores to reduce time to solution for Army relevant problems. Factors such as performance, portability, and power will be considered in conjunction with developing new models to quantify computing capabilities in hybrid systems to facilitate algorithm signature mapping to available resources.			
FY 2021 Plans: Support infrastructure, enabling hardware/software and other High Performance Computing (HPC) capabilities while developing and implementing new methods for large-scale data analytic needs in addition to those associated with traditional physics -based simulation applications. Expand the customer base to non-traditional users to enable critical and highly impactful analyses of large and disparate data sets across all services. Sustain and expand the secret, above secret and special access computational environments according to emerging security and customer requirements.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 731 / *Army High Performance Computing Centers*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will develop and expand computational infrastructure, large scale data storage capabilities, and cloud interoperability to support the emerging missions of computational complex graph analytics, augmented physics based simulations, and formal Development, Security, and Operations (DEVSECOPS) frameworks in support of the Research, Development, Test, and Evaluation (RDT&E) community. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	1.913	2.007	2.075

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) 733 / *Acquisition Tech Act*	

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
733: *Acquisition Tech Act*	-	8.894	4.624	4.808	-	4.808	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds efforts to meet the Defense Acquisition Workforce Improvement Act (DAWIA), as well as Congressional, SECDEF, and SECARMY mandates to provide program management execution tools, systems integration and architectural analysis, information technology infrastructure development, knowledge management, and technical workforce management. Funding also provides the framework for Army business and acquisition transformation for development and enhancement of capabilities to allow data to be readily available, automatically extracted to facilitate DoD-wide analysis and manage business operations, and the establishment of a set of activities that use data analysis, measurement, and evaluation-related methods to improve acquisition program outcomes and inform business re-engineering. These efforts affords stability and improvements to the Army Acquisition programmatic and financial data by integrating major acquisition systems and processes, applying decision support and expert information systems, supporting analysis, ability to measure effectiveness, and evaluation of alternative acquisition strategies in meeting Army modernization strategy requirements. This integrated set of capabilities will provide OSD and Army acquisition leadership insights needed to effectively manage a complex portfolio of acquisition programs through more timely and reliable access to authoritative acquisition data to assist in making acquisition, procurement, and logistics decisions in order to provide quality equipment to the Soldiers.

The cited work is consistent with Section 911-913 of the FY 18 NDAA, the Under Secretary of Defense for Research and Engineering Science and Technology priority focus areas, and the Army Modernization Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: ACQUISITION TECH ACT	8.894	4.624	4.808
Description: Description: This effort supports the Acquisition Domain effort to reduce IT investments in programmatic and financial management tools through data standardization and governance, integration of existing acquisition business systems, and processes supporting key Acquisition capabilities at the enterprise level with the goal of reducing redundancy, improving systems operations, and improving management of data resulting in dramatically improved transparency, efficiency, and effective management of the Acquisition process. This support entails analysis required to develop, upgrade, enhance, deploy, and architect enterprise tools within an integrated program management environment on multiple (unclassified/classified) hosting platforms to support analysis of acquisition programs fiscal programming and budgeting requirements against enacted appropriations, conduct long range programming, planning and policy analysis, resource allocation analysis, cost tracking, and analysis. This support will upgrade the knowledge management and enterprise tools, including Project Management Resource Tools (PMRT), that assist acquisition community and professionals with day-to-day program management tasks throughout the Acquisition program?s lifecycle. This support also helps implement standards for data management and service-oriented design			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 733 / *Acquisition Tech Act*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
methodology to facilitate efficiency and interoperability as well as providing some business intelligence services. These standards will help inform changes and creation of domain-level requirements, governance processes, and policies. ***FY 2021 Plans:*** Based on the Army Acquisition Executive Acquisition Decision Memorandum (ADM), continue the phased implementation of the Integrated Program Management Environment framework, through the usage of Project Management Resource Tools, to incorporate acquisition metrics to measure the progress of all Army acquisition programs and investment efforts. This project will allow organizations within the Army Acquisition Executive and Army Staff to quickly access acquisition programmatic or financial information needed without the necessary burden to a program office for data calls. This is the continuation of a deliberate effort to build a larger acquisition domain which will capture and utilize acquisition programs data from concept to divestiture. ***FY 2022 Plans:*** Upon decision by Army Senior Leaders within acquisition community, continue a phased implementation of activities associated with integrated program management environment framework through the deployment of Project Management Resource Tools (PMRT) on a SIPR platform to capture programmatic and financial data for acquisition programs of record and investments for military intelligence programs (MIP) and address aggregation classification concerns. Additionally, explore and perform activities relating to migrating the mature dataset of framework to the cloud to meet Army strategic goals. This is the continuation of a deliberate effort to build a larger acquisition domain which will capture and utilize acquisition programs data from concept to divestiture. Continuation of assessing and supporting on-boarding of new capabilities, expansion of integrated IT operational environment to include acquisition program management automation, application and acquisition dashboard data visualizations development, and enhancement of PMRT to allow increased visibility to acquisition programmatic and financial information for all Army Acquisition programs. Continued expansion of critical PMRT interfaces via the Acquisition Data Service Broker (ADSB). Development of additional PMRT acquisition dashboard data visualizations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 Increase due to inflation.			
Accomplishments/Planned Programs Subtotals	8.894	4.624	4.808

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 733 / *Acquisition Tech Act*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) CC2 / *Expeditionary Technologies*	

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
CC2: *Expeditionary Technologies*	-	-	4.817	4.938	-	4.938	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2021 this project is being realigned from:
- Program Element 0605801A Medical Command Support
* Project MO2 Med Cmd Spt (Non-AMHA)

- Program Element GZ2400 Bradley Modification program

A. Mission Description and Budget Item Justification

This Project evaluates the feasibility and potential application of disruptive technologies to Army capability gaps. Expeditionary Technology Search (xTechSearch) partners with small, non-traditional companies to apply novel techniques and applications to Army problems through a non-dilutive prize competitions, business accelerators, and outreach activities. These programs will uncover novel dual-use technology solutions that otherwise would not be identified by the Department of Defense.

Work in this Project is performed by both the Assistant Secretary of the Army (Acquisition, Logistics and Technology) and the United States Army Futures Command (AFC).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Expeditionary Technology Search (xTechSearch)	-	4.817	4.938
Description: Funds technical scouting and competition in Army-wide disciplines through rigorous technical assessment, Soldier feedback, mentorship sponsoring, and cash prizes.			
FY 2021 Plans: Conduct biannual competitions with small, non-traditional companies seeking to apply their product or idea towards a prescribed focus area.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** CC2 / *Expeditionary Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Conduct biannual competitions with small, non-traditional companies seeking to apply their product or idea towards a prescribed focus area. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor delta is due to application of FY21 SBIR/STTR assessment.			
Accomplishments/Planned Programs Subtotals	-	4.817	4.938

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) DW3 / *Army Geospatial Enterprise Implementation*	

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
DW3: *Army Geospatial Enterprise Implementation*	-	8.163	3.278	3.405	-	3.405	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides geospatial domain expertise to Mission Command (MC) in implementing the Army Geospatial Enterprise (AGE) across all MC Systems to ensure interoperability across the Army, with National Agencies and UAP partners; ensures Army systems can consume geospatial data from National-Geospatial Intelligence Agency (NGA) and with National System for Geospatial-Intelligence (NSG) partners as required by Department of Defense Instruction (DoDI) 5000.56; standardizes geospatial data between echelons and ensures Standard, Sharable Geospatial Foundation (a Mission Command Essential Capability) across Mission Command; and sustains core mission of operations. Project enables an interoperable geospatial baseline system of systems in theater, which is a near-term requirement that cannot be deferred. Geospatial is a Mission Command Essential Capability and a critical enabler for the Common Operating Environment (COE), Army modernization and the warfighter.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Enterprise Support Branch (formerly Geospatial Acquisition Support Office)	3.163	3.278	3.405
Description: This effort provides the geospatial systems engineering, architecture, and geospatial interoperability certification required by AR 115-11 to ensure Army Acquisition Systems meet Common Operating Environment (COE) requirements and modernization priorities. This effort provides geospatial domain expertise to Mission Command (MC) in implementing the Army Geospatial Enterprise (AGE) enabling a common operating picture across the Common Operating Environment, Army Futures Command modernization priorities, National Agencies and Mission Partners. Enables Army systems to consume geospatial data from National-Geospatial Intelligence Agency (NGA) and National System for Geospatial-Intelligence (NSG) partners as required by Department of Defense Instruction (DoDI) 5000.56. Enables an interoperable geospatial baseline system of systems across Army and Defense programs and in a Mission Partner Environment (MPE). Continues execution and implementation of the Army 3D Geospatial Data Integration Strategy as assigned in HQDA EXORD 154-20. Geospatial is a Mission Command Essential Capability and a critical enabler for the Common Operating Environment (COE), Army modernization and the warfighter. Key lines of effort include standardizing geospatial data between echelons, ensuring a Standard, Sharable Geospatial Foundation (a Mission Command Essential Capability) across Mission Command, developing new geospatial standards, evaluating emerging geospatial technologies early in their development processes, and certifying systems as AGE compliant. These critical capabilities enable geospatial interoperability across Mission Command, Cross-Functional Team (CFT) initiatives, and with our National and UAP partners ensuring a common operational picture enhancing soldier situational awareness and increasing mission success.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** DW3 / *Army Geospatial Enterprise Implementation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Continue to extend AGE within the Command Post Computing Environment, Mounted and Mobile Hand-Held CE's and to support Army modernization; develop and promulgate geospatial standards and technology alternatives for providing Standard, Sharable Geospatial Foundation (a Mission Command Essential Capability) to Mission Command Systems in a disconnected, Intermittent or Limited environment; develop and recommend technologies and processes to provide an interoperable 2D and 3D SSGF from National to Tactical; continue to execute roadmap to enable 2D and 3D geospatial interoperability between Mission Command systems, the NSG, and our UAP partners; and provide geospatial domain expertise for Mission Command, Army modernization and enabling technologies of the Common Operating Environment. ***FY 2022 Plans:*** Will continue to extend AGE within the Command Post Computing Environment, Mounted and Mobile Hand-Held CE's and to enable Army modernization initiatives; develop and promulgate geospatial standards and technology alternatives for providing Standard, Sharable Geospatial Foundation (a Mission Command Essential Capability) to Mission Command Systems in a disconnected, Intermittent or Limited environment; develop and recommend technologies and processes to provide an interoperable 2D and 3D SSGF from National to Tactical; continue to execute roadmap to enable geospatial interoperability between Mission Command systems, the NSG, and in a Mission Partner Environment; and provide geospatial domain expertise for Mission Command, Army modernization and enabling technologies of the Common Operating Environment. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to inflation			
Accomplishments/Planned Programs Subtotals	3.163	3.278	3.405

	FY 2020	FY 2021
Congressional Add: Program Increase	5.000	-
FY 2020 Accomplishments: Congressional increase for Army geospatial enterprise for integrating emerging 3D geospatial information.		
Congressional Adds Subtotals	5.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** DW3 / *Army Geospatial Enterprise Implementation*

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*							
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	-	52.401	55.648	43.042	-	43.042	-	-	-	-	-	-
297: *Mun Survivability & Log*	-	14.954	19.343	16.842	-	16.842	-	-	-	-	-	-
857: *DoD Explosives Safety Standards*	-	1.782	-	-	-	-	-	-	-	-	-	-
858: *Army Explosives Safety Management Program*	-	0.969	0.413	1.418	-	1.418	-	-	-	-	-	-
859: *Life Cycle Pilot Process*	-	15.370	22.487	5.501	-	5.501	-	-	-	-	-	-
F21: *NATO Ammo Evaluation*	-	0.490	0.722	0.514	-	0.514	-	-	-	-	-	-
F24: *Conventional Munitions Demil*	-	18.836	12.683	18.767	-	18.767	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continuing technology investigations by providing a coordinated Tri-Service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment.

Project 296 - This Project will support research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of demolitions, grenades, shoulder launched munitions, mines and mine clearing charges and pyrotechnics, including training realism. Project will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions.

Project 297 - Munitions Survivability & Logistics: This Project supports the future force by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, ammunition management and asset visibility, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective and efficient solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munition stocks could cripple the force, jeopardize the mission, and result in high loss of life. This Project mitigates vulnerabilities and ensures a survivable fighting force.

Project 857 - DoD Explosives Safety Standards: This Project supports the Research, Development, Test, and Evaluation efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives

safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion-resistant facility design procedures, and personnel hazard/protection criteria.

Project 858 - Army Explosives Safety Management Program: This Project establishes, validates or modifies explosives technical safety requirements per Department of Defense Manual 6055.09 and Department of the Army Pamphlet 385-64, Ammunition and Explosives Safety Standards. Project activities promote Research, Development, Test, and Evaluation (RDTE) of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety and welfare of the general public (with highest priority directed to combat theater of operations).

Project 859 - Life Cycle Pilot Process: This Project supports the implementation of the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan through technology investigations, model based process controls, pilot prototyping, and industrial assessments. It will assess life cycle production capabilities required for all ammunition families, address design for manufacturability to facilitate economical production, identify industrial and technology requirements, and address the ability of the production base to rapidly and cost effectively produce quality products. Cost reduction is an important part of the Life Cycle Pilot Process (LCPP). LCPP provides the resources to prototype critical technologies and develop the knowledge base to establish cost effective, environmentally safe and modern production processes in support of the munitions Industrial Base transformation. In addition, the LCPP program addresses Single Point Failures (SPFs) / No Source of supply within the National Technology Industrial Base (NTIB). LCPP provides support to reduce supply chain risk by investigating, developing and evaluating additional sources of supply for a known SPF.

