Department of Defense
Fiscal Year (FY) 2018 Budget Estimates

May 2017

Army

Justification Book of

Research, Development, Test & Evaluation, Army

RDT&E − Volume III, Budget Activity 6

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, $9,544,808,000 to remain available for obligation until September 30, 2019.

The following Justification Books were prepared at a cost of $250,916: Aircraft (ACFT), Missile (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 6, and Budget Activity 7.

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FY 2018 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 2018.

2. **Relationship of the FY 2018 Budget Submitted to Congress to the FY 2017 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.

A. New Start Programs:

Budget Activity	OSDPE/Project	Project Title
01	0601104A/FF5	Distributed Collaborative Intelligent Systems CTA
01	0601104A/FF7	Internet of Battlefield Things CTA
03	0603001A/FF6	Individual Protection
03	0603009A/FH1	Tractor Hike
04	0603639A/XT5	30mm Anti-Personnel and Counter-Air
04	0603645A/EV7	Combat Vehicle Prototyping
04	0603807A/VS7	MEDEVAC Mission Equipment Package (MEP) - Adv Dev
04	0604017A/FD2	Soldier Robotics Systems
04	0604017A/FD3	Battery Modernization & Interface Standardization
04	0604017A/FD9	Robotics Systems

Budget Activity	OSDPE/Project	Project Title
04	0604117A/FI4	Maneuver – Short Range Air Defense (M-SHORAD)
04	0604120A/EJ3	ANTI-JAM ANTENNA
04	0604121A/FD6	Synthetic Training Environment Refine & Prototype
05	0604601A/FF2	Small Arms Fire Control
05	0604601A/FI2	Lightweight 30mm Cannon
05	0604604A/H07	Family Of Med Tac Veh
05	0604768A/688	ATACMS BLK II
05	0604768A/P01	MULTI - MODE SEEKER DEVELOPMENT AND TEST
05	0604802A/EW1	40mm LV High Explosive Air Burst, XM1166
05	0604802A/FA6	30mm Lethality
05	0604804A/FG4	Ultra-Lightweight Camouflage Net System (ULCANS)
05	0604818A/ER9	Expeditionary Army Command Post
05	0604823A/L87	Hypervelocity Projectile System
05	0604852A/FE8	Vehicle Protection Suite
05	0605013A/VR3	ASMIS-R (REPORTIT)
05	0605037A/EQ6	Evidence Collection and Detainee Processing
05	0605053A/FB2	Man Transportable Robotic System (MTRS) Inc II
05	0605053A/FB3	Robotics Architecture
05	0605053A/FB4	Common Robotic Systems
05	0605053A/FB6	Squad Multipurpose Equipment Transport (SMET)
05	0605053A/FB7	Robotics Enhanced Program (REP)
05	0605053A/FB8	Soldier Borne Sensor (SBS)

Budget Activity	**OSDPE/Project**	**Project Title**
05	0605053A/FB9	MTRS Standardization
05	1205117A/FG3	Tractor Bears
06	0606001A/FD4	Military Ground-Based CREW Technology
07	0203735A/280	RECOV VEH IMPROV PROG
07	0203735A/431	M113 IMPROVEMENTS
07	0203743A/FF9	PIM Improvement Program
07	0203802A/788	ATACMS PIP
07	0205412A/EE6	Environmental Information Tech Modernization
07	0303028A/FG2	Counterintelligence & Human Intel Modernization
07	0303140A/FF8	Unit Activity Monitoring (UAM)
07	0305172A/XT9	Combined Advanced Applications

B. Program Element/Project Restructures:

Budget Activity	Old OSDPE/Project: Title	New OSDPE/Project: Title
04	0603308A/990: Space and Missile Defense Integration	1206308A/FE5: Space and Missile Defense Integration
04	0603308A/EB7: Army Space System Enhancement/Integration	1206308A/FE6: Army Space System Enhancement/Integration
04	0305219AMQ1: MQ-1 Gray Eagle – Army UAV (MIP)	0603804A/EW8: Armored Engineer Vehicles
05	0604201A/VU3: Networking and Mission Planning	0604201A/EW7: Degraded Visual Environment
05	0603639A/EB8: OWL for Small Caliber Ammunition	0604802A/EP4: One-Way Luminescence For Small Caliber Ammo
05	0603639A/EU2: Improved Multi-Option Fuze (iMOFA/iMOFM)	0604802A/EU8: Improved Multi-Option Fuze
05	0604827A/S65: Platoon Power Generator	0604827A/EY2: Integrated Soldier Power Data System Core
05	0604827A/S65: Platoon Power Generator	0604827A/EY4: Universal Battery Charger
05	0203735A/EE2: Stryker Improvement	0604852A/XU9: Active Protection System
05	0605013A/738: AcqBiz	0605013A/FE9: ALTESS (P & R Forms)
05	0603627A/E79: Smoke/Obscurant System	0605038A/EQ7: NBC Reconnaissance Vehicle (NBCRV)
05	0605051A/ER8: Common Missile Warning System (CMWS)	0605049A/XT4: Advanced Threat Detection System (ATDS)
05	0303142A/EA3: Transportable Tactical Cmd Comms (T2C2)	0605766A/EX7: Air Vigilance System Development
06	0605898A/M03: Command HQ - MRDC	0605898A/XW7: Command HQ - ARI
06	0605301A/DX2: Army Kwajalein and Mission Support	0606002A/XW9: Reagan Test Site
07	0303142A/253: Dscs-Dcs (Phase II)	1203142A/FE1: Dscs-Dcs (Phase II)
07	0303142A/456: MILSATCOM System Engineering	1203142A/FE2: MILSATCOM System Engineering
07	0303142A/EA3: Transportable Tactical Cmd Comms (T2C2)	1203142A/FE4: Enroute Mission Command
07	0208053A/635: Joint Tact Grd Station P3I (MIP)	1208053A/FE7: Joint Tact Grd Station-P3I(MIP)
07	0305219A/RQ7: RQ-7 Shadow UAV	0607143A/EX1: Unmanned Aircraft Systems Universal Products

C. Program Terminations:

Budget Activity	OSDPE/Project	OSDPE Title/Project Title
01	0601104A/H53	University & Industry Rsch Ctrs / Army High Performance Computing Research Center
01	0601104A/H53	University & Industry Rsch Ctrs / Micro-autonomous Systems Technology (MAST) CTA
05	0604601A/S62	Infantry Support Weapons / Counter-Defilade Target Engagement - SDD

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 (ASA(ALT)) Special Programs Office.