Project F21: North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. This Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). In addition, this Project supports small caliber ammunition, 50mm ammunition, 40mm grenade munitions, medium caliber cannon ammunition, and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy, and general product improvements. This Project also supports the standardization and interchangeability of legacy and new production United States (US) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/ compatibility under the auspices of international agreements to include NATO working groups, the Joint Ballistics Memorandum of Understanding (JBMOU), and information/ data exchange agreements. Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of US indirect fire weapon and munition products to support US industrial base production and affordable Department of Defense pricing through increased economies of scale. Fiscal Year 2022 (FY22) funding will support NATO and JBMOU artillery and small arms ammunition interchangeability group meetings, documentation, and test operations.

Project F24: Conventional Munitions Demilitarization (Demil): The Conventional Munitions Demilitarization technology Project supports the SMCA responsibility per Department of Defense Instruction (DoDI) 5160.68 to plan, program, budget and fund a Joint Service Research and Development (R&D) program that develops capability and capacity as well as technology and facilities to support the SMCA mission to demil and dispose of conventional ammunition stored in the SMCA Resource, Recovery and Disposition Account (B5A). The program goals include SMCA efforts to increase efficiencies and effectiveness to reduce the demil stockpile; reduce processing costs including packaging, handling and crating; and increase capacity through improved demilitarization capabilities and processes. Project F24 includes activities: (1) to establish requirements and develop processes to focus investments, assess capabilities, analyze alternatives, and recommend and implement R&D projects; (2) to improve products and processes that support existing capabilities; (3) to develop or improve demil methods and processes related to advance the

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605805A *I Munitions Standardization, Effectiveness and Safety*

primary demilitarization core thrust areas of destruction, disassembly, removal, resource recovery and recycling, and waste stream treatment; (4) to ensure safe and environmentally acceptable demil operations; (5) to transition R&D products to United States Army depots or plants as well as commercial facilities performing demil; and (6) to mitigate risk and close-out project activities.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	54.458	40.133	41.518	-	41.518
Current President's Budget	52.401	55.648	43.042	-	43.042
Total Adjustments	-2.057	15.515	1.524	-	1.524
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.020			
• Congressional Rescissions	-	-			
• Congressional Adds	-	23.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.229	-			
• SBIR/STTR Transfer	-1.828	-1.465			
• Adjustments to Budget Years	-	-	1.524	-	1.524

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: 297: *Mun Survivability & Log*		
Congressional Add: *Munitions Standardization, Effectiveness and Safety - Polymer-Cased Ammunition*	-	5.000
Congressional Add Subtotals for Project: 297	-	5.000
Project: 859: *Life Cycle Pilot Process*		
Congressional Add: *Congressional Add*	10.000	-
Congressional Add: *Program increase - foamable celluloid materials*	-	5.000
Congressional Add: *Program increase - neutron radiography technology*	-	5.000
Congressional Add: *Program increase - industrial base resiliency initiative*	-	8.000
Congressional Add Subtotals for Project: 859	10.000	18.000
Congressional Add Totals for all Projects	10.000	23.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 297 / *Mun Survivability & Log*	

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
297: *Mun Survivability & Log*	-	14.954	19.343	16.842	-	16.842	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the future force by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, ammunition management and asset visibility, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective and efficient solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munition stocks could cripple the force, jeopardize the mission, and result in high loss of life. This Project mitigates vulnerabilities and ensures a survivable fighting force while providing leap ahead technology to meet the Multi-Domain Operations and the priorities identified by the Long Range Precision Fires & Solider Lethality Cross Function Teams.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Munitions Predictive Life	0.613	1.352	2.052

Description: This activity will demonstrate technologies and algorithms that can help assess munitions serviceability based upon aggregate environmental exposures, system cycling and munition degradation models. The activity will provide life cycle management tools for risk mitigation strategies, while reducing testing, inspection & surveillance required as well as improving weapon system reliability and warfighter effectiveness. This Project will specifically assess munitions serviceability based upon aggregate environmental exposures, system cycling and munition degradation models during the tactical distribution of munitions after munitions are re-configured to distribution focused multi-DODIC consolidation packs.

FY 2021 Plans:

Demonstrate improved performance of an integrated reduced footprint temperature/humidity exposure reliability sensor. Demonstrate lower cost alternative accelerometer design for Remote Readiness Asset Prognostic/Diagnostic System (RRAPDS). Conduct recurring market surveys of emerging passive Radio Frequency Identification technologies and active and passive environmental sensors for legacy munitions, select and test viable candidates. Evaluate potential for propellant temperature sensors on additional munitions. Incorporate munition monitoring technologies into an operational demonstration. Evaluate lead free solder based circuit card assembly alternatives. Conduct assessment of environmental impacts on emerging LRPF propellant components, fuze types, and projectile configurations.

FY 2022 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Develop an active ruggedized temperature/humidity/shock/vibration exposure sensor that integrates with a prototype flatrack based consolidator under development for 155mm ammunition, and will enable monitoring of the operational exposure thresholds during transport to Tactical Resupply point. Develop an active ruggedized environmental exposure sensor for ammunition that integrates with emerging hybrid ammunition packaging containers/consolidators of dismounted infantry items to monitor operational exposure thresholds during transport through last tactical mile. Develop sensor configurations to monitor environmental exposure of emerging LRPF propellant components, fuze types, and projectile configurations. Continue recurring market surveys of emerging passive Radio Frequency Identification technologies and active and passive environmental sensors for legacy munitions, select and evaluate viable candidates. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to developing a monitoring capability requirement for Long Range Precision Fires (LRPF) modernization objectives.			
Title: Insensitive Munitions (IM) Integration Program	6.468	5.720	6.813
Description: Demonstrate multiple IM technologies and integrate into end item(s) to improve munitions survivability and warfighter safety. IM Technologies, using State-of-the-Art materials, will be developed in the areas of warhead, propulsion and propellants, explosives, packaging, and barriers. In addition, modeling and simulation will be used to reduce development and testing costs. Efforts will increase the number of IM compliant ammunition items fielded to mitigate munitions reaction to unplanned stimuli such as fire, fragments, enclosed heat build-up (cook-off), bullets, adjacent munitions reaction (sympathetic detonation), and shape charge jet attacks. ***FY 2021 Plans:*** Complete end item testing of high energy pressed explosives to replace Comp A5 for improved reaction violence to shock and slow heating. Demonstrate medium caliber, foamed celluloid cartridge cases for improved response to shock and thermal threats in support of Next Generation Combat Vehicle (NGCV), Future Vertical Lift (FVL) and Soldier Lethality (SL) modernization priorities. Complete fragment impact testing on new igniter formulations to replace Benite in 120mm tank munitions. Perform IM testing on the M433E1 40MM Cartridge to integrate explosive technology along with warhead, packaging venting and impact mitigation technologies. Continue development of Dinitropyrazole (DNP) based formulation in 120mm mortar for improved IM and lethality to support of LRPF modernization priority. Optimize DNP formulation with added nitramines, for an improved Insensative Munitions (IM) formulation that matched Polymer Based Explosive (PBXN-110) performance. Continue to develop Lab Resonance Acoustic Mixing (RAM) technology to coat nanonitramine formulations for improved shock sensitivity at reduced cost to support LRPF and Air and Missile Defense (AMD) priorities. Demonstrate optimized plastic containers for large caliber munitions to mitigate both fast and slow cook-off events. Conduct final testing of the non-deforming packaging configurations to prevent			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
mass detonation events in tightly-packed medium caliber munitions. Complete development of deflection plate technology for an integrated packaged design. ***FY 2022 Plans:*** Complete demonstration of medium caliber, foamed celluloid cartridge cases for improved response to shock and thermal threats in support of NGCV, FVL and Soldier Lethality SL modernization priorities. Complete fragment impact and ballistic testing of new igniter formulations to replace Benite in 120mm tank munitions. Initiate final testing of the M433E1 40MM Cartridge to integrate explosive technology along with warhead, packaging venting and impact mitigation technologies. Complete testing of DNP based formulation in 120mm mortar for improved IM and lethality to support SL modernization priority. Complete characterization tests of Titan II samples fabricated using Lab RAM technology to coat nanonitramine formulations and for improved shock sensitivity at reduced cost to support LRPF and AMD priorities. Demonstrate optimized plastic containers for large caliber munitions to mitigate both fast and slow cook-off events. Conduct impact testing of the deflection plate technology for an integrated packaged design. Demonstrate container heat management technology to mitigate cook-off events in mortar systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Inflation adjustment.			
Title: Improved Munitions Packaging ***Description:*** This activity will demonstrate upgrades to existing packaging components and materials to improve legacy ammunition survivability. These upgrades will enhance ammunition survivability and reliability, improve field ammunition operations, and improve packaging. This activity will also demonstrate intermediate packaging concepts and components to improve survivability once removed from bulk packs for finer grain distribution through the BCT. ***FY 2021 Plans:*** Conduct verification testing for the Rapid Access Container Consolidator (RACC) program for the transportation of M2A2 containers. Conduct engineering and verification testing for the plastic rectangular container to integrate it for use with the next generation weapon systems. Conduct verification testing on the lightweight steel M2A2 container as part of the Lighten the Load program for use with the next generation weapon system. Conduct verification testing on the M548 Tracked Cargo Carrier container with embossed rub-rail for small and medium caliber ammunition. Conduct assessment of environmental impacts on emerging LRPF propellant components, fuze types, and projectile configurations to identify mitigation techniques/opportunities. ***FY 2022 Plans:*** Develop packaging configuration/consolidation prototypes and perform engineering testing for the 155mm family of extended range components for the transportation and resupply of extended range cannon artillery. Conduct pallet testing as part of the undervalued hardwood program. Assess viability of packaging concepts for transporting 155mm ammunition items forward of the Ammunition Storage Point to the Tactical Resupply Point to meet emerging Long Range Precision Fire CFT modernization	2.640	2.012	2.698

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
requirements. Investigate ammunition container lids, latches, security seal, tie downs, palletization methods and environmental sealing techniques that provide more efficient automation opportunities for resupply. Develop hybrid light weight small arms packaging concepts to meet Soldier Lethality modernization resupply requirements. Conduct qualification testing on selected ammo packaging concepts that provide desired functional characteristics at acceptable unit cost supporting the JPEO Armaments & Ammunition portfolio of items. Develop packaging configurations to protect against environmental effects on emerging LRPF propellant components, fuze types, and projectile configurations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Inflation adjustment.			
Title: Ammo Provider ***Description:*** This activity demonstrates technologies that will assure a survivable munitions logistics system by increasing distribution velocity and protecting ammo storage areas. Technology areas to be investigated include ammunition asset visibility, including environmental sensors, marking technologies, and supply chain modeling; ammunition management, including improvements in stockpile surveillance and condition based management; sustainment, including pre-configured loads (soldier to unit size); field ammo reconfiguration capability, robotic handling, and improved load building capability; and force protection, including site planning software and field storage protection. All research and development initiatives will be supporting the Long Range Precision Fires & Solider Lethality Cross Functional Teams (CFTs) and the multi domain operations modernization objectives that consume, store or transport/distribute munitions and munition components in the maneuver formations. ***FY 2021 Plans:*** Continue incremental development and user evaluations of the Class V Adaptive Demand Estimation System (CADES) prototype to demonstrate increasingly complex capabilities to include support of multi-vessel ammunition call forward planning and establishing theater wide stock objectives. Develop Munitions Survivability Software (MSS) capabilities to support disconnected operations, continue executing extended user evaluations and compile documentation to support transition to a Product Manager. Support continued validation of the Distribution and Retrograde Adaptive planning and execution Management (DRAM) prototype to prepare for transition. Perform initial user evaluations of the Configured Load Building Tool (CLBT) capability supplemented with augmented reality technology to enable more efficient load building. Receive prototype Loose Ammo Turn In capability and conduct tactical testing in representative environments. Begin blue printing for Tactical Ammunition Management System (TAMS), an ammunition Mission Command across the maneuver formations. Complete evaluation of viability of the Ammunition Quality Decision Tool. Improve logistics performance by exploiting man-machine teaming to provide supervisory control capabilities for workload tasking in an ammunition storage node. Develop technologies to facilitate the turn in, inspection, and retrograde of small	5.233	5.259	5.279

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
to medium caliber ammunition in forward tactical environments. Provide support to year 3 of the Unmanned Logistics System - Air (ULS-A) JCTD. ***FY 2022 Plans:*** Develop a suite of ammunition logistics enablers to meet the Long Range Precision Fire CFT modernization objectives for the Extended Range Cannon Artillery to include 1) Extend the current CADES to optimize configuration, location, information, consumption, and planning/forecasting for all ammo items, 2) Adapting the CLBT to anticipatory planning for allocation of ammunition demand with FSC transportation assets, 3) Enhance the MSS capability to provide explosive safety vehicle separation distances for any military vehicle uploaded with ammo, 4) Develop high fidelity models to fully assess emerging Field Artillery Automated Resupply (FAAR) concepts and the resupply and retrograde benefits that may accrue through deployment. 5) Develop ammo handling enablers to meet LRPF CFT driven requirements for increased ammunition distribution velocity and capabilities to reduce crew burden while increasing upload rates during ammunition resupply operations. Develop scoring metrics to determine operational benefits of variable levels of automation applied to ERCA resupply. Develop ammo handling enablers to meet Soldier Lethality CFT modernization objectives of improved ammunition distribution velocity and a more responsive ammunition supply chain to meet dismounted infantry lethality/mobility requirements. Conduct an extended user evaluation of MSS with the US Marines to validate all operational and interface requirements have been met. Provide and support CADES technology transition to migrate Artificial Intelligence planning tools to integrate within TAMS to enable tactical ammunition mission command. Develop Unmanned Logistics System - Air payload configuration enablers and anticipatory planning functions to reduce cycle time of routine small unit resupply operations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Slight decrease - 2%			
Accomplishments/Planned Programs Subtotals	14.954	14.343	16.842

	FY 2020	FY 2021
Congressional Add: Munitions Standardization, Effectiveness and Safety - Polymer-Cased Ammunition	-	5.000
FY 2021 Plans: This was assigned to APE 665805 project 297 in error. It should be transferred to the Navy.		
Congressional Adds Subtotals	-	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 297 / *Mun Survivability & Log*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 857 / *DoD Explosives Safety Standards*	

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
857: *DoD Explosives Safety Standards*	-	1.782	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) supports continuing technology investigations. It provides a coordinated tri-Service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment.

Project 857 - DoD Explosives Safety Standards: This Project supports the Research, Development, Test, and Evaluation efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion resistant facility design procedures, and personnel hazard/protection criteria.

This Project supports the Research, Development, Test, & Evaluation (RDTE) efforts of the Department of Defense (DoD) Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion resistant facility design procedures, and personnel hazard/protection criteria.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Explosive and Munitions Tests ***Description:*** Testing aimed at solving practical problems and increasing predictability of the effects of explosions and impacts on people, materials and structures. Additionally, testing provides data on the interaction of explosives in various configurations. Testing results are used to improve predictability of effects from explosive incidents and improve criteria to protect people, structures and the environment from the damaging effects of DoD munitions.	0.605	-	-
Title: Explosive Safety Standards (ESS) Implementation Methodologies & Tools ***Description:*** Provide tools to support site planning and risk assessment in the garrison and contingency environments. Provide tools and improvements for UFC 3-340-02 and Substantial dividing wall criteria. Provide methodologies and tools to perform site-specific analyses, databases for critical explosives safety information, and standardized designs to reduce design costs. Develop models to predict response for large scale explosion effects.	0.150	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 857 / *DoD Explosives Safety Standards*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Standard Development & Improvement ***Description:*** Improve and revise all DoD Explosives Safety Standards (for hazard classification, quantity distance, and protective construction) to keep them current with changing technology and incorporate knowledge gained from the testing program. Shape and leverage with international community (NATO & UN). Develop Advanced (e.g. risk-based) siting criteria.	0.456	-	-
Title: Web-Based Explosive Safety Siting (ESS) ***Description:*** Provide tools to support site planning and risk assessment in the garrison and contingency environments. Convert desktop ESS to Web-Based ESS and stand up on the government cloud on the Defense Installations Spatial Data Infrastructure (DISDI) Portal. Develop and demonstrate the ability to exchange data from Web-Based ESS dataset storage with Marine Ammunition Knowledge Enterprise (MAKE) Environmental Explosives Safety (EES) to create a DoD wide enterprise explosives safety database.	0.571	-	-
Accomplishments/Planned Programs Subtotals	1.782	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 858 / *Army Explosives Safety Management Program*	

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
858: *Army Explosives Safety Management Program*	-	0.969	0.413	1.418	-	1.418	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project establishes, validates or modifies explosives technical safety requirements per Department of Defense Pamphlet 385-64, Ammunition and Explosives Safety Standards. Project activities promote Research, Development, Test, & Evaluation (RDTE) of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety and welfare of the general public. FY 2021 funding will support continued testing, validation, and regulatory integration for permanent, temporary and mobile ammunition & explosives (A&E) facilities as well as operations. The Defense Ammunition Center/US Army Technical Center for Explosives Safety (DAC/USATCES) will team with and sponsor agencies (Joint Service, Academia, and Contractor) to improve the effectiveness of identifying, analyzing, and apply risk acceptance to ammunition and explosive environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Risk based explosives safety criteria ***Description:*** Development of risk based explosives safety criteria that will aid commanders and safety personnel in the transition from regulation to risk management. ***FY 2021 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences. ***FY 2022 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization and adjustment for inflation.	0.135	0.050	0.285
Title: Development of enhanced protective structure designs ***Description:*** Develop enhanced protective structure designs that improve the survivability of Army personnel, facilities and equipment. ***FY 2021 Plans:*** Will continue explosives testing and support for improving protective construction designs. ***FY 2022 Plans:***	0.599	0.213	0.921

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 858 / *Army Explosives Safety Management Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will continue explosives testing and support for improving protective construction designs. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization and adjustment for inflation.			
Title: Development of explosive safety tools ***Description:*** Develop explosive safety tools for use by Army personnel. Explosive safety tools allow commanders and safety personnel to make explosive safety decisions using risk management methodologies. ***FY 2021 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2022 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding increase due to within-Project re-prioritization and adjustment for inflation.	0.235	0.150	0.212
Accomplishments/Planned Programs Subtotals	0.969	0.413	1.418

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) 859 / *Life Cycle Pilot Process*	

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
859: *Life Cycle Pilot Process*	-	15.370	22.487	5.501	-	5.501	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To execute the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan, this project supports: material and manufacturing technology investigations and assessments; pilot prototype processes; technology and process assessment for industrial base safety, security and environmental concerns; mitigation of supply chain risks by assessing alternative processes and materials for Army's legacy products. Projects support overall research, development and modernization efforts towards rapid technological advancements and the changing character of war. Specifically, this project assesses life cycle production capabilities required for all ammunition families; addresses design for manufacturability to facilitate economical production; identification of industrial and technology requirements; addresses production base concerns that may impact availability for cost effective quality products and assessment of security capability gaps to ensure robust manufacturing supply chain processes. In addition, the Life Cycle Pilot Process (LCPP) program addresses Single Point Failures (SPFs) and no source of supply within the National Technology Industrial Base (NTIB). LCPP provides support to reduce supply chain risk by investigating, developing and evaluating additional sources of supply for a known SPF. LCPP provides the resources to prototype critical technologies, improve security processes and requirements; develop a knowledge base to establish cost effective, environmentally safe and modern production processes in support of transforming the Industrial Base.

Funding will support various efforts to reduce manufacturing and production costs; bridge technology transition between research and production; and assess security vulnerabilities within the NTIB. Program will continue to investigate and evaluate manufacturing technology; assess improved security processes; alternative materials and processes to address supply chain risks and resiliency concerns.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Product Cost Thrust Area	2.033	0.814	1.090
Description: This thrust area seeks out new opportunities to reduce overall cost of armaments and ammunition components. Efforts will review and analyze legacy manufacturing processing for opportunities to integrate improved technology and materials to lean manufacturing processes to reduce overall unit cost.			
FY 2021 Plans: Continue to evaluate and investigate mature manufacturing process and technologies. Assess alternative materials to reduce end item and production costs for transition to the Army's Industrial Base. Efforts include but not limited to: configuration analysis to reduce amount of energetics to affect overall legacy end items grenade costs; assess alternative materials for fielded propulsion end items to cost avoid potential shutdowns and failure analyses, assess in-line process inspection technology to reduce producibility costs an increase product yields for government-owned, contractor-operated (GOCO) facilities.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 859 / *Life Cycle Pilot Process*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue to evaluate and investigate mature manufacturing process and technologies to improve the efficiencies at the GOCO facilities. Assess alternative materials and alternative production processes to reduce end item and production costs for transition to the Army's Industrial Base. Efforts include but not limited to: automating load, assemble and pack operations for artillery / propulsion charge systems, assess alternative materials for fielded propulsion end items to cost avoid potential shutdowns and failure analyses. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in program priorities to lower product cost by exploring automated manufacturing methods.			
Title: Single Point Failures (SPFs) ***Description:*** This thrust area seeks to mitigate single source and no source of supply to armaments and ammunition manufacturing operations. Thrust area tests or evaluates alternative materials and processes to mitigate SPFs. These efforts are part of the overall strategy to reduce the number of SPFs in the NTIB. Additionally, thrust area efforts will address ammunition manufacturing capability shortfalls. This area leverages RDTE accomplishments and product knowledge to satisfy manufacturing requirements. ***FY 2021 Plans:*** Continue to assess technology and material alternatives to mitigate single source and no source of supply for in production end items and end item components. Efforts include but not limited to: scale-up and optimizing manufacturing process for an energetic constituent to mitigate no source of supply risk, evaluate lubricant alternatives for artillery end items to mitigate no source of supply risk. Investigative findings will be transition to product PM via engineering change proposal to existing Technical Data Package (TDP) or include into procurement strategies for affected end items. ***FY 2022 Plans:*** Assess technologies and material alternatives to mitigate single source and no source of supply for in production end items and end item components. Investigative findings will follow similar technology transition / transfer paths to the industrial base or product PM. Efforts include but not limited to: investigate alternative base constituents for obscurant end items. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in program priorities due to increase requirements in manufacturing technology thrust area.	1.320	1.262	0.315
Title: Manufacturing Technology for Industrial Base Transformation ***Description:*** This thrust area matures ammunition manufacturing technologies, processes to enhance manufacturing, security capabilities of legacy armaments and ammunition manufacturing operations. Thrust area will pilot and transition processes to affected industrial base for armaments and ammunition manufacturing operations.	2.017	2.411	4.096

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 859 / *Life Cycle Pilot Process*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Continue investigation and pilot mature manufacturing technologies and processes towards transforming the Army's Industrial Base. Efforts include but not limited to: assessment of reuse and recycle technology for industrial waste applications (insensitive munition waste constituent recovery and RDX waste stream mitigation), pilot manufacturing technology to improve aging manufacturing process methods and improve manufacturing efficiencies. ***FY 2022 Plans:*** Continue investigation and pilot mature manufacturing technologies and processes towards transforming the Army's Industrial Base. Assessment of improved energetic manufacturing for back-end propellant operations; modernize explosive load, assemble and pack operations for transition to GOCO facility, investigate manufacturing technologies to reduce energetic waste, provide safer manufacturing operations and improve manufacturing efficiencies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in program priorities to enhance capabilities of aging legacy manufacturing technologies.			
Accomplishments/Planned Programs Subtotals	5.370	4.487	5.501

	FY 2020	FY 2021
Congressional Add: Congressional Add ***FY 2020 Accomplishments:*** Continue to execute congressional efforts to support industrial base resiliency concerns regarding energy conservation and waste treatment technologies and neutron high-energy radiography.	10.000	-
Congressional Add: Program increase - foamable celluloid materials ***FY 2021 Plans:*** Foamable celluloid products provides a lighter weight, robust product at a lower cost than the currently fielded items. This effort continues development of Foamable Celluloid manufacturing technologies and evaluation of munition components made out of foamable celluloid at various funding and maturity levels.	-	5.000
Congressional Add: Program increase - neutron radiography technology ***FY 2021 Plans:*** Effort will improve reliability, dependability and robustness to mature digital imaging technology; and explore delivery and installation of high energy photon technology to the Munitions Industrial Base.	-	5.000
Congressional Add: Program increase - industrial base resiliency initiative	-	8.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** 859 / *Life Cycle Pilot Process*

	FY 2020	FY 2021
FY 2021 Plans: Effort will develop technology to strengthen energy security and resiliency for the Army?s munition industrial base.		
Congressional Adds Subtotals	10.000	18.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) F21 / *NATO Ammo Evaluation*	

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
F21: *NATO Ammo Evaluation*	-	0.490	0.722	0.514	-	0.514	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. This Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the North American Regional Test Center (NARTC). In addition, this Project supports small caliber ammunition, 50mm ammunition, 40mm grenade munitions, medium caliber cannon ammunition, and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy, and general product improvements. This Project also supports the standardization and interchangeability of legacy and new production United States (US) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/ compatibility under the auspices of international agreements to include NATO working groups, the Joint Ballistics Memorandum of Understanding (JBMOU), and information/ data exchange agreements. Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of US indirect fire weapon and munition products to support United States industrial base production and affordable Department of Defense pricing through increased economies of scale. Fiscal Year 2022 (FY22) funding will support NATO and JBMOU artillery and small arms ammunition interchangeability group meetings, documentation, and test operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: New Ammo Design Qualification & NATO Mission Support	0.194	0.300	0.298
Description: This activity ensures complete interchangeability of small caliber, automated cannon-caliber, 40mm grenade ammunition, air burst capable 30mm/40mm ammunition, 50mm ammunition, large caliber ammunition and weapons among NATO countries to achieve the associated logistic, strategic and tactical advantages. ***FY 2021 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2022 Plans:*** Will continue work to support NATO small arms ammunition, direct fire grenade, and large caliber interchangeability group meetings, documentation and test operations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The decrease is not a significant difference and will not impact program mission			
Title: Joint Ballistics Program Support	0.296	0.422	0.216

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** F21 / *NATO Ammo Evaluation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: The activity supports the maturation, validation, and risk reduction of battlefield interchangeability/ compatibility and associated enabling technologies between domestic US and NATO/ Allied Nations indirect fires weapons and munitions. ***FY 2021 Plans:*** FY 2021 will continue interoperability testing and interchangeability group meetings. ***FY 2022 Plans:*** FY 2022 will continue interoperability testing and interchangeability group meetings. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2022 decrease to support reduced number of testing events and meetings.			
Accomplishments/Planned Programs Subtotals	0.490	0.722	0.514

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	Project (Number/Name) F24 / *Conventional Munitions Demil*	

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
F24: *Conventional Munitions Demil*	-	18.836	12.683	18.767	-	18.767	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Conventional Munitions Demilitarization Technology Project supports the Single Manager for Conventional Ammunition (SMCA) responsibility per Department of Defense Instruction (DoDI) 5160.68 to plan, program, budget and fund a Joint Service research and development program that develops capability and capacity as well as technology and facilities to support the SMCA mission to demilitarize and dispose of conventional ammunition stored in the SMCA Resource, Recovery and Disposition Account (B5A). Project goals include SMCA efforts to increase efficiencies and effectiveness to reduce the demil stockpile; reduce processing costs including packaging, handling and crating; and increase capacity through improved demil capabilities and processes. Project F24 includes several activities: (1) to establish requirements and develop processes to focus investments, assess capabilities, analyze alternatives, and recommend and implement RDT&E projects; (2) to improve products and processes that support existing capabilities; (3) to develop or improve demil methods and processes related to advance the primary demilitarization core thrust areas of destruction, disassembly, removal, resource recovery and recycling, and waste stream treatment; (4) to ensure safe and environmentally acceptable demil operations; (5) to transition RDT&E products to United States Army depots or plants as well as commercial facilities performing demil; and (6) to mitigate risk and close-out Project activities.