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Department of Defense
FY 2018 President's Budget Request
Exhibit R-1 FY 2018 President's Budget Request
Total Obligational Authority
(Dollars in Thousands)

26 Apr 2017

Appropriation	FY 2016 Base + OCO	FY 2017 PB Request with CR Adj Base	FY 2017 Total PB Requests* with CR Adj Base	FY 2017 PB Request with CR Adj OCO	FY 2017 Total PB Requests* with CR Adj OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj OCO
Research, Development, Test & Eval, Army	7,861,744	7,547,794	7,897,415	1,500	233,300	-78,700	154,600
Total Research, Development, Test & Evaluation	7,861,744	7,547,794	7,897,415	1,500	233,300	-78,700	154,600

Department of Defense
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26 Apr 2017

Appropriation	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA	FY 2017 Total PB Requests* with CR Adj Base + OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj Base + OCO	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Research, Development, Test & Eval, Army	7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808
Total Research, Development, Test & Evaluation	7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808

R-1C1F: FY 2018 President's Budget Request (Published Version), as of April 26, 2017 at 08:46:19

Department of Defense
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(Dollars in Thousands)

26 Apr 2017

Summary Recap of Budget Activities	FY 2016 Base + OCO	FY 2017 PB Request with CR Adj Base	FY 2017 Total PB Requests* with CR Adj Base	FY 2017 PB Request with CR Adj OCO	FY 2017 Total PB Requests* with CR Adj OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj OCO
Basic Research	450,831	428,943	428,943				
Applied Research	1,070,349	907,574	907,574				
Advanced Technology Development	1,113,746	930,065	943,365				
Advanced Component Development & Prototypes	499,287	550,635	566,835	9,375	25,395		25,395
System Development & Demonstration	2,202,652	2,265,094	2,393,383	84,043	288,443	-78,700	209,743
RDT&E Management Support	1,259,926	1,136,134	1,161,991				
Operational Systems Development	1,264,953	1,296,954	1,462,929	7,104	18,484		18,484
Undistributed		32,395	32,395	-99,022	-99,022		-99,022
Total Research, Development, Test & Evaluation	7,861,744	7,547,794	7,897,415	1,500	233,300	-78,700	154,600
Summary Recap of FYDP Programs							
General Purpose Forces	802,086	618,038	697,138		4,530		4,530
Intelligence and Communications	400,329	238,711	268,755	7,104	8,854		8,854
Research and Development	6,596,225	6,591,738	6,832,215	93,418	318,938	-78,700	240,238
Central Supply and Maintenance	58,503	62,287	62,287				
Administration and Associated Activities	65	32,395	32,395	-99,022	-99,022		-99,022
Space							
Classified Programs	4,536	4,625	4,625				
Total Research, Development, Test & Evaluation	7,861,744	7,547,794	7,897,415	1,500	233,300	-78,700	154,600

Department of Defense
FY 2018 President's Budget Request
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26 Apr 2017

Summary Recap of Budget Activities	FY 2017 Total PB Requests** with CR Adj Base+OCO+SAA	FY 2017 Total PB Requests* with CR Adj Base + OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj Base + OCO	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Basic Research	428,943	428,943		428,943	430,022		430,022
Applied Research	907,574	907,574		907,574	889,182		889,182
Advanced Technology Development	930,065	943,365		943,365	1,070,977		1,070,977
Advanced Component Development & Prototypes	560,010	592,230		592,230	890,889	18,000	908,889
System Development & Demonstration	2,427,837	2,681,826	-78,700	2,603,126	3,012,840	57,840	3,070,680
RDT&E Management Support	1,136,134	1,161,991		1,161,991	1,253,845		1,253,845
Operational Systems Development	1,304,058	1,481,413		1,481,413	1,877,685	43,528	1,921,213
Undistributed	-66,627	-66,627		-66,627			
Total Research, Development, Test & Evaluation	7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808
Summary Recap of FYDP Programs							
General Purpose Forces	618,038	701,668		701,668	710,401	15,000	725,401
Intelligence and Communications	245,815	277,609		277,609	370,519	29,728	400,247
Research and Development	6,763,856	7,151,153	-78,700	7,072,453	8,215,942	74,640	8,290,582
Central Supply and Maintenance	62,287	62,287		62,287	60,877		60,877
Administration and Associated Activities	-66,627	-66,627		-66,627			
Space					60,547		60,547
Classified Programs	4,625	4,625		4,625	7,154		7,154
Total Research, Development, Test & Evaluation	7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808

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Applied Research	1,070,349	907,574	907,574				
Advanced Technology Development	1,113,746	930,065	943,365				
Advanced Component Development & Prototypes	499,287	550,635	566,835	9,375	25,395		25,395
System Development & Demonstration	2,202,652	2,265,094	2,393,383	84,043	288,443	-78,700	209,743
RDT&E Management Support	1,259,926	1,136,134	1,161,991				
Operational Systems Development	1,264,953	1,296,954	1,462,929	7,104	18,484		18,484
Undistributed		32,395	32,395	-99,022	-99,022		-99,022
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Research and Development	6,596,225	6,591,738	6,832,215	93,418	318,938	-78,700	240,238
Central Supply and Maintenance	58,503	62,287	62,287				
Administration and Associated Activities	65	32,395	32,395	-99,022	-99,022		-99,022
Space							
Classified Programs	4,536	4,625	4,625				
Total Research, Development, Test & Evaluation	7,861,744	7,547,794	7,897,415	1,500	233,300	-78,700	154,600