During Fiscal Year (FY) 2022 Project F24 will focus efforts on fielding alternative capabilities to open burn and open detonation as well as enhancing existing ones. In FY22 Project F24 will also conduct conventional ammunition demilitarization operational testing on a Castalia system as well as bring the upgraded capabilities of the McAlester Army Ammunition Plant deactivation furnace to bear on the stockpile.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Advanced Destruction	4.084	2.069	4.624
Description: This effort focuses on developing capabilities and capacities for the destruction of munitions.			
FY 2021 Plans: Conduct an operational test of a reactive armor tile demil oven. Conduct operational testing of a capability to demil plastic walled shotgun cartridges. Initiate a design for a capability to demilitarize Honest John Warheads.			
FY 2022 Plans: Final Design of a reactive armor tile demil oven. Install and test a capability to demil plastic walled shotgun cartridges. Fabricate Hardware to demilitarize Honest John Warheads.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** F24 / *Conventional Munitions Demil*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase from FY 2021 to FY 2022 to fund systems construction and validation testing of the tile oven and conducting an extended testing of the Improved Conventional Munition (ICM) Demil system to ensure operational safety with all configurations			
Title: Resource Recovery and Recycling (R3) ***Description:*** This effort focuses on enhancing existing methods of munitions R3. ***FY 2021 Plans:*** Conduct an operational test for Automated Scrap Inspection System comparing visual inspection to machine based inspection. ***FY 2022 Plans:*** Design and Start Fabrication for full sized Automated Scrap Inspection System. Initiate a design for Reuse of Rocket Motor Grains ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY 2021 to FY 2022 to fund constructing an advanced Automated Scrap Inspection capability system for validation testing.	2.530	2.780	4.354
Title: Advanced Removal ***Description:*** This effort develops technology to remove propellant and energetics from munitions. ***FY 2021 Plans:*** Complete installation of Shaped Charge Removal equipment to allow thermal treatment. Fabricate components for the capability to demil 155mm Illumination Projectiles. Complete transition of 2.75" Rocket Motor Capability. ***FY 2022 Plans:*** Initiate operational test of Shaped Charge Removal equipment to allow thermal treatment. Conduct operational Test for the capability to demil 155mm Illumination Projectiles. Conduct LRIP of 2.75" Rocket Motor Capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to support shaped charge removal and support testing of 2.75? rocket motor capability.	2.887	1.570	1.836
Title: Advanced Waste Stream Treatment ***Description:*** This effort focuses on handling waste streams from munitions items. ***FY 2021 Plans:*** Initiate installation of the APE 1236 Feed System Upgrade at the Tooele Army Depot (TEAD). Complete Bangbox emissions testing of munitions to determine additional emission factors for stockpile munitions. Conduct analysis of pyrotechnic munitions. ***FY 2022 Plans:***	3.533	1.082	2.082

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605805A / *Munitions Standardization, Effectiveness and Safety*	**Project (Number/Name)** F24 / *Conventional Munitions Demil*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Conduct Integration testing of the APE 1236 Feed System Upgrade at TEAD. Initiate design of thermal treatment of pyrotechnic munitions. Initiate design of Thermal Treatment System Hardware changes for Per- and poly-FluoroAlkyl Substances (PFAS). Implement Feed Recipes Efficiency Evaluation (FREE) findings at Depot. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to support increase costs of system development of PFAS and support testing.			
Title: Advanced Munitions Disassembly ***Description:*** This effort focuses on developing innovative and efficient processes to disassemble munitions. ***FY 2021 Plans:*** Complete Transition of a Reactive Armor Tile Size Reduction Capability. Install and test a delinking and sorting capability for small arms cartridges to be fed into the APE 1236 RKI. Conduct the Final design review of Smoke Hand Grenade Demil Capability. ***FY 2022 Plans:*** Complete Fabrication of Hardware for Flechette capability. Conduct LRIP for delinking and sorting capability for small arms cartridges to be fed into the APE 1236 RKI. Initiate Hardware Design and Fabrication of Smoke Hand Grenade Demil Capability. Complete Final Analysis of CS Riot Water Jet Capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to support increase costs fabricating the capability hardware and testing to support delinking system qualification.	5.802	5.182	5.871
Accomplishments/Planned Programs Subtotals	18.836	12.683	18.767

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605857A *I Environmental Quality Technology Mgmt Support*							
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	-	4.489	1.715	1.789	-	1.789	-	-	-	-	-	-
031: *Environmentally Sustainable Acquisition/Logistics*	-	3.950	1.287	1.345	-	1.345	-	-	-	-	-	-
06I: *Environmental Quality Technology Support*	-	0.539	0.428	0.444	-	0.444	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds environmental quality technology (EQT)-related management support functions including support of research, development, test and evaluation required for EQT technical integration efforts at demonstration/validation test sites, technical information and activities, test facilities and general test instrumentation, and EQT requirement assessments. Funds support the management of technology transfer associated with technology demonstrated and validated as part of Army EQT projects. In addition, this PE provides support to the Army weapon system acquisition community to address environmental quality requirements under the Environmentally Sustainable Acquisition/Logistics Program.

The Environmentally Sustainable Acquisition/Logistics Project includes program management for developing acquisition strategies that achieve system key performance parameters and sustain the environment without permanent and unacceptable change to the natural environment or human health from system concept refinement through disposal. The Project involves systematic consideration of environmental impacts, energy use, natural resources, installation impacts, economics, and quality of life. It provides support to the system acquisition community (Program and Project Managers) to integrate environmental quality analyses into the system acquisition process. The goal of the effort is to resolve environmental quality issues related to weapon systems that are identified during design, development, testing, operation, or support to reduce Army environmental liabilities and total ownership costs, including efforts to eliminate the use of hazardous and ozone-depleting materials from weapon systems and facilities.

The Pollution Prevention Tech Support Project funds the management support costs to execute the Toxic Metals Reduction, Airborne Lead Reduction, and Low Global Warming Potential (LGWP) environmental quality technology programs, which support Cross Functional Teams and the Army's top modernization priorities by addressing potential obsolescence of legacy materials and current and emerging impacts on human health and the environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605857A / *Environmental Quality Technology Mgmt Support*			
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	4.681	1.780	1.812	-	1.812
Current President's Budget	4.489	1.715	1.789	-	1.789
Total Adjustments	-0.192	-0.065	-0.023	-	-0.023
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.192	-0.065			
• Adjustments to Budget Years	-	-	-0.023	-	-0.023

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605857A / *Environmental Quality Technology Mgmt Support*	Project (Number/Name) 031 / *Environmentally Sustainable Acquisition/Logistics*	

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
031: *Environmentally Sustainable Acquisition/Logistics*	-	3.950	1.287	1.345	-	1.345	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Environmentally Sustainable Acquisition/Logistics (ESAL) Project provides support to the system acquisition community to integrate environmental quality issues and concerns into the life cycle system acquisition process, including human health risks, life safety, material obsolescence due to regulatory pressures, occupational exposures and energy efficiency. This includes helping the acquisition community address high priority issues associated with hexavalent chromium, cadmium and airborne lead. The focus of ESAL is on improving readiness, enabling mission capabilities, improving acquisition processes, reducing supportability burden, and minimizing total ownership cost. The Assistant Secretary of the Army for Installations, Energy and Environment has defined the functions of the ESAL project in coordination with the Army Acquisition Executive and the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). This Project provides direct support to the Army acquisition community to pursue environmental sustainability and comply with legal statutes, policies and regulations during the life cycle of Army materiel. ESAL helps address Army Modernization Priorities, while sustaining readiness and achieving compliance with its weapon systems, industrial base, field and deployed activities directed by international treaties, Federal statutes, Executive Orders, Department of Defense (DoD) and Army policies and regulations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Environmental Quality (EQ) Support (CCDC)	0.975	0.551	0.600
Description: Provide EQ Support to Acquisition Programs via Cross Functional Teams (CFTs), Program Executive Offices (PEOs) and Program Managers (PMs). ***FY 2021 Plans:*** Provide support to CFTs, PEOs and PMs to integrate EQ considerations into systems engineering activities. This includes fulfillment of National Environmental Policy Act requirements, definition of EQ technology needs to meet operational requirements, analysis of technical data to support implementation decisions, participation in technical and cost risk assessment activities, and assessment and revision of contractual and operational requirements for successful technology integration, operation and support. Analyze impending statutes and regulations impacting production, operation and support of weapon systems. Assess weapon system readiness impacts (e.g., production levels, training, operational tempo and maintenance activities) resulting from EQ issues affecting industrial base and garrisons. Provide Army acquisition community representation in select Office of the Secretary of Defense and Department of the Army committees addressing environmental legislation and rulemaking. ***FY 2022 Plans:*** Will provide support to CFTs, PEOs and PMs to integrate EQ considerations into systems engineering activities. This will include fulfillment of National Environmental Policy Act requirements, definition of EQ technology needs to meet operational requirements,			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605857A / *Environmental Quality Technology Mgmt Support*	**Project (Number/Name)** 031 / *Environmentally Sustainable Acquisition/Logistics*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
analysis of technical data to support implementation decisions, participation in technical and cost risk assessment activities, and assessment and revision of contractual and operational requirements for successful technology integration, operation and support. Will analyze impending statutes and regulations impacting production, operation and support of weapon systems. Will assess weapon system readiness impacts (e.g., production levels, training, operational tempo and maintenance activities) resulting from EQ issues affecting industrial base and garrisons. Will provide Army acquisition community representation in select Office of the Secretary of Defense and Department of the Army committees addressing environmental legislation and rulemaking. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic adjustment.			
Title: Environmental Quality Technology Management (CCDC) ***Description:*** Provide management support for Army EQ technology efforts through the Safer Alternatives for Readiness (SAFR) program. ***FY 2021 Plans:*** Provide system acquisition support to the Army's EQ technology program and coordination of EQ-related system needs for expanded Research, Development, Test and Evaluation efforts in support of Army Modernization Priorities. Manage and oversee technology integration efforts by Army Life Cycle Management Commands for weapon systems in all stages of design, procurement and operations/support. Coordinate technology requirements among members of the Army EQ Technology Teams and Cross Functional Teams, coordinate technology evaluations and operational requirements in support of weapon system platform integration, manage and oversee test plan development, oversee testing activities, and analyze test results to support weapon systems engineering decision making. ***FY 2022 Plans:*** Will provide system acquisition support to the Army's SAFR program and coordination of EQ-related system needs for expanded Research, Development, Test and Evaluation efforts in support of Army Modernization Priorities. Will manage and oversee technology integration efforts by Army Life Cycle Management Commands for weapon systems in all stages of design, procurement and operations/support. Will coordinate technology requirements among members of the Army EQ Technology Teams and Cross Functional Teams, will coordinate technology evaluations and operational requirements in support of weapon system platform integration, will manage and oversee test plan development, will oversee testing activities, and will analyze test results to support weapon systems engineering decision making. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Economic adjustment.	1.079	0.736	0.745
Title: Headquarters Army Environmental System (HQAES)	1.896	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605857A / *Environmental Quality Technology Mgmt Support*	**Project (Number/Name)** 031 / *Environmentally Sustainable Acquisition/Logistics*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Headquarters Army Environmental System support (HQAES) is the Army's environmental enterprise business system of record enabling the Army to collect, analyze, and report environmental data. HQAES is used by Installations, Commands, Headquarters Department of the Army, and various service providers (e.g., U.S Army Corps of Engineers, U.S. Army Environmental Command) for managing the environmental program. HQAES is the feeder system for environmental liabilities reporting, which is the largest liability on the Army's financial statement. HQAES has the capability to track environmental project execution and end-to-end program management and provides visibility and transparency needed for cost and functional environmental management, including cleanup, compliance and conservation at active Army, Army National Guard; Army Reserve and Base Realignment and Closure (BRAC) installations.			
Accomplishments/Planned Programs Subtotals	3.950	1.287	1.345

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

TBD

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605857A / *Environmental Quality Technology Mgmt Support*	Project (Number/Name) 06I / *Environmental Quality Technology Support*	

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
06I: *Environmental Quality Technology Support*	-	0.539	0.428	0.444	-	0.444	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides Research, Development, Test, & Evaluation (RDTE) Management Support for the demonstration and validation of innovative technologies to modernize materials and processes required for current and future operational sustainment and warfighter training capabilities within the Army's Environmental Quality Technology program. The Project supports technologies that increase life safety, reduce Soldier and worker human health risks, enhance readiness and enable mission capabilities of the current and future force, while simultaneously increasing performance and standardization across the Army. This Project provides for management of RDTE activities conducted under Program Element 0603779A (Environmental Quality Technology Dem/Val) / Project E21 (Environmental Quality Technology Dem/Val), which supports the Cross Functional Teams and the Army's top modernization priorities by addressing potential obsolescence of legacy materials and current and emerging impacts on human health and the environment. The Project expedites technology transition from the laboratory to operational use by establishing toxicology assessments to support the demonstration of modern materials and processes fulfilling or surpassing the performance requirements outlined in Material Specifications, Depot Maintenance Work Requirements, Technical Manuals, Drawings, and other technical data.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Management of Army Environmental Quality Technology Programs (CCDC)	0.539	0.428	0.444
Description: Manage and oversee the demonstration/validation of weapon system pollution prevention technologies through the Safer Alternatives for Readiness (SAFR) program, with a focus on eliminating the high priority issues associated with hexavalent chromium, cadmium and airborne lead through material substitution.			
FY 2021 Plans: Manage and oversee the demonstration/validation of three technology efforts that support the Future Vertical Lift, Next Generation Combat Vehicle, Long Range Precision Fire and Soldier Lethality Army modernization priorities: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems; Airborne Lead Reduction from Army Weapon Systems; and Low Global Warming Potential Alternatives to Ozone Depleting Substances.			
FY 2022 Plans: Will manage and oversee the demonstration/validation of three SAFR technology efforts that support the Future Vertical Lift, Next Generation Combat Vehicle, Long Range Precision Fire and Soldier Lethality Army modernization priorities: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems; Airborne Lead Reduction from Army Weapon Systems; and Low Global Warming Potential Alternatives to Ozone Depleting Substances.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605857A / *Environmental Quality Technology Mgmt Support*	**Project (Number/Name)** 06I / *Environmental Quality Technology Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Economic adjustment.			
Accomplishments/Planned Programs Subtotals	0.539	0.428	0.444

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605898A *I Army Direct Report Headquarters - R&D - MHA*							
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	-	53.320	54.564	52.108	-	52.108	-	-	-	-	-	-
FJ2: *Army SHARP RDTE*	-	1.534	1.541	1.579	-	1.579	-	-	-	-	-	-
M65: *Army Test and Evaluation Command*	-	47.833	49.153	50.529	-	50.529	-	-	-	-	-	-
XW7: *Command HQ - ARI*	-	3.953	3.870	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funding for the salaries and related personnel benefits for authorized civilian personnel positions that provide for the management functions and the technical direction of the United States (U.S.) Army Test and Evaluation Command (ATEC) mission located at Aberdeen Proving Ground (APG), Maryland (Project M65 Army Test and Evaluation Command). It also provides funds supporting similar functions at the United States (U.S.) Army Research Institute for the Behavioral and Social Sciences (Project XW7 Command HQ - ARI), and provides funds for Army Headquarters to study and improve the Sexual Harassment / Assault Response and Prevention program (Project FJ2 Army SHARP RDTE).

ATEC plans, conducts and integrates developmental testing, independent operational testing, independent evaluations, and assessments to provide essential information to Soldiers and acquisition decision makers supporting the American Warfighter. Additionally, ATEC is a Direct Support to Army Futures Command (AFC). ATEC provides testing and independent evaluation support to AFC Cross Functional Team (CFT) efforts including risk reduction support to experiments, demonstrations, requirements, research, development, and acquisition. As such, ATEC priorities are aligned to the Army's Modernization priorities.

Project M65 includes staff/management functions of resource management, human resources, safety, security, environmental, strategic planning and information/ technology support for command-wide databases in support of the developmental, evaluation and operational test mission with technical direction to the Army Evaluation Center (AEC), APG, Maryland; to the Operational Test Command (OTC), Fort Hood, Texas which consists of three forward Test Directorates (Airborne and Special Operations Test Directorate, Fort Bragg, North Carolina; Air Defense Artillery Test Directorate, Fort Bliss, Texas; and the Fires Test Directorate, Fort Sill, Oklahoma) together with four other Test Directorates (Aviation; Maneuver; Mission Command; Maneuver Support and Sustainment) at Ft Hood, Texas; and to the seven Major Range and Test Facility Base (MRTFBs) and one non-MRTFB test range: Aberdeen Test Center (ATC) at APG, Maryland; West Desert Test Center (WDTC) at Dugway Proving Ground (DPG), Utah; Electronic Proving Ground (EPG) at Fort Huachuca, Arizona; White Sands Test Center (WSTC) at White Sands Missile Range (WSMR), New Mexico; Yuma Test Center (YTC) at Yuma Proving Ground (YPG), Arizona; Cold Regions Test Center (CRTC) at Fort Greely, Alaska; and Tropic Regions Test Center (TRTC) at various locations, as well as for Redstone Test Center (RTC) at Redstone Arsenal, Alabama. This is the operating budget for ATEC Headquarters, which provides technical direction for the annual execution of approximately 2,300 developmental tests; approximately 52 operational events; and approximately 900 Evaluation and Safety documents supporting acquisition programs. ATEC's total authorized workforce amounts to a $1.9 billion program in direct and reimbursable funding.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605898A *I Army Direct Report Headquarters - R&D - MHA*

Project XW7 provides the non-Army Management Headquarters Activity (non-AMHA) management and administrative support that enables the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) to accomplish its research mission and includes personnel/manpower execution and oversight. ARI's behavioral and social science research provides effective non-materiel solutions to help the Army adjust to changes in force size and structure, a variety of mission demands and contexts, challenges in human relations, and budgetary constraints. ARI is the only Science and Technology (S&T) laboratory that conducts research to enhance the Soldier lifecycle (e.g., selection, assignment, training, and leader development).

Project FJ2 provides Army Management Headquarters a critical research capability to improve the Army Sexual Harassment / Assault Response and Prevention (SHARP) program, with a specific focus on prevention.

This PE does not finance test facility operations, test instrumentation, or test equipment.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	53.820	55.045	55.785	-	55.785
Current President's Budget	53.320	54.564	52.108	-	52.108
Total Adjustments	-0.500	-0.481	-3.677	-	-3.677
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.500	-0.481			
• Adjustments to Budget Years	-	-	-3.677	-	-3.677

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605898A / *Army Direct Report Headquarters - R&D - MHA*	Project (Number/Name) FJ2 / *Army SHARP RDTE*	

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
FJ2: *Army SHARP RDTE*	-	1.534	1.541	1.579	-	1.579	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

A. Mission Description and Budget Item Justification

This Project funds contracts that cover critical research needs of the Army Sexual Harassment / Assault Response and Prevention (SHARP) Office and the greater Army with a specific focus on prevention. In Fiscal Year (FY) 2020 this contract achieves three goals: (1) to inform sexual harassment prevention research efforts , (2) examine the nature of offending within the military to inform effective sexual assault prevention efforts, and (3) assess the efficacy of training/prevention/outreach efforts related to sexual assault, in particular but not limited to male service members. Ongoing efforts to meet the first goal will explore the nature of sexual harassment in the Army, identify the organizational costs related to harassment (e.g., increased turnover, lower job satisfaction, and job performance), and examine the role of sexual harassment as it relates to sexual assault within the continuum of harm. Based on these studies, the performer will recommend effective sexual harassment prevention strategies. Studies will ensure that Army SHARP programs build climates for dignity and respect free of sexual harassment.

To meet the second goal, studies will examine behavioral patterns in offending within military sexual assault cases. For instance, behavioral patterns may reveal the nature of military sexual assault or identify potential vulnerabilities that could lead someone to perpetrate sexual assault. Studies may also be informed by offender patterns observed in research using administrative data sources. Based on this research, the performer will identify ways to reduce risk of sexual offending behavior, recommend ways to improve skills and abilities that will bolster one's ability to engage in healthy relationships, and inform effective sexual assault prevention practices.

To meet the third goal, research will (1) conduct male-specific assessments and (2) conduct other assessments that will assess the efficacy of training/prevention/ outreach efforts related to sexual assault. The research will characterize the behaviors associated with military men's victimization and how they differ from those of service women, men's decision processes to file a formal report of sexual assault, and their experiences with the military sexual assault response systems. In particular, the research will focus on male victimization that occurred during military service rather than childhood sexual assault. Based on this research, the performer will identify ways to improve tailored recommendations for responding to and supporting male victims. This research will improve Department of Defense (DoD) prevention and response for male Service members. To meet the second part of this goal, the research may conduct assessments to evaluate the efficacy of training/prevention/ outreach efforts related to sexual assault. This may involve conducting evaluation research to assess the effectiveness of individual programs or practices. Based on this research, the performer will determine whether these programs are effective and propose ways to improve SHARP efforts. This research will ensure that SHARP programs deliver effective training/ prevention/outreach.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Role Identifications	1.534	1.541	1.579

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605898A / *Army Direct Report Headquarters - R&D - MHA*	**Project (Number/Name)** FJ2 / *Army SHARP RDTE*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Funding is required to ensure that Army SHARP is in compliance with multiple Service or DoD requirements. National Defense Authorization Act (NDAA) Requirement S585 (FY 2012) requires the development of Sexual Assault Prevention and Response (SAPR) curriculum for Service members and civilian employees, NDAA Requirement 1725c (FY 2014) requires the identification of qualifications needed for Service and civilian personnel who are assigned to positions that include SAPR functions, NDAA Requirement S1733 requires the review of SAPR training and recommendations for modification based on identified inadequacies, and NDAA Requirement S538 (FY 2016) dictates that the Services develop efforts to improve prevention and response for male victims of sexual assault. Conducting research to meet these requirements is a necessary step in ensuring that training, prevention and outreach activities are having the desired effect and impact on the Total Force. ***FY 2021 Plans:*** In FY2021, SHARP will continue research into all three goals. A key effort of 2021 in all three goals will be to take the results of 2020 efforts and began more focused efforts on the areas and topics that appear to have the most promise in each area, looking at shorter-term and longer- term possibilities in each area. In Goal 1) Inform sexual harassment prevention efforts, the research may expand to examine other behaviors related to the sexual harassment-sexual assault continuum of harm to determine the relationships between other undesirable behaviors e.g. bullying and hazing, personal and personality characteristics to determine potential root and common causes and the etiology of behavioral patterns, personal attributes and the cultural milieu and the interrelationships between individual perpetrators, individual victims and military culture that contribute as risk or protective factors. In Goal 2) Examine behavioral patterns in offending within military sexual assault cases, research results will be compared, contrasted and if relevant combined with the results of Goal 1 research to determine differences and commonalities along the continuum of harm and different means of addressing each and all. In Goal 3a) Male-specific assessments and determinants of male victimization the search for commonalities and differences in personal attributes and behavior will continue and the possibilities for prevention mechanisms explored. For each of the Goals and in general, assessments of current training and prevention efforts will continue and be informed by the results of the Sexual Assault Prevention and Response Office (SAPRO)-directed Prevention Plan of Action (PPOA) to be conducted in 2020. The results for each goal will be reviewed for potential for military and Army- feasible solutions to be developed in the prevention spectrum including but not limited to: universal education, awareness, messaging, social norms marketing, early identification and targeted education and prevention and remediation, accession marketing and policy and deterrent adjudication processes. 2021 research emphasis will be placed on a balance between potential short-term, high impact prevention efforts and longer term efforts that will require more fundamental research for full understanding or require shifts in military culture before the results can be fully exploited and realized. ***FY 2022 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605898A / *Army Direct Report Headquarters - R&D - MHA*	**Project (Number/Name)** FJ2 / *Army SHARP RDTE*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
SHARP entered into a multi-year research plan that enables SHARP to develop evidence-based interventions for preventing and responding to ?sexual misconduct? in the Army. The knowledge and outcomes from the project will frame the follow-on research requirements to meet the goals and objectives of SHARP for prevention efforts to build climates for dignity and respect free of sexual harassment and assault. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY21 to FY22 Increase of 44K is based on Projected Requirements to meet SHARP requirements for studies to conduct assessments to evaluate the efficacy of training/prevention/outreach efforts related to sexual assault.			
Accomplishments/Planned Programs Subtotals	1.534	1.541	1.579

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

MDEP:VSHP does not have any other Army Line Item associated with this project.

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605898A / *Army Direct Report Headquarters - R&D - MHA*	Project (Number/Name) M65 / *Army Test and Evaluation Command*	

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
M65: *Army Test and Evaluation Command*	-	47.833	49.153	50.529	-	50.529	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for the salaries and related personnel benefits for the authorized civilian personnel positions that provide for the management functions and the technical direction of the United States (U.S.) Army Test and Evaluation Command (ATEC) mission located at Aberdeen Proving Ground (APG), Maryland. ATEC plans, conducts and integrates developmental testing, independent operational testing, independent evaluations, and assessments to provide essential information to Soldiers and acquisition decision makers supporting the American Warfighter. Additionally, ATEC is a Direct Support to the Army Futures Command (AFC). ATEC provides testing and independent evaluation support to AFC Cross Functional Team (CFT) efforts including risk reduction support to experiments, demonstrations, requirements, research, development, and acquisition. As such, ATEC priorities are aligned to the Army's Modernization priorities.

This Project includes staff/management functions of resource management, human resources, safety, security, environmental, strategic planning and information/ technology support for command-wide databases in support of the developmental, evaluation and operational test mission with technical direction to the Army Evaluation Center (AEC), APG, Maryland; to the Operational Test Command (OTC), Fort Hood, Texas which consists of three forward Test Directorates (Airborne and Special Operations Test Directorate, Fort Bragg, North Carolina; Air Defense Artillery Test Directorate, Fort Bliss, Texas; and the Fires Test Directorate, Fort Sill, Oklahoma) together with four other Test Directorates (Aviation; Maneuver; Mission Command; Maneuver Support and Sustainment) at Ft Hood, Texas; and to the seven Major Range and Test Facility Base (MRTFBs) and one non-MRTFB test range: Aberdeen Test Center (ATC) at APG, Maryland; West Desert Test Center (WDTC) at Dugway Proving Ground (DPG), Utah; Electronic Proving Ground (EPG) at Fort Huachuca, Arizona; White Sands Test Center (WSTC) at White Sands Missile Range (WSMR), New Mexico; Yuma Test Center (YTC) at Yuma Proving Ground (YPG), Arizona; Cold Regions Test Center (CRTC) at Fort Greely, Alaska; and Tropic Regions Test Center (TRTC) at various locations, as well as for Redstone Test Center (RTC) at Redstone Arsenal, Alabama. This is the operating budget for ATEC Headquarters, which provides technical direction for the annual execution of approximately 2,300 developmental tests; approximately 52 operational events; and approximately 900 Evaluation and Safety documents supporting acquisition programs. ATEC's total authorized workforce amounts to a $1.9 billion program in direct and reimbursable funding.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: ATEC	47.833	49.153	50.529
Description: Civilian labor and other support required to manage and administer the Army test and evaluation mission at ATEC. ATEC plans, conducts and integrates developmental testing, independent operational testing, independent evaluations, assessments and experiments to provide essential information to Soldiers and acquisition decision makers supporting the American Warfighter.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605898A / *Army Direct Report Headquarters - R&D - MHA*	**Project (Number/Name)** M65 / *Army Test and Evaluation Command*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Will continue to fund authorized civilian salaries, associated expenses (supplies, equipment, travel, etc.) and other support required to manage and administer the Army test and evaluation mission at ATEC. ***FY 2022 Plans:*** Will continue to fund authorized civilian salaries, associated expenses (supplies, equipment, travel, etc.) and other support required to manage and administer the Army test and evaluation mission at ATEC. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to inflation for civilian pay and routine program adjustments.			
Accomplishments/Planned Programs Subtotals	47.833	49.153	50.529