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Basic Research	428,943	428,943		428,943	430,022		430,022
Applied Research	907,574	907,574		907,574	889,182		889,182
Advanced Technology Development	930,065	943,365		943,365	1,070,977		1,070,977
Advanced Component Development & Prototypes	560,010	592,230		592,230	890,889	18,000	908,889
System Development & Demonstration	2,427,837	2,681,826	-78,700	2,603,126	3,012,840	57,840	3,070,680
RDT&E Management Support	1,136,134	1,161,991		1,161,991	1,253,845		1,253,845
Operational Systems Development	1,304,058	1,481,413		1,481,413	1,877,685	43,528	1,921,213
Undistributed	-66,627	-66,627		-66,627			
Total Research, Development, Test & Evaluation	7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808
Summary Recap of FYDP Programs							
General Purpose Forces	618,038	701,668		701,668	710,401	15,000	725,401
Intelligence and Communications	245,815	277,609		277,609	370,519	29,728	400,247
Research and Development	6,763,856	7,151,153	-78,700	7,072,453	8,215,942	74,640	8,290,582
Central Supply and Maintenance	62,287	62,287		62,287	60,877		60,877
Administration and Associated Activities	-66,627	-66,627		-66,627			
Space					60,547		60,547
Classified Programs	4,625	4,625		4,625	7,154		7,154
Total Research, Development, Test & Evaluation	7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808

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

Line No	Program Element Number	Item	Act	FY 2016 Base + OCO	FY 2017 PB Request with CR Adj Base	FY 2017 Total PB Requests* with CR Adj Base	FY 2017 PB Request with CR Adj OCO	FY 2017 Total PB Requests* with CR Adj OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj OCO	Sec
1	0601101A	In-House Laboratory Independent Research	01	12,525	12,381	12,381					U
2	0601102A	Defense Research Sciences	01	271,933	253,116	253,116					U
3	0601103A	University Research Initiatives	01	67,225	69,166	69,166					U
4	0601104A	University and Industry Research Centers	01	99,148	94,280	94,280					U
	Basic Research			450,831	428,943	428,943					
5	0602105A	Materials Technology	02	67,806	31,533	31,533					U
6	0602120A	Sensors and Electronic Survivability	02	57,202	36,109	36,109					U
7	0602122A	TRACTOR HIP	02	6,879	6,995	6,995					U
8	0602211A	Aviation Technology	02	58,497	65,914	65,914					U
9	0602270A	Electronic Warfare Technology	02	18,502	25,466	25,466					U
10	0602303A	Missile Technology	02	51,801	44,313	44,313					U
11	0602307A	Advanced Weapons Technology	02	36,906	28,803	28,803					U
12	0602308A	Advanced Concepts and Simulation	02	26,886	27,688	27,688					U
13	0602601A	Combat Vehicle and Automotive Technology	02	95,763	67,959	67,959					U
14	0602618A	Ballistics Technology	02	118,221	85,436	85,436					U
15	0602622A	Chemical, Smoke and Equipment Defeating Technology	02	3,713	3,923	3,923					U
16	0602623A	Joint Service Small Arms Program	02	5,270	5,545	5,545					U
17	0602624A	Weapons and Munitions Technology	02	81,447	53,581	53,581					U

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1	0601101A	In-House Laboratory Independent Research	01	12,381	12,381		12,381	12,010		12,010	U
2	0601102A	Defense Research Sciences	01	253,116	253,116		253,116	263,590		263,590	U
3	0601103A	University Research Initiatives	01	69,166	69,166		69,166	67,027		67,027	U
4	0601104A	University and Industry Research Centers	01	94,280	94,280		94,280	87,395		87,395	U
	Basic	Research		428,943	428,943		428,943	430,022		430,022	
5	0602105A	Materials Technology	02	31,533	31,533		31,533	29,640		29,640	U
6	0602120A	Sensors and Electronic Survivability	02	36,109	36,109		36,109	35,730		35,730	U
7	0602122A	TRACTOR HIP	02	6,995	6,995		6,995	8,627		8,627	U
8	0602211A	Aviation Technology	02	65,914	65,914		65,914	66,086		66,086	U
9	0602270A	Electronic Warfare Technology	02	25,466	25,466		25,466	27,144		27,144	U
10	0602303A	Missile Technology	02	44,313	44,313		44,313	43,742		43,742	U
11	0602307A	Advanced Weapons Technology	02	28,803	28,803		28,803	22,785		22,785	U
12	0602308A	Advanced Concepts and Simulation	02	27,688	27,688		27,688	28,650		28,650	U
13	0602601A	Combat Vehicle and Automotive Technology	02	67,959	67,959		67,959	67,232		67,232	U
14	0602618A	Ballistics Technology	02	85,436	85,436		85,436	85,309		85,309	U
15	0602622A	Chemical, Smoke and Equipment Defeating Technology	02	3,923	3,923		3,923	4,004		4,004	U
16	0602623A	Joint Service Small Arms Program	02	5,545	5,545		5,545	5,615		5,615	U
17	0602624A	Weapons and Munitions Technology	02	53,581	53,581		53,581	41,455		41,455	U

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18	0602705A	Electronics and Electronic Devices	02	62,654	56,322	56,322					U
19	0602709A	Night Vision Technology	02	37,501	36,079	36,079					U
20	0602712A	Countermine Systems	02	35,586	26,497	26,497					U
21	0602716A	Human Factors Engineering Technology	02	23,220	23,671	23,671					U
22	0602720A	Environmental Quality Technology	02	20,270	22,151	22,151					U
23	0602782A	Command, Control, Communications Technology	02	34,749	37,803	37,803					U
24	0602783A	Computer and Software Technology	02	12,266	13,811	13,811					U
25	0602784A	Military Engineering Technology	02	80,130	67,416	67,416					U
26	0602785A	Manpower/Personnel/Training Technology	02	22,474	26,045	26,045					U
27	0602786A	Warfighter Technology	02	38,420	37,403	37,403					U
28	0602787A	Medical Technology	02	74,186	77,111	77,111					U
		Applied Research		1,070,349	907,574	907,574					
29	0603001A	Warfighter Advanced Technology	03	54,606	38,831	38,831					U
30	0603002A	Medical Advanced Technology	03	103,753	68,365	68,365					U
31	0603003A	Aviation Advanced Technology	03	99,542	94,280	94,280					U
32	0603004A	Weapons and Munitions Advanced Technology	03	95,504	68,714	68,714					U
33	0603005A	Combat Vehicle and Automotive Advanced Technology	03	136,624	122,132	122,132					U
34	0603006A	Space Application Advanced Technology	03	5,384	3,904	3,904					U