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605898A / *Army Direct Report Headquarters - R&D - MHA*	Project (Number/Name) XW7 / *Command HQ - ARI*	

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
XW7: *Command HQ - ARI*	-	3.953	3.870	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States (U.S.) Army Research Institute for the Behavioral and Social Sciences (ARI) is the only Science and Technology (S&T) laboratory that conducts research to enhance the Soldier lifecycle (e.g., selection, assignment, training, leader development) and human relations (e.g., culture of dignity, respect, and inclusion). This Project supports the non-Army Management Headquarters Activity (non-AMHA) management and administrative functions to enable ARI to accomplish its research mission and includes activities such as budget execution, procurement oversight, Research, Development, Test, & Evaluation (RDTE) program planning and evaluation, management control, security/safety, logistics, information technology, and personnel/manpower execution and oversight. ARI's behavioral and social science research provides effective non-materiel solutions to help the Army adjust to changes in force size and structure, a variety of mission demands and contexts, challenges in human relations, and budgetary constraints.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Headquarters Support	3.953	3.870	-
Description: This project supports Civilian Pay and support ARI headquarters activities. ***FY 2021 Plans:*** Providing personnel and support for management, administrative, personnel, budget, and information technology functions at a level consistent with Army and mission requirements to meet the needs of ARI as an Army Science and Technology Reinvention Laboratory (STRL), to include emphasis on evaluating ARI?s implementation of the STRL systems, policies, and practices. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 funds realigned to PE 0605801A Programwide Activities / Project M15 ARI Mgmt/ADM Act. This move will consolidate ARI management and administrative functions/resources into a single Project.			
Accomplishments/Planned Programs Subtotals	3.953	3.870	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606001A *I Military Ground-Based CREW Technology*

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	-	2.053	-	-	-	-	-	-	-	-	-	-
FD4: *Military Ground-Based CREW Technology*	-	2.053	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Secretary of the Army was designated the Executive Agent for Military Ground-Based Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Technology on 1 December 2013, pursuant to Department of Defense (DoD) Directive 5101.14 "Military Ground-Based Military CREW Technology". The Program Executive Office for Intelligence, Electronic Warfare & Sensors (PEO IEW&S) is assigned the responsibility to fulfill the duties of the DoD Military Ground-Based CREW Technology Single Manager. The DoD Single Manager (SM) is responsible for ensuring joint operational interoperability and compatibility between relevant DoD and coalition systems; interfaces with all DoD Services and other government agencies involved in CREW Technologies; and collaborates with multiple foreign countries on the RCIED threat and CREW technologies to ensure synergy between the technologies. The DoD SM chairs the Joint Program Board and represents the Army at the Force Protection Electronic Countermeasures (ECM) Working Group and Five Eyes (FVEYS) consortium.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	2.141	0.000	0.000	-	0.000
Current President's Budget	2.053	0.000	0.000	-	0.000
Total Adjustments	-0.088	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.088	-			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606001A / *Military Ground-Based CR EW Technology*	Project (Number/Name) FD4 / *Military Ground-Based CREW Technology*	

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
FD4: *Military Ground-Based CREW Technology*	-	2.053	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year 2021 (FY21) this project is eliminated due to Army Deep Dive.

A. Mission Description and Budget Item Justification

The Secretary of the Army was designated the Executive Agent for Military Ground-Based Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Technology on 1 December 2013, pursuant to Department of Defense (DoD) Directive 5101.14 "Military Ground-Based Military CREW Technology". The Program Executive Office for Intelligence, Electronic Warfare & Sensors (PEO IEW&S) is assigned Executive Agent responsibilities to fulfill the duties of coordination and support of DoD Military Ground-Based CREW Technology testing and interoperability across all Services and Other Government Agencies (OGA). The PEO is responsible for ensuring joint operational interoperability and compatibility between relevant DoD and Coalition systems; interfaces with all DoD Services and Other Government Agencies (OGA) involved in CREW Technologies; and collaborates with multiple foreign countries on the RCIED threat and CREW technologies to ensure synergy between the technologies. The PEO chairs the Joint Program Board and represents the Army at the Force Protection Electronic Countermeasures (ECM) Working Group and Five Eyes (FVEYS) consortium.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Test Technologies	2.053	-	-
Description: Ensuring joint operational interoperability and compatibility between relevant DoD and Coalition systems; interfaces with all DoD Services and Other Government Agencies (OGA) involved in CREW Technologies; and collaborates with multiple foreign countries on the RCIED threat and CREW technologies to ensure synergy between the technologies.			
Accomplishments/Planned Programs Subtotals	2.053	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606002A *I Ronald Reagan Ballistic Missile Defense Test Site*							
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	-	64.311	68.911	80.952	-	80.952	-	-	-	-	-	-
XW9: *Reagan Test Site*	-	64.311	68.911	80.952	-	80.952	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Ronald Reagan Ballistic Missile Defense Test Site (RTS), with its remote location and one-of-a-kind instrumentation systems, provides a valuable strategic test environment that cannot be replicated. Its function is to: 1) support test and evaluation of major Army and Department of Defense (DOD) acquisition programs of strategic importance to the national defense; and 2) provide space operations and intelligence data (Space Situational Awareness, object tracking & identification) in support of United States Strategic Command (USSTRATCOM), acting as a high value contributing sensor to the United States (U.S.) Space Surveillance Network. Due to its unique geography and instrumentation, RTS is able to provide unmatched data collection capabilities that provide critical test data for programs of national interest to include: Army Missile Defense; Defense Advanced Research Projects Agency hypersonic Boost-Glide developmental tests; Air Force and Navy Intercontinental Ballistic Missile (ICBM) developmental and operational tests; Army, Air Force, Navy, and Missile Defense Agency (MDA) operational, demonstration, and validation tests; National Aeronautics and Space Administration (NASA) scientific and unique space programs; NASA ionospheric studies; space debris tracking; and data collection in support of space experiments.

Funding in this Program Element (PE) covers management and contracting personnel support (salaries and travel) to enable the management of the test and evaluation of major Army and DoD missile systems for the RTS. Funds also provide contracting support for end item procurement, life cycle acquisition planning, and solicitation, negotiation, award, execution and management for weapon systems contracts. This PE provides contractors to accomplish key operations and maintenance functions for RTS instrumentation suites and also provides mission essential bandwidth via a fiber optic cable system. Funds provide the expertise required for operating and maintaining a number of one-of-a-kind radar, optical, telemetry, command/control/communications, safety, and data reduction systems. These systems include: the four unique radars of the Kiernan Reentry Measurement Site; Super Recording Automatic Digital Optical Tracker long range video-metric tracking systems; high density data recorders for high data-rate telemetry collected by ten antennas; an underwater acoustic impact location system; and data analysis/reduction hardware/software and Continental United States (CONUS) based mission control center. The Advanced Research Project Agency Long-Range Tracking and Instrumentation Radar and the Target Resolution Discrimination Experiment radars located at RTS are the only radars in this area of operation that have deep-space tracking capability. The Millimeter Wave Radar is one of the highest resolution imaging radars in the world, providing critical intelligence data. Funding also enables weapon system assessment of operational effectiveness and suitability for the Army, Air Force, Navy and MDA, which all have programs planned that have significant test and data gathering requirements at RTS. This test data cannot be obtained except through the use of technical facilities available on and in the vicinity of RTS. Program supports Army's PATRIOT air defense system; Air Force's Minuteman III ICBM and the Space and Missile Center's associated programs; MDA's Ballistic Missile Defense System, ICBM Targets, and Layered Ballistic Missile Defense operational tests (including: PATRIOT, Terminal High-Altitude Area Defense , and Aegis Weapon System), and NASA's space experiments.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	62.069	71.306	61.451	-	61.451
Current President's Budget	64.311	68.911	80.952	-	80.952
Total Adjustments	2.242	-2.395	19.501	-	19.501
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.575	-			
• SBIR/STTR Transfer	-2.333	-2.395			
• Adjustments to Budget Years	-	-	19.501	-	19.501

Change Summary Explanation

Additional increase for Cyber Compliance Refresh and Instrumentation Maintenance to improve Radar Availability.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*	Project (Number/Name) XW9 / *Reagan Test Site*	

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
XW9: *Reagan Test Site*	-	64.311	68.911	80.952	-	80.952	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project covers operations and mission support functions at the Ronald Reagan Ballistic Missile Defense Test Site and is managed by the United States (U.S.) Army Space and Missile Defense Command (USASMDC) Technical Center.

The Ronald Reagan Ballistic Missile Defense Test Site (RTS), with its remote location and one-of-a-kind instrumentation systems, provides a valuable strategic test environment that cannot be replicated. Its function is to: 1) support test and evaluation of major Army and Department of Defense (DOD) acquisition programs of strategic importance to the national defense; and 2) provide space operations and intelligence data (Space Situational Awareness, object tracking & identification) in support of United States Strategic Command (USSTRATCOM), acting as a high value contributing sensor to the U.S. Space Surveillance Network. Due to its unique geography and instrumentation, RTS is able to provide unmatched data collection capabilities that provide critical test data for programs of national interest to include: Army Missile Defense; Defense Advanced Research Projects Agency hypersonic Boost-Glide developmental tests; Air Force and Navy Intercontinental Ballistic Missile (ICBM) developmental and operational tests; Army, Air Force, Navy, and Missile Defense Agency (MDA) operational, demonstration, and validation tests; National Aeronautics and Space Administration (NASA) scientific and unique space programs; NASA ionospheric studies; space debris tracking; and data collection in support of space experiments.

Funding in this Project covers management and contracting personnel support (salaries and travel) to enable the management of the test and evaluation of major Army and DoD missile systems for the RTS. Funds also provide contracting support for end item procurement, life cycle acquisition planning, and solicitation, negotiation, award, execution and management for weapon systems contracts. This PE provides contractors to accomplish key operations and maintenance functions for RTS instrumentation suites and also provides mission essential bandwidth via a fiber optic cable system. Funds provide the expertise required for operating and maintaining a number of one-of-a-kind radar, optical, telemetry, command/control/communications, safety, and data reduction systems. These systems include the four unique radars of the Kiernan Reentry Measurement Site; Super Recording Automatic Digital Optical Tracker long range video-metric tracking systems; high density data recorders for high data-rate telemetry collected by ten antennas; an underwater acoustic impact location system; and data analysis/reduction hardware/software and Continental United States (CONUS) based mission control center. The Advanced Research Project Agency Long-Range Tracking and Instrumentation Radar and the Target Resolution Discrimination Experiment radars located at RTS are the only radars in this area of operation that have deep-space tracking capability. The Millimeter Wave Radar is one of the highest resolution imaging radars in the world, providing critical intelligence data. Funding also enables weapon system assessment of operational effectiveness and suitability for the Army, Air Force, Navy and MDA, which all have programs planned that have significant test and data gathering requirements at RTS. This test data cannot be obtained except through the use of technical facilities available on and in the vicinity of RTS. Program supports Army's PATRIOT air defense system; Air Force's Minuteman III ICBM and the Space and Missile Center's associated programs; MDA's Ballistic Missile Defense System, ICBM Targets, and Layered Ballistic Missile Defense operational tests (including: PATRIOT, Terminal High-Altitude Area Defense , and Aegis Weapon System), and NASA's space experiments.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Civilian Pay ***Description:*** This effort covers operations and mission support functions at the RTS and is managed by USASMDC. ***FY 2021 Plans:*** Provides government personnel support (salaries) to enable the management of the test and evaluation of major Army and DoD missile systems. ***FY 2022 Plans:*** Will continue to provide government personnel support (salaries) to enable the management of the test and evaluation of major Army and DoD missile systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 includes an inflation factor.	5.818	6.017	6.544
Title: Temporary Duty (TDY)/Training/Supplies - Military and Civilian ***Description:*** Funding will provide for travel and training for civilians and military to assist in the testing of the Army and DoD Missile system Programs. ***FY 2021 Plans:*** Provides government personnel support (training and travel) to enable the management of the test and evaluation of major Army and DoD missile systems. ***FY 2022 Plans:*** Will continue to provide government personnel support (training and travel) to enable the management of the test and evaluation of major Army and DoD missile systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 includes an inflation factor.	0.741	1.052	1.056
Title: Outside Obligations/Other Government Agencies (OGAs) ***Description:*** Funding provided to other Government Agencies for reimbursable-type work efforts. ***FY 2021 Plans:*** Provides support to test and evaluation of major Army and DoD missile systems. ***FY 2022 Plans:***	3.314	9.171	10.875

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will continue to provide support to test and evaluation of major Army and DoD missile systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is due to inflation factor and expected increase in requirements for support from other government agency giving the increase in funding RTS received for range and cyber improvements and upgrades.			
Title: Fiber Optic Cable (Kwajalein Cable System (KCS))/Inner Ring Submarine ***Description:*** Fiber Optic Cable is Provides lease cost for Fiber Optic Cable between Kwajalein and Guam. ***FY 2021 Plans:*** Provides funding for lease of the KCS fiber optic cable between Kwajalein Island and Guam, and for backup satellite. Funding annual fiber maintenance agreement. ***FY 2022 Plans:*** Will continue to provide funding for lease of the KCS fiber optic cable between Kwajalein Island and Guam. Will fund annual cable maintenance agreement. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY21 to FY22 is the payoff schedule balance for the life cycle of the cable will decrease annually until it reaches the sustainment phase.	7.257	9.102	6.305
Title: RTS Contractor Labor ***Description:*** Provide funding for Prime contractor and other contract support to perform technical Operation and Maintenance support to support test and space missions. ***FY 2021 Plans:*** Provides technical O&M support (test planning, instrumentation operations and maintenance, systems engineering, flight safety, and launch ordnance) to assure the capability of the Range to support test and space missions. ***FY 2022 Plans:*** Will continue to provide technical O&M support (test planning, instrumentation operations and maintenance, systems engineering, flight safety, and launch ordnance) to assure the capability of the Range to support test and space missions. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is due to inflation factor and expected increase in requirements for support from the prime contractor giving the increase in funding RTS received for range and cyber improvements and upgrades.	27.578	29.158	35.279
Title: Contractor Material	12.848	6.837	13.407