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18	0602705A	Electronics and Electronic Devices	02	56,322	56,322		56,322	58,352		58,352	U
19	0602709A	Night Vision Technology	02	36,079	36,079		36,079	34,723		34,723	U
20	0602712A	Countermine Systems	02	26,497	26,497		26,497	26,190		26,190	U
21	0602716A	Human Factors Engineering Technology	02	23,671	23,671		23,671	24,127		24,127	U
22	0602720A	Environmental Quality Technology	02	22,151	22,151		22,151	21,678		21,678	U
23	0602782A	Command, Control, Communications Technology	02	37,803	37,803		37,803	33,123		33,123	U
24	0602783A	Computer and Software Technology	02	13,811	13,811		13,811	14,041		14,041	U
25	0602784A	Military Engineering Technology	02	67,416	67,416		67,416	67,720		67,720	U
26	0602785A	Manpower/Personnel/Training Technology	02	26,045	26,045		26,045	20,216		20,216	U
27	0602786A	Warfighter Technology	02	37,403	37,403		37,403	39,559		39,559	U
28	0602787A	Medical Technology	02	77,111	77,111		77,111	83,434		83,434	U
		Applied Research		907,574	907,574		907,574	889,182		889,182	
29	0603001A	Warfighter Advanced Technology	03	38,831	38,831		38,831	44,863		44,863	U
30	0603002A	Medical Advanced Technology	03	68,365	68,365		68,365	67,780		67,780	U
31	0603003A	Aviation Advanced Technology	03	94,280	94,280		94,280	160,746		160,746	U
32	0603004A	Weapons and Munitions Advanced Technology	03	68,714	68,714		68,714	84,079		84,079	U
33	0603005A	Combat Vehicle and Automotive Advanced Technology	03	122,132	122,132		122,132	125,537		125,537	U
34	0603006A	Space Application Advanced Technology	03	3,904	3,904		3,904	12,231		12,231	U

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35	0603007A	Manpower, Personnel and Training Advanced Technology	03	11,571	14,417	14,417					U
36	0603009A	TRACTOR HIKE	03	9,002	8,074	21,374					U
37	0603015A	Next Generation Training & Simulation Systems	03	16,735	18,969	18,969					U
38	0603020A	TRACTOR ROSE	03	11,912	11,910	11,910					U
39	0603125A	Combating Terrorism - Technology Development	03	32,430	27,686	27,686					U
40	0603130A	TRACTOR NAIL	03	2,381	2,340	2,340					U
41	0603131A	TRACTOR EGGS	03	2,431	2,470	2,470					U
42	0603270A	Electronic Warfare Technology	03	31,810	27,893	27,893					U
43	0603313A	Missile and Rocket Advanced Technology	03	102,490	52,190	52,190					U
44	0603322A	TRACTOR CAGE	03	10,999	11,107	11,107					U
45	0603461A	High Performance Computing Modernization Program	03	215,138	177,190	177,190					U
46	0603606A	Landmine Warfare and Barrier Advanced Technology	03	13,425	17,451	17,451					U
47	0603607A	Joint Service Small Arms Program	03	4,903	5,839	5,839					U
48	0603710A	Night Vision Advanced Technology	03	39,329	44,468	44,468					U
49	0603728A	Environmental Quality Technology Demonstrations	03	14,533	11,137	11,137					U
50	0603734A	Military Engineering Advanced Technology	03	26,247	20,684	20,684					U

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35	0603007A	Manpower, Personnel and Training Advanced Technology	03	14,417	14,417		14,417	6,466		6,466	U
36	0603009A	TRACTOR HIKE	03	8,074	21,374		21,374	28,552		28,552	U
37	0603015A	Next Generation Training & Simulation Systems	03	18,969	18,969		18,969	16,434		16,434	U
38	0603020A	TRACTOR ROSE	03	11,910	11,910		11,910				U
39	0603125A	Combating Terrorism - Technology Development	03	27,686	27,686		27,686	26,903		26,903	U
40	0603130A	TRACTOR NAIL	03	2,340	2,340		2,340	4,880		4,880	U
41	0603131A	TRACTOR EGGS	03	2,470	2,470		2,470	4,326		4,326	U
42	0603270A	Electronic Warfare Technology	03	27,893	27,893		27,893	31,296		31,296	U
43	0603313A	Missile and Rocket Advanced Technology	03	52,190	52,190		52,190	62,850		62,850	U
44	0603322A	TRACTOR CAGE	03	11,107	11,107		11,107	12,323		12,323	U
45	0603461A	High Performance Computing Modernization Program	03	177,190	177,190		177,190	182,331		182,331	U
46	0603606A	Landmine Warfare and Barrier Advanced Technology	03	17,451	17,451		17,451	17,948		17,948	U
47	0603607A	Joint Service Small Arms Program	03	5,839	5,839		5,839	5,796		5,796	U
48	0603710A	Night Vision Advanced Technology	03	44,468	44,468		44,468	47,135		47,135	U
49	0603728A	Environmental Quality Technology Demonstrations	03	11,137	11,137		11,137	10,421		10,421	U
50	0603734A	Military Engineering Advanced Technology	03	20,684	20,684		20,684	32,448		32,448	U

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51	0603772A	Advanced Tactical Computer Science and Sensor Technology	03	36,658	44,239	44,239					U
52	0603794A	C3 Advanced Technology	03	36,339	35,775	35,775					U
		Advanced Technology Development		1,113,746	930,065	943,365					
53	0603305A	Army Missle Defense Systems Integration	04	29,270	9,433	9,433					U
54	0603308A	Army Space Systems Integration	04	29,561	23,056	23,056	9,375	9,375		9,375	U
55	0603327A	Air and Missile Defense Systems Engineering	04			14,200					U
56	0603619A	Landmine Warfare and Barrier - Adv Dev	04	40,943	72,117	72,117					U
57	0603627A	Smoke, Obscurant and Target Defeating Sys-Adv Dev	04	12,894	28,244	28,244		16,020		16,020	U
58	0603639A	Tank and Medium Caliber Ammunition	04	42,272	40,096	42,096					U
59	0603645A	Armored System Modernization - Adv Dev	04								U
60	0603747A	Soldier Support and Survivability	04	5,035	10,506	10,506					U
61	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	17,562	15,730	15,730					U
62	0603774A	Night Vision Systems Advanced Development	04	7,003	10,321	10,321					U
63	0603779A	Environmental Quality Technology - Dem/Val	04	8,464	7,785	7,785					U
64	0603790A	NATO Research and Development	04	5,835	2,300	2,300					U
65	0603801A	Aviation - Adv Dev	04		10,014	10,014					U

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51	0603772A	Advanced Tactical Computer Science and Sensor Technology	03	44,239	44,239		44,239	52,206		52,206	U
52	0603794A	C3 Advanced Technology	03	35,775	35,775		35,775	33,426		33,426	U
		Advanced Technology Development		930,065	943,365		943,365	1,070,977		1,070,977	
53	0603305A	Army Missle Defense Systems Integration	04	9,433	9,433		9,433	9,634		9,634	U
54	0603308A	Army Space Systems Integration	04	32,431	32,431		32,431				U
55	0603327A	Air and Missile Defense Systems Engineering	04		14,200		14,200	33,949	15,000	48,949	U
56	0603619A	Landmine Warfare and Barrier - Adv Dev	04	72,117	72,117		72,117	72,909		72,909	U
57	0603627A	Smoke, Obscurant and Target Defeating Sys-Adv Dev	04	28,244	44,264		44,264	7,135		7,135	U
58	0603639A	Tank and Medium Caliber Ammunition	04	40,096	42,096		42,096	41,452		41,452	U
59	0603645A	Armored System Modernization - Adv Dev	04					32,739		32,739	U
60	0603747A	Soldier Support and Survivability	04	10,506	10,506		10,506	10,157	3,000	13,157	U
61	0603766A	Tactical Electronic Surveillance System - Adv Dev	04	15,730	15,730		15,730	27,733		27,733	U
62	0603774A	Night Vision Systems Advanced Development	04	10,321	10,321		10,321	12,347		12,347	U
63	0603779A	Environmental Quality Technology - Dem/Val	04	7,785	7,785		7,785	10,456		10,456	U
64	0603790A	NATO Research and Development	04	2,300	2,300		2,300	2,588		2,588	U
65	0603801A	Aviation - Adv Dev	04	10,014	10,014		10,014	14,055		14,055	U

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66	0603804A	Logistics and Engineer Equipment - Adv Dev	04	20,271	20,834	20,834					U
67	0603807A	Medical Systems - Adv Dev	04	39,711	33,503	33,503					U
68	0603827A	Soldier Systems - Advanced Development	04	22,251	31,120	31,120					U
69	0604017A	Robotics Development	04								U
70	0604100A	Analysis Of Alternatives	04	7,533	6,608	6,608					U
71	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor	04		35,132	35,132					U
72	0604115A	Technology Maturation Initiatives	04	34,493	70,047	70,047					U
73	0604117A	Maneuver - Short Range Air Defense (M-SHORAD)	04								U
74	0604118A	TRACTOR BEAM	04								U
75	0604120A	Assured Positioning, Navigation and Timing (PNT)	04	26,967	83,279	83,279					U
76	0604121A	Synthetic Training Environment Refinement & Prototyping	04								U
77	0604319A	Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)	04	149,222							U
78	0305251A	Cyberspace Operations Forces and Force Support	04		40,510	40,510					U
79	1206308A	Army Space Systems Integration	04								U
		Advanced Component Development & Prototypes		499,287	550,635	566,835	9,375	25,395		25,395	
80	0604201A	Aircraft Avionics	05	18,194	83,248	83,248					U

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66	0603804A	Logistics and Engineer Equipment - Adv Dev	04	20,834	20,834		20,834	35,333		35,333	U
67	0603807A	Medical Systems - Adv Dev	04	33,503	33,503		33,503	33,491		33,491	U
68	0603827A	Soldier Systems - Advanced Development	04	31,120	31,120		31,120	20,239		20,239	U
69	0604017A	Robotics Development	04					39,608		39,608	U
70	0604100A	Analysis Of Alternatives	04	6,608	6,608		6,608	9,921		9,921	U
71	0604114A	Lower Tier Air Missile Defense (LTAMD) Sensor	04	35,132	35,132		35,132	76,728		76,728	U
72	0604115A	Technology Maturation Initiatives	04	70,047	70,047		70,047	115,221		115,221	U
73	0604117A	Maneuver - Short Range Air Defense (M-SHORAD)	04					20,000		20,000	U
74	0604118A	TRACTOR BEAM	04					10,400		10,400	U
75	0604120A	Assured Positioning, Navigation and Timing (PNT)	04	83,279	83,279		83,279	164,967		164,967	U
76	0604121A	Synthetic Training Environment Refinement & Prototyping	04					1,600		1,600	U
77	0604319A	Indirect Fire Protection Capability Increment 2-Intercept (IFPC2)	04					11,303		11,303	U
78	0305251A	Cyberspace Operations Forces and Force Support	04	40,510	40,510		40,510	56,492		56,492	U
79	1206308A	Army Space Systems Integration	04					20,432		20,432	U
		Advanced Component Development & Prototypes		560,010	592,230		592,230	890,889	18,000	908,889	
80	0604201A	Aircraft Avionics	05	83,248	83,248		83,248	30,153		30,153	U

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81	0604270A	Electronic Warfare Development	05	20,586	34,642	37,242					U
82	0604280A	Joint Tactical Radio	05	4,415							U
83	0604290A	Mid-tier Networking Vehicular Radio (MNVR)	05	8,416	12,172	12,172					U
84	0604321A	All Source Analysis System	05	4,309	3,958	3,958					U
85	0604328A	TRACTOR CAGE	05	15,138	12,525	12,525					U
86	0604601A	Infantry Support Weapons	05	86,966	66,943	66,943					U
87	0604604A	Medium Tactical Vehicles	05								U
88	0604611A	JAVELIN	05	3,789	20,011	20,011					U
89	0604622A	Family of Heavy Tactical Vehicles	05		11,429	11,429					U
90	0604633A	Air Traffic Control	05	9,714	3,421	3,421					U
91	0604641A	Tactical Unmanned Ground Vehicle (TUGV)	05	13,599	39,282	39,282					U
92	0604642A	Light Tactical Wheeled Vehicles	05		494	494					U
93	0604645A	Armored Systems Modernization (ASM) - Eng Dev	05		9,678	9,678					U
94	0604710A	Night Vision Systems - Eng Dev	05	65,482	84,519	84,519					U
95	0604713A	Combat Feeding, Clothing, and Equipment	05	1,694	2,054	2,054					U
96	0604715A	Non-System Training Devices - Eng Dev	05	26,768	30,774	35,774	33	33		33	U
97	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	33,619	53,332	61,532		143,900	-78,700	65,200	U