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Provide for materials to maintain range capabilities and support test operations. ***FY 2021 Plans:*** Provides critical non-labor materials to maintain critical range capabilities and prevent obsolescence in support of test operations. Continues the buy-down of critical maintenance backlog. ***FY 2022 Plans:*** Will continue to provide critical non-labor materials to maintain critical range capabilities and prevent obsolescence in support of test operations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is due to inflation factor and expected increase in requirements for support from the prime contractor giving the increase in funding RTS received for range and cyber improvements and upgrades.			
Title: Federally Funded Research and Development Centers (FFRDC) Contractor Pay ***Description:*** Provide for technical expertise to RTS leadership for the overall performance of Range Operations. ***FY 2021 Plans:*** Provides technical advice to RTS leadership in support of Range operations, strategic planning, and technical execution of critical technology. ***FY 2022 Plans:*** Will continue to provide technical advice to RTS leadership in support of Range operations, strategic planning, and technical execution of critical technology. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY21 to FY22 is based on the projected funding need from the XW9 program provided by the FFRDC contractor.	3.800	4.056	4.013
Title: Contractor Meteorological ***Description:*** Provide capability for weather sensing capability which allows for test planning and execution of the program. ***FY 2021 Plans:*** Provides support for sustained weather sensing capabilities, including weather reporting via radar data. This capability provides critical data to test planning and execution. ***FY 2022 Plans:***	2.089	2.299	2.247

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Will continue to provide support for sustained weather sensing capabilities, including weather reporting via radar data. This capability provides critical data to test planning and execution. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease from FY21 to FY22 is based on the value of the new contract award for a 12 month effort.			
Title: Ground Transportation ***Description:*** Provide transportation of material and passenger between Kwajalein and continental U.S. (CONUS). ***FY 2021 Plans:*** Provides mission specific material and passenger transportation via air (Air Mobility Command) and sea (Surface Deployment and Distribution Command) between Kwajalein Atoll and CONUS. ***FY 2022 Plans:*** Continuing to provide mission specific material and passenger transportation via air (Air Mobility Command) and sea (Surface Deployment and Distribution Command) between Kwajalein Atoll and CONUS. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is based on an inflation factor.	0.394	0.651	0.652
Title: Mission Specific Environmental ***Description:*** Ensures Range Readiness and all regulatory environmental requirements are compliant with range and test requirements. ***FY 2021 Plans:*** Provides the capability to assess and maintain the Range Readiness and compliance with environmental requirements. ***FY 2022 Plans:*** Will continue to provide the capability to assess and maintain the Range Readiness and compliance with environmental requirements. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase from FY21 to FY22 is based on increased travel required for environment board meeting to be held.	0.472	0.568	0.574
Accomplishments/Planned Programs Subtotals	64.311	68.911	80.952

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagan Ballistic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606003A / *CounterIntel and Human Intel Modernization*

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	-	2.925	5.200	5.363	-	5.363	-	-	-	-	-	-
FI9: *Counterl Intel and Human Intel Modernization*	-	2.925	5.200	5.363	-	5.363	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Fiscal Year (FY) 2022 Direct War/Enduring Operations dollars in the amount of $3.759 million in Project FI9 will continue to support the Counterintelligence (CI) and Human Intelligence (HUMINT) Modernization Program Element (PE) supports ongoing rejuvenation and development of new critical CI and HUMINT systems, applications, tools, equipment, and capabilities necessary to defeat foreign intelligence, international terrorist, and insider threats while enhancing our HUMINT collection capability. The required tools provide Army and DoD leadership, commanders, and warfighters the intelligence necessary for making advantageous operational planning, policies, and timely decisions. Modernization of these systems is a core component of ensuring overmatch on current and future battlefields. Beginning in FY 2019, funding for these efforts was transferred to PE 0606003 / Project FI9 (Counter Intel and Human Intel Modernization) from PE 0303028A (INTEL SPT TO FORCE XXI) / Project FG2 (Counterintelligence & Human Intel Modernization).

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	2.925	5.200	5.778	-	5.778
Current President's Budget	2.925	5.200	5.363	-	5.363
Total Adjustments	0.000	0.000	-0.415	-	-0.415
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.415	-	-0.415

Change Summary Explanation

Inflation Rates for Non-Pay and Non-Fuel Purchases

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606003A / *CounterIntel and Human Intel Modernization*	Project (Number/Name) FI9 / *Counterl Intel and Human Intel Modernization*	

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
FI9: *Counterl Intel and Human Intel Modernization*	-	2.925	5.200	5.363	-	5.363	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Counterintelligence (CI) and Human Intelligence (HUMINT) Modernization Project supports ongoing rejuvenation and development of new critical CI and HUMINT systems, applications, tools, equipment, and capabilities necessary to defeat foreign intelligence, international terrorist, and insider threats while enhancing our HUMINT collection capability. The required tools provide Army and Department of Defense (DoD) leadership, commanders, and warfighters the intelligence necessary for making advantageous operational planning, policies, and timely decisions. Modernization of these systems is a core component of ensuring overmatch on current and future battlefields. Beginning in Fiscal Year (FY) 2019, funding for these efforts was transferred to PE 0606003 / Project FI9 (Counter Intel and Human Intel Modernization) from PE 0303028A (INTEL SPT TO FORCE XXI) / Project FG2 (Counterintelligence & Human Intel Modernization).

CI Support to Force Protection (CIFP) provides for updating the Army's Threat Management Information Sharing System, the Army Counterintelligence Operations Portal (ACOP), and partnering with other Service CI entities on a joint CI analysis system development project. Will support development and testing of software code integrating existing and new algorithms to multiple data source to record, identify, sort, and prioritize behaviors.

Geospatial intelligence (GEOINT) Collection Integration provides rapid integration of emerging GEOINT capabilities and analysis techniques significantly ahead of the traditional integration timelines. The 513th MI BDE has been given access to pre-release algorithms and capabilities, and can begin, test, development, and validation activities years prior to traditional processes. This capability allows GEOINT focused contractor manpower equivalent (CME) support to identify difficult counter-terrorism (CT) issues and deliver appropriate capabilities needed today in every theater. Each MIB-T that provides GEOINT support will leverage the capability, and its applicability is world-wide. The effort funds software and testing to extract, analyze, and validate brand new and emerging classified data sources.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Army's Threat Management Informtion Sharing System	2.925	3.313	4.467
Description: The Counterintelligence (CI) and Human Intelligence (HUMINT) Modernization Project supports ongoing rejuvenation and development of new critical CI and HUMINT systems, applications, tools, equipment, and capabilities necessary to defeat foreign intelligence, international terrorist, and insider threats while enhancing our HUMINT collection capability. The required tools provide Army and Department of Defense I (DoD) leadership, commanders, and warfighters the intelligence necessary for making adventurous operational planning, policies, and timely decisions. Modernization of these systems ia a core component of ensuring overmatch on current and future battlefields. Beginning in Fiscal Year (FY) 2019, funding for these efforts was transferred to PE 0606003/Project F19 (Counter Human Intel Modernization from PE 0303028A (INTEL SPT TO FORCE XXI)/Project FG2 (Counterintelligence & Human Intel Modernization).			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606003A / *CounterIntel and Human Intel Modernization*	**Project (Number/Name)** FI9 / *Counterl Intel and Human Intel Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Will provide for updating of the Army's Threat Management Information Sharing System. Will support development and testing of software code integrating existing and new algorithms to analyze multiple data source to record, identify, sort, and prioritize behaviors indicative of espionage, national security compromises, and other foreign and insider threats. ***FY 2022 Plans:*** Will provide for updating of the Army's Threat Management Information Sharing System. Will support development and testing of software code integrating existing and new algorithms to analyze multiple data source to record, identify, sort, and prioritize behaviors indicative of espionage, national security compromises, and other foreign and insider threats. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase in training in support of threat awareness.			
Title: C4ISR ***Description:*** The Joint Service Counter C4ISR Initiative conducts technical analysis and research focused on centers of gravity within the C4ISR architecture of adversary weapon systems that enable successful kinetic and non-kinetic engagements. The Army will use the intelligence provided from this effort to inform the development of offensive cyber and advanced electronic warfare capabilities against adversaries. ***FY 2021 Plans:*** Continue the development of offensive cyber ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Requirement no longer required in FY22.	-	1.000	-
Title: GEOINT ***Description:*** GEOINT Collection Integration provides rapid integration of emerging GEOINT capabilities and analysis techniques significantly ahead of the traditional integration timelines. The 513th Military Intelligence Brigade (MI BDE) has been given access to pre-release algorithms and capabilities, and can begin test, development, and validation activities years prior to traditional processes. This capability allows GEOINT focused CME support to identify difficult CT issues and deliver appropriate capabilities needed today in every theater. Each Military Intelligence Brigade - Theater (MIB-T) that provides GEOINT support will leverage the capability, and its applicability is world-wide. The project funds software and testing to extract, analyze, and validate brand new and emerging classified data sources. ***FY 2021 Plans:***	-	0.887	0.896

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606003A / *CounterIntel and Human Intel Modernization*	**Project (Number/Name)** FI9 / *Counterl Intel and Human Intel Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
GEOINT Collection Integration provides rapid integration of emerging GEOINT capabilities and analysis techniques significantly ahead of the traditional integration timelines. the 513th MI BDE has been given access to pre-release algorithms and capabilities, and can begin test, development, and validation activities years prior to traditional processes. This capability allows GEOINT focused CME support to identify difficult CT issues and deliver appropriate capabilities needed today in every theater. Each MIB-T that provides GEOINT support will leverage the capability, and its applicability is world-wide. The project funds software and testing to extract, analyze, and validate brand new and emerging classified data sources. ***FY 2022 Plans:*** GEOINT Collection Integration provides rapid integration of emerging GEOINT capabilities and analysis techniques significantly ahead of the traditional integration timelines. the 513th MI BDE has been given access to pre-release algorithms and capabilities, and can begin test, development, and validation activities years prior to traditional processes. This capability allows GEOINT focused CME support to identify difficult CT issues and deliver appropriate capabilities needed today in every theater. Each MIB-T that provides GEOINT support will leverage the capability, and its applicability is world-wide. The project funds software and testing to extract, analyze, and validate brand new and emerging classified data sources. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Very slight increase due to inflation			
Accomplishments/Planned Programs Subtotals	2.925	5.200	5.363

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606105A / *Medical Program-Wide Activities*

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	-	-	19.164	39.041	-	39.041	-	-	-	-	-	-
CD7: *Medical Program-Wide Activities*	-	-	19.164	39.041	-	39.041	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Continental United States (CONUS) Laboratory Support Clinical Infrastructure and the Outside the Continental United States (OCONUS) Laboratory Infrastructure Support programs. The CONUS and OCONUS laboratory support programs receive funding for research infrastructure management support at select CONUS and OCONUS laboratories and clinical trial sites; work is done in collaboration with Department of Defense Military Treatment Facilities. This program element does not fund research. It funds the infrastructure support staff enabling research scientists to conduct bio-surveillance and early-to-late-stage clinical investigations into biologics, drugs, protectants, device technologies, and knowledge products.

In FY21 programs these programs were transferred from the Defense Health Agency to the United States Army.

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	19.891	20.289	-	20.289
Current President's Budget	0.000	19.164	39.041	-	39.041
Total Adjustments	0.000	-0.727	18.752	-	18.752
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.727			
• Adjustments to Budget Years	-	-	18.752	-	18.752

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606105A / *Medical Program-Wide Activities*	Project (Number/Name) CD7 / *Medical Program-Wide Activities*	

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
CD7: *Medical Program-Wide Activities*	-	-	19.164	39.041	-	39.041	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Continental United States (CONUS) Laboratory Infrastructure Support funding provides infrastructure and management support for selected laboratories and research sites and enables basic to late stage clinical investigations on medical products as well as collaborative efforts with the Military Health System's (MHS) Military Treatment Facilities (MTFs). MTFs provide access to the patient populations who will benefit the most from the medical products and capabilities being developed. The funds support the retention of technical subject matter expertise, independent of the number of assigned projects. Administration and infrastructure support efforts include resource management, logistics, safety, information technology activities, salaries, utilities, maintenance, transportation, shipping, vehicle maintenance and generator fuel. The infrastructure funds also support Institutional Review Board functions, research technical support, statistical support, grant writing assistance, and other essential functions for maintaining research in MTFs.