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81	0604270A	Electronic Warfare Development	05	34,642	37,242		37,242	71,671		71,671	U
82	0604280A	Joint Tactical Radio	05								U
83	0604290A	Mid-tier Networking Vehicular Radio (MNVR)	05	12,172	12,172		12,172	10,589		10,589	U
84	0604321A	All Source Analysis System	05	3,958	3,958		3,958	4,774		4,774	U
85	0604328A	TRACTOR CAGE	05	12,525	12,525		12,525	17,252		17,252	U
86	0604601A	Infantry Support Weapons	05	66,943	66,943		66,943	87,643		87,643	U
87	0604604A	Medium Tactical Vehicles	05					6,039		6,039	U
88	0604611A	JAVELIN	05	20,011	20,011		20,011	21,095		21,095	U
89	0604622A	Family of Heavy Tactical Vehicles	05	11,429	11,429		11,429	10,507		10,507	U
90	0604633A	Air Traffic Control	05	3,421	3,421		3,421	3,536		3,536	U
91	0604641A	Tactical Unmanned Ground Vehicle (TUGV)	05	39,282	39,282		39,282				U
92	0604642A	Light Tactical Wheeled Vehicles	05	494	494		494	7,000		7,000	U
93	0604645A	Armored Systems Modernization (ASM) - Eng Dev	05	9,678	9,678		9,678	36,242		36,242	U
94	0604710A	Night Vision Systems - Eng Dev	05	84,519	84,519		84,519	108,504		108,504	U
95	0604713A	Combat Feeding, Clothing, and Equipment	05	2,054	2,054		2,054	3,702		3,702	U
96	0604715A	Non-System Training Devices - Eng Dev	05	30,807	35,807		35,807	43,575		43,575	U
97	0604741A	Air Defense Command, Control and Intelligence - Eng Dev	05	132,032	205,432	-78,700	126,732	28,726		28,726	U

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98	0604742A	Constructive Simulation Systems Development	05	22,609	17,887	17,887					U
99	0604746A	Automatic Test Equipment Development	05	8,636	8,813	8,813					U
100	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	8,843	10,487	10,487					U
101	0604768A	Brilliant Anti-Armor Submunition (BAT)	05								U
102	0604780A	Combined Arms Tactical Trainer (CATT) Core	05	20,808	15,068	15,068					U
103	0604798A	Brigade Analysis, Integration and Evaluation	05	96,286	89,716	146,655					U
104	0604802A	Weapons and Munitions - Eng Dev	05	18,037	80,365	99,165					U
105	0604804A	Logistics and Engineer Equipment - Eng Dev	05	43,229	75,098	75,098					U
106	0604805A	Command, Control, Communications Systems - Eng Dev	05	2,780	4,245	4,245					U
107	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	39,295	41,124	41,124					U
108	0604808A	Landmine Warfare/Barrier - Eng Dev	05	63,028	39,630	39,630					U
109	0604818A	Army Tactical Command & Control Hardware & Software	05	125,107	205,590	205,590					U
110	0604820A	Radar Development	05	11,821	15,983	15,983					U
111	0604822A	General Fund Enterprise Business System (GFEBS)	05	20,533	6,805	6,805					U
112	0604823A	Firefinder	05	2,850	9,235	9,235					U

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98	0604742A	Constructive Simulation Systems Development	05	17,887	17,887		17,887	18,562		18,562	U
99	0604746A	Automatic Test Equipment Development	05	8,813	8,813		8,813	8,344		8,344	U
100	0604760A	Distributive Interactive Simulations (DIS) - Eng Dev	05	10,487	10,487		10,487	11,270		11,270	U
101	0604768A	Brilliant Anti-Armor Submunition (BAT)	05					10,000		10,000	U
102	0604780A	Combined Arms Tactical Trainer (CATT) Core	05	15,068	15,068		15,068	18,566		18,566	U
103	0604798A	Brigade Analysis, Integration and Evaluation	05	89,716	146,655		146,655	145,360		145,360	U
104	0604802A	Weapons and Munitions - Eng Dev	05	80,365	99,165		99,165	145,232		145,232	U
105	0604804A	Logistics and Engineer Equipment - Eng Dev	05	75,098	75,098		75,098	90,965		90,965	U
106	0604805A	Command, Control, Communications Systems - Eng Dev	05	4,245	4,245		4,245	9,910		9,910	U
107	0604807A	Medical Materiel/Medical Biological Defense Equipment - Eng Dev	05	41,124	41,124		41,124	39,238		39,238	U
108	0604808A	Landmine Warfare/Barrier - Eng Dev	05	39,630	39,630		39,630	34,684		34,684	U
109	0604818A	Army Tactical Command & Control Hardware & Software	05	205,590	205,590		205,590	164,409		164,409	U
110	0604820A	Radar Development	05	15,983	15,983		15,983	32,968		32,968	U
111	0604822A	General Fund Enterprise Business System (GFEBS)	05	6,805	6,805		6,805	49,554		49,554	U
112	0604823A	Firefinder	05	9,235	9,235		9,235	45,605		45,605	U

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113	0604827A	Soldier Systems - Warrior Dem/Val	05	15,694	12,393	12,393					U
114	0604852A	Suite of Survivability Enhancement Systems - EMD	05								U
115	0604854A	Artillery Systems - EMD	05	2,251	1,756	4,506					U
116	0605013A	Information Technology Development	05	48,028	74,236	74,236					U
117	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	116,215	155,584	155,584					U
118	0605028A	Armored Multi-Purpose Vehicle (AMPV)	05	213,034	184,221	184,221					U
119	0605029A	Integrated Ground Security Surveillance Response Capability (IGSSR-C)	05		4,980	4,980					U
120	0605030A	Joint Tactical Network Center (JTNC)	05	12,834	15,041	15,041					U
121	0605031A	Joint Tactical Network (JTN)	05	20,790	16,014	16,014					U
122	0605032A	TRACTOR TIRE	05	10,677	27,254	27,254		10,000		10,000	U
123	0605033A	Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)	05		5,032	5,032					U
124	0605034A	Tactical Security System (TSS)	05		2,904	2,904					U
125	0605035A	Common Infrared Countermeasures (CIRCM)	05	98,496	96,977	96,977	10,900	10,900		10,900	U
126	0605036A	Combating Weapons of Mass Destruction (CWMD)	05		2,089	2,089					U
127	0605037A	Evidence Collection and Detainee Processing	05								U

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113	0604827A	Soldier Systems - Warrior Dem/Val	05	12,393	12,393		12,393	16,127		16,127	U
114	0604852A	Suite of Survivability Enhancement Systems - EMD	05					98,600		98,600	U
115	0604854A	Artillery Systems - EMD	05	1,756	4,506		4,506	1,972		1,972	U
116	0605013A	Information Technology Development	05	74,236	74,236		74,236	81,776		81,776	U
117	0605018A	Integrated Personnel and Pay System-Army (IPPS-A)	05	155,584	155,584		155,584	172,361		172,361	U
118	0605028A	Armored Multi-Purpose Vehicle (AMPV)	05	184,221	184,221		184,221	199,778		199,778	U
119	0605029A	Integrated Ground Security Surveillance Response Capability (IGSSR-C)	05	4,980	4,980		4,980	4,418		4,418	U
120	0605030A	Joint Tactical Network Center (JTNC)	05	15,041	15,041		15,041	15,877		15,877	U
121	0605031A	Joint Tactical Network (JTN)	05	16,014	16,014		16,014	44,150		44,150	U
122	0605032A	TRACTOR TIRE	05	27,254	37,254		37,254	34,670	5,000	39,670	U
123	0605033A	Ground-Based Operational Surveillance System - Expeditionary (GBOSS-E)	05	5,032	5,032		5,032	5,207		5,207	U
124	0605034A	Tactical Security System (TSS)	05	2,904	2,904		2,904	4,727		4,727	U
125	0605035A	Common Infrared Countermeasures (CIRCM)	05	107,877	107,877		107,877	105,778	21,540	127,318	U
126	0605036A	Combating Weapons of Mass Destruction (CWMD)	05	2,089	2,089		2,089	6,927		6,927	U
127	0605037A	Evidence Collection and Detainee Processing	05					214		214	U

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128	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	05								U
129	0605041A	Defensive CYBER Tool Development	05		33,836	33,836		50,500		50,500	U
130	0605042A	Tactical Network Radio Systems (Low-Tier)	05		18,824	18,824					U
131	0605047A	Contract Writing System	05		20,663	20,663					U
132	0605049A	Missile Warning System Modernization (MWSM)	05								U
133	0605051A	Aircraft Survivability Development	05	77,395	41,133	51,133	73,110	73,110		73,110	U
134	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1	05		83,995	83,995					U
135	0605053A	Ground Robotics	05								U
136	0605350A	WIN-T Increment 3 - Full Networking	05	32,187							U
137	0605380A	AMF Joint Tactical Radio System (JTRS)	05	10,143	5,028	5,028					U
138	0605450A	Joint Air-to-Ground Missile (JAGM)	05	79,897	42,972	42,972					U
139	0605456A	PAC-3/MSE Missile	05	2,201							U
140	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	222,074	252,811	272,811					U
141	0605625A	Manned Ground Vehicle	05	37,692							U
142	0605626A	Aerial Common Sensor	05	2							U
143	0605766A	National Capabilities Integration (MIP)	05	10,599	4,955	4,955					U

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128	0605038A	Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite	05					16,125		16,125	U
129	0605041A	Defensive CYBER Tool Development	05	33,836	84,336		84,336	55,165		55,165	U
130	0605042A	Tactical Network Radio Systems (Low-Tier)	05	18,824	18,824		18,824	20,076		20,076	U
131	0605047A	Contract Writing System	05	20,663	20,663		20,663	20,322		20,322	U
132	0605049A	Missile Warning System Modernization (MWSM)	05					55,810		55,810	U
133	0605051A	Aircraft Survivability Development	05	114,243	124,243		124,243	30,879	30,100	60,979	U
134	0605052A	Indirect Fire Protection Capability Inc 2 - Block 1	05	83,995	83,995		83,995	175,069		175,069	U
135	0605053A	Ground Robotics	05					70,760		70,760	U
136	0605350A	WIN-T Increment 3 - Full Networking	05								U
137	0605380A	AMF Joint Tactical Radio System (JTRS)	05	5,028	5,028		5,028	8,965		8,965	U
138	0605450A	Joint Air-to-Ground Missile (JAGM)	05	42,972	42,972		42,972	34,626		34,626	U
139	0605456A	PAC-3/MSE Missile	05								U
140	0605457A	Army Integrated Air and Missile Defense (AIAMD)	05	252,811	272,811		272,811	336,420		336,420	U
141	0605625A	Manned Ground Vehicle	05								U
142	0605626A	Aerial Common Sensor	05								U
143	0605766A	National Capabilities Integration (MIP)	05	4,955	4,955		4,955	6,882		6,882	U

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144	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	05	31,197	11,530	11,530					U
145	0605830A	Aviation Ground Support Equipment	05	13,528	2,142	2,142					U
146	0210609A	Paladin Integrated Management (PIM)	05	136,353	41,498	41,498					U
147	0303032A	TROJAN - RH12	05	5,022	4,273	4,273					U
148	0303267A	Auctioned Spectrum Relocation Fund	05	71,823							U
149	0303367A	Spectrum Access Research and Development	05	125,283							U
150	0304270A	Electronic Warfare Development	05	12,686	14,425	18,425					U
151	1205117A	Tractor Bears	05								U
		System Development & Demonstration		2,202,652	2,265,094	2,393,383	84,043	288,443	-78,700	209,743	
152	0604256A	Threat Simulator Development	06	27,157	25,675	25,675					U
153	0604258A	Target Systems Development	06	16,163	19,122	19,122					U
154	0604759A	Major T&E Investment	06	65,059	84,777	84,777					U
155	0605103A	Rand Arroyo Center	06	20,014	20,658	20,658					U
156	0605301A	Army Kwajalein Atoll	06	200,393	236,648	236,648					U
157	0605326A	Concepts Experimentation Program	06	18,705	25,596	25,596					U
158	0605502A	Small Business Innovative Research	06	220,833							U
159	0605601A	Army Test Ranges and Facilities	06	273,275	293,748	307,882					U
160	0605602A	Army Technical Test Instrumentation and Targets	06	52,254	52,404	64,127					U