The Outside of the Continental United States (OCONUS) Laboratory Infrastructure Support provides management support for research infrastructure at selected overseas laboratories and research sites that conduct bio surveillance and basic to late-stage clinical research and evaluation of investigational products, such as biologics, drugs, protectants, technologies, and knowledge products to treat/prevent infectious diseases for the purpose of protecting the Warfighter; this is accomplished through collaborative efforts with the respective host nation governments. These sites are the US Army Medical Research Directorate-Kenya (USAMRD-K) in Nairobi, Kenya, the US Army Medical Research Directorate-Georgia (USAMRD-G) in Tbilisi, Georgia, and the US Army Medical Directorate-Armed Forces Research Institute of Medical Sciences (USAMD-AFRIMS) in Bangkok, Thailand. USAMRD-G is the newest laboratory, and provides support in the Caucasus region, similar to that provided by the laboratories in Kenya and Thailand to East Africa and Southeast Asia regions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Medical Program-Wide Activities	-	19.164	39.041
Description: CONUS Laboratory Infrastructure Support management for research infrastructure at select laboratories and research sites that conduct basic to late-stage clinical research and evaluation of investigational products, such as biologics, drugs, and devices to treat/prevent poly trauma (multiple traumatic injuries), through collaborative efforts with the MHS MTFs. OCONUS Laboratory Infrastructure Support management for research infrastructure at selected overseas laboratories and research sites is integral to support the predicting, detecting, preventing, and treating infectious disease threats to the US military, as well as support for surveillance, training, research, and response activities for emerging infectious disease threats that could affect Service members in those regions. Supported OCONUS laboratories are the US Army Medical Directorate-Armed Forces			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606105A / *Medical Program-Wide Activities*	**Project (Number/Name)** CD7 / *Medical Program-Wide Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Research Institute of Medical Sciences (AFRIMS) in Bangkok, Thailand; the US Army Research Directorate-Kenya (USAMRD-K) in Nairobi, Kenya, and the US Army Medical Research Directorate-Georgia (USAMRD-G) in Tbilisi, Georgia. ***FY 2021 Plans:*** The CONUS Laboratory Support Clinical Infrastructure project supports efforts for military medical research. These efforts include support staff engaged in multiple clinical investigations and performing critical roles in research subject engagement, development and review of research protocols, and the creation, analysis, and communication of research data. Efforts with the funding include: support for clinical investigations, submission for external funding applications, sustainment of a Clinical Investigation Committee to review research protocols and provide research support services, solicitation of collaborative research partnerships with non-federal organizations, utilization of funding opportunities database to assist MTF investigators, and identification of ways to improve submission competitiveness. The OCONUS Laboratory Support Clinical Infrastructure project support sustainment of the administration and infrastructure support for USAMD-AFRIMS, USAMRD-K, and USAMRD-G laboratories. These laboratories provide medical research platforms for surveillance, testing, and evaluation of products to inform the development of interventions for military-relevant endemic diseases. Administration and infrastructure support efforts include resource management, logistics, safety, information technology activities, salaries, utilities, maintenance, transportation, shipping, vehicle maintenance and generator fuel. ***FY 2022 Plans:*** The CONUS Laboratory Support Clinical Infrastructure project will support efforts for military medical research, as well as sustainment of the administration and infrastructure of CONUS medical research laboratories. These efforts will include support staff engaged in multiple clinical investigations and performing critical roles in research subject engagement, development and review of research protocols, and the creation, analysis, and communication of research data. Efforts with the funding will include: support for clinical investigations, submission for external funding applications, sustainment of a Clinical Investigation Committee to review research protocols and provide research support services, solicitation of collaborative research partnerships with non-federal organizations, utilization of funding opportunities database to assist investigators, and identification of ways to improve submission competitiveness. The OCONUS Laboratory Support Clinical Infrastructure project will support sustainment of the administration and infrastructure support for USAMRD-AFRIMS, USAMRD-AFRICA, and USAMRD-GEORGIA laboratories. These laboratories will provide medical research platforms for surveillance, testing, and evaluation of products to inform the development of interventions for military-relevant endemic diseases. Administration and infrastructure will support efforts include resource management, logistics, safety,			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606105A / *Medical Program-Wide Activities*	**Project (Number/Name)** CD7 / *Medical Program-Wide Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
regulatory affairs, information technology activities, salaries, utilities, maintenance, security, leasing, transportation, shipping, vehicle maintenance and generator fuel. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	-	19.164	39.041

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606942A *I Assessments and Evaluations Cyber Vulnerabilities*							
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	-	4.500	6.496	5.466	-	5.466	-	-	-	-	-	-
FL2: *Cyber Vulnerabilities Assessments and Evaluations*	-	4.500	6.496	5.466	-	5.466	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The National Defense Authorization Acts (NDAA), Fiscal Year (FY) 16 Section 1647, and FY 17 Section 1650, directs the office of the Secretary of Defense (OSD) to complete an evaluation of cyberspace vulnerabilities of select Department of Defense (DoD) weapon systems and critical infrastructures. For NDAA 1647, the Army was directed to assess and mitigate twenty-four weapon systems not later than December 31, 2019. For NDAA 1650, the Army was directed to assess and submit a mitigation strategy for twenty-five installations by December 31, 2020. To support this mandate, the two Congressional mandates were merged into two enduring Army programs: the Cyber Operational Resiliency Assessment-Platforms (CORA-P) to replace NDAA 1647, and the Cyber Operational Resiliency Assessment-Installations (CORA-I) to replace NDAA 1650. The aim of CORA-P/I is to reduce the Army's risk to adversarial cyber intrusions or attacks that compromise Army weapon and installation systems. Performance objective is to provide governance oversight of CORA-P/I phased vulnerability assessments to support the Planning, Programming, Budgeting and Execution (PPBE) cycle. These deliverables include identifying the means to mitigate CORA-P/I vulnerabilities.

Efforts in this Program Element will: 1) identify, assess, and develop non-recurring engineering (NRE) to mitigate operational risks from cyber vulnerabilities to critical Army weapon systems in an operational configuration; and 2) assure the confidentiality, availability, and integrity of the information and control systems that underpin Army facilities and critical infrastructure by inventorying and assessing Facility-Related Control Systems (FRCS).

Weapon systems evaluations will assess and provide NRE recommendations to mitigate operational risks emanating from a peer or near-peer adversary profile in accordance with existing test/lab requirements through the acquisition cycle. Where applicable, these evaluations will include tabletop exercises, lab assessments, and exercise/operational assessments of Program Executive Officer Command, Control, Communications-Tactical (PEO C3T) and ground weapon systems. Cyber hardening efforts will be informed by the vulnerability assessments reports (VAR) generated through the assessment and prioritization process. Prioritization will be based on mission criticality, impact to readiness, and threat. When applicable, this PE also provides for Red Team enhancement to support Combatant Command mission-level cyber vulnerability assessments.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606942A *I Assessments and Evaluations Cyber Vulnerabilities*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	4.500	4.496	4.496	-	4.496
Current President's Budget	4.500	6.496	5.466	-	5.466
Total Adjustments	0.000	2.000	0.970	-	0.970
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	2.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.970	-	0.970

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: FL2: *Cyber Vulnerabilities Assessments and Evaluations*		
Congressional Add: *Program increase - cyber vulnerability assessment*	-	2.000
Congressional Add Subtotals for Project: FL2	-	2.000
Congressional Add Totals for all Projects	-	2.000

Change Summary Explanation

FY 2021 increase allows for development of new analytic methodologies to make use of commercially available data that can be applied to military and Defense Industrial Base (DIB) targets to identify vulnerabilities in the cyber and physical supply chain or critical assets and facilities. The increase develops a process that allows for a comprehensive, intelligence informed assessment that can be applied to critical weapon systems and Combatant Commands (CCMDs) as well as the ecosystems that support them by providing a holistic look at cyber defense posture, resiliency, supply chain and development of cyber-electronic warfare (EW) convergence techniques.

FY 2022 increase allows for further development of new analytic methodologies to make use of commercially available data that can be applied to military and Defense Industrial Base (DIB) targets to identify vulnerabilities in the cyber and physical supply chain or critical assets and facilities.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606942A / *Assessments and Evaluations Cyber Vulnerabilities*	Project (Number/Name) FL2 / *Cyber Vulnerabilities Assessments and Evaluations*	

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
FL2: *Cyber Vulnerabilities Assessments and Evaluations*	-	4.500	6.496	5.466	-	5.466	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds cyber vulnerabilities evaluations of major weapon systems in alignment with Section 1647 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2016, and of critical infrastructure in alignment with Section 1650 of NDAA FY 2017. Efforts in this Project will: 1) identify, assess, and develop and identify non-recurring engineering (NRE) to mitigate operational risks from cyber vulnerabilities to critical Army weapon systems in an operational configuration; and 2) assure the confidentiality, availability, and integrity of the information and control systems that underpin Army facilities and critical infrastructure by inventorying and assessing Facility-Related Control Systems (FRCS).

Weapon systems evaluations will assess and provide NRE recommendations to mitigate operational risks emanating from a peer or near-peer adversary profile in accordance with existing test/lab requirements through acquisition cycle. Where applicable, these evaluations will include tabletop exercises, lab assessments, and exercise/operational assessments of Program Executive Officer Command, Control, Communications-Tactical (PEO C3T) and ground weapon systems. Cyber hardening efforts will be informed by the vulnerability assessments reports (VAR) generated through the assessment and prioritization process. Prioritization will be based on mission criticality, impact to readiness, and threat. When applicable, this PE also provides for Red Team enhancement to support Combatant Command mission-level cyber vulnerability assessments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Cyberspace Operational Resiliency Assessment ? Platform (CORA-P)	-	2.248	2.733
Description: CORA-P is the Army's response to Section 1647 of the 2016 National Defense Authorization Act (NDAA) which directed the Department of the Defense (DoD) to evaluate cyber vulnerabilities of major weapon systems. HQ Department of the Army Cyber Directorate (DAMO-CY) will be the oversight governing body overseeing the assessments and NRE mitigations process to cyber vulnerabilities identified in the VAR. ***FY 2021 Plans:*** The funding provides DAMO-CY the opportunity to complete evaluation of the 24 critical weapon systems and the 26 critical infrastructures for cyber vulnerabilities, identified by the DoD, in support of NDAAs 1647 and 1650. This includes lab assessments, tabletop exercises, and additional analytical, exercise, and or operational assessments. This funding provides DAMO-CY the ability to develop Red Team capacity to carry out Combatant Command (COCOM) mission level assessments. Cyber hardening			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606942A / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** FL2 / *Cyber Vulnerabilities Assessments and Evaluations*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
efforts will be informed by the VAR generated through the assessment and prioritization process. Prioritization will be based on mission criticality, impact to readiness, and threat analysis ***FY 2022 Plans:*** The funding provides DAMO-CY the opportunity to complete evaluation of the 24 critical weapon systems and the 26 critical infrastructures for cyber vulnerabilities, identified by the DoD, in support of NDAAs 1647 and 1650. This includes lab assessments, tabletop exercises, and additional analytical, exercise, and or operational assessments. This funding provides DAMO-CY the ability to develop Red Team capacity to carry out COCOM mission level assessments. Cyber hardening efforts will be informed by the VAR generated through the assessment and prioritization process. Prioritization will be based on mission criticality, impact to readiness, and threat analysis. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 increase is due to the completion of the critical weapons systems and critical infrastructures for cyber vulnerabilities.			
Title: Cyberspace Operational Resiliency Assessment ? Installation (CORA-I) ***Description:*** CORA-I is the Army's response to Section 1650 of the 2017 NDAA. Evaluations of cyber vulnerabilities to critical infrastructure will focus on Task Critical Assets, Defense Critical Assets, and on units with high priority Quadrennial Defense Review missions and their supporting infrastructure. When necessary, this PE will provide for the training of teams to conduct cyber vulnerability evaluations on critical infrastructure. Once trained, these teams will conduct cooperative vulnerability and penetration assessments (Blue Teaming), adversarial assessments (Red Teaming), and assist with conducting assessments of cyber dependencies, vulnerabilities and threats in accordance with DoDI 8501.1 "Risk Management Framework." Funding will also provide for Contractor subject matter expertise to conduct Security Control Assessments and Deep Cyber Resiliency Assessments. ***FY 2021 Plans:*** Funding provides for the completion of the select-DoD twenty-five critical infrastructures assessments already in some stage of the evaluation process, identified as part of the Section 1650 directive, executed through on-sight assessments. These assessments result in VAR in support of the PPBE cycle. Funding also provides developing and maintaining a Red and Blue teams carry out on-site assessments. Cyber hardening efforts will be informed by the VAR generated through the assessment and prioritization process. Prioritization will be based on mission criticality, impact to readiness, and threat. ***FY 2022 Plans:*** Funding provides for the completion of the select-DoD twenty-five critical infrastructures assessments already in some stage of the evaluation process, identified as part of the Section 1650 directive, executed through on-sight assessments. These assessments result in VAR in support of the Planning, Programming, Budgeting, and Execution (PPBE) cycle. Funding also	-	2.248	2.733

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606942A / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** FL2 / *Cyber Vulnerabilities Assessments and Evaluations*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
provides developing and maintaining a Red and Blue teams carry out on-site assessments. Cyber hardening efforts will be informed by the VAR generated through the assessment and prioritization process. Prioritization will be based on mission criticality, impact to readiness, and threat. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY 2021 to FY 2022 increase for the analytic methodologies developed to use commercially available data used in prototype.			
Title: U.S. Army Corps of Engineer (USACE) Tiger Team ***Description:*** USACE Tiger Team conducts planning and scoping for the NDAA 1650 Mitigations.	0.098	-	-
Title: Mission Relevant Terrain-Cyber ***Description:*** Identification and Protection of Key Cyber Terrain in major commands.	0.451	-	-
Title: Secure Gray Eagle Maintenance Support ***Description:*** Provides Cyber Resilient Software Maintenance support to assure the readiness of Gray Eagle Unmanned Aerial System.	2.814	-	-
Title: Operations Support Cell ***Description:*** Weapons and infrastructure assessment schedulers and mitigation report writers.	0.794	-	-
Title: Boundary Layer Protection ***Description:*** Addresses the FY16 National Defense Authorization Act 1647 cyber assessments identified in developing a Boundary Layer Protection as one of the crosscutting areas of interest.	0.343	-	-
Accomplishments/Planned Programs Subtotals	4.500	4.496	5.466

	FY 2020	FY 2021
Congressional Add: Program increase - cyber vulnerability assessment	-	2.000
FY 2021 Plans: FY 2021 Congressional Add for Cyber Vulnerability Assessments for Red Teams.		
Congressional Adds Subtotals	-	2.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606942A / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** FL2 / *Cyber Vulnerabilities Assessments and Evaluations*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0909999A / *Financing for Cancelled Account Adjustments*

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	-	0.061	-	-	-	-	-	-	-	-	-	-
900: *CLOSED ACCT ADJMT-M*	-	0.061	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Financing for Closed Account Adjustments

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	0.061	0.000	0.000	-	0.000
Total Adjustments	0.061	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.061	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

FY20 increase reflects Financing for Cancelled Account Adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0909999A / *Financing for Cancelled Account Adjustments*	Project (Number/Name) 900 / *CLOSED ACCT ADJMT-M*	

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
900: *CLOSED ACCT ADJMT-M*	-	0.061	-	-	-	-	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program accomplishes closed account adjustments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Financing for Closed Account Adjustments	0.061	-	-
Accomplishments/Planned Programs Subtotals	0.061	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A