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144	0605812A	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	05	11,530	11,530		11,530	23,467		23,467	U
145	0605830A	Aviation Ground Support Equipment	05	2,142	2,142		2,142	6,930		6,930	U
146	0210609A	Paladin Integrated Management (PIM)	05	41,498	41,498		41,498	6,112		6,112	U
147	0303032A	TROJAN - RH12	05	4,273	4,273		4,273	4,431	1,200	5,631	U
148	0303267A	Auctioned Spectrum Relocation Fund	05								U
149	0303367A	Spectrum Access Research and Development	05								U
150	0304270A	Electronic Warfare Development	05	14,425	18,425		18,425	14,616		14,616	U
151	1205117A	Tractor Bears	05					17,928		17,928	U
		System Development & Demonstration		2,427,837	2,681,826	-78,700	2,603,126	3,012,840	57,840	3,070,680	
152	0604256A	Threat Simulator Development	06	25,675	25,675		25,675	22,862		22,862	U
153	0604258A	Target Systems Development	06	19,122	19,122		19,122	13,902		13,902	U
154	0604759A	Major T&E Investment	06	84,777	84,777		84,777	102,901		102,901	U
155	0605103A	Rand Arroyo Center	06	20,658	20,658		20,658	20,140		20,140	U
156	0605301A	Army Kwajalein Atoll	06	236,648	236,648		236,648	246,663		246,663	U
157	0605326A	Concepts Experimentation Program	06	25,596	25,596		25,596	29,820		29,820	U
158	0605502A	Small Business Innovative Research	06								U
159	0605601A	Army Test Ranges and Facilities	06	293,748	307,882		307,882	307,588		307,588	U
160	0605602A	Army Technical Test Instrumentation and Targets	06	52,404	64,127		64,127	49,242		49,242	U

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161	0605604A	Survivability/Lethality Analysis	06	33,069	38,571	38,571					U
162	0605606A	Aircraft Certification	06	4,571	4,665	4,665					U
163	0605702A	Meteorological Support to RDT&E Activities	06	8,104	6,925	6,925					U
164	0605706A	Materiel Systems Analysis	06	20,203	21,677	21,677					U
165	0605709A	Exploitation of Foreign Items	06	10,396	12,415	12,415					U
166	0605712A	Support of Operational Testing	06	49,128	49,684	49,684					U
167	0605716A	Army Evaluation Center	06	52,265	55,905	55,905					U
168	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	901	7,959	7,959					U
169	0605801A	Programwide Activities	06	61,060	51,822	51,822					U
170	0605803A	Technical Information Activities	06	25,991	33,323	33,323					U
171	0605805A	Munitions Standardization, Effectiveness and Safety	06	48,335	40,545	40,545					U
172	0605857A	Environmental Quality Technology Mgmt Support	06	3,673	2,130	2,130					U
173	0605898A	Army Direct Report Headquarters - R&D - MHA	06	48,312	49,885	49,885					U
174	0606001A	Military Ground-Based CREW Technology	06								U
175	0606002A	Ronald Reagan Ballistic Missile Defense Test Site	06								U
176	0303260A	Defense Military Deception Initiative	06		2,000	2,000					U

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161	0605604A	Survivability/Lethality Analysis	06	38,571	38,571		38,571	41,843		41,843	U
162	0605606A	Aircraft Certification	06	4,665	4,665		4,665	4,804		4,804	U
163	0605702A	Meteorological Support to RDT&E Activities	06	6,925	6,925		6,925	7,238		7,238	U
164	0605706A	Materiel Systems Analysis	06	21,677	21,677		21,677	21,890		21,890	U
165	0605709A	Exploitation of Foreign Items	06	12,415	12,415		12,415	12,684		12,684	U
166	0605712A	Support of Operational Testing	06	49,684	49,684		49,684	51,040		51,040	U
167	0605716A	Army Evaluation Center	06	55,905	55,905		55,905	56,246		56,246	U
168	0605718A	Army Modeling & Sim X-Cmd Collaboration & Integ	06	7,959	7,959		7,959	1,829		1,829	U
169	0605801A	Programwide Activities	06	51,822	51,822		51,822	55,060		55,060	U
170	0605803A	Technical Information Activities	06	33,323	33,323		33,323	33,934		33,934	U
171	0605805A	Munitions Standardization, Effectiveness and Safety	06	40,545	40,545		40,545	43,444		43,444	U
172	0605857A	Environmental Quality Technology Mgmt Support	06	2,130	2,130		2,130	5,087		5,087	U
173	0605898A	Army Direct Report Headquarters - R&D - MHA	06	49,885	49,885		49,885	54,679		54,679	U
174	0606001A	Military Ground-Based CREW Technology	06					7,916		7,916	U
175	0606002A	Ronald Reagan Ballistic Missile Defense Test Site	06					61,254		61,254	U
176	0303260A	Defense Military Deception Initiative	06	2,000	2,000		2,000	1,779		1,779	U

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177	0909999A	Financing for Cancelled Account Adjustments	06	65							U
	RDT&E	Management Support		1,259,926	1,136,134	1,161,991					
178	0603778A	MLRS Product Improvement Program	07	21,202	9,663	34,763					U
179	0603813A	TRACTOR PULL	07	9,461	3,960	3,960					U
180	0605024A	Anti-Tamper Technology Support	07		3,638	3,638					U
181	0607131A	Weapons and Munitions Product Improvement Programs	07	5,678	14,517	14,517		5,100		5,100	U
182	0607133A	TRACTOR SMOKE	07	7,569	4,479	4,479					U
183	0607134A	Long Range Precision Fires (LRPF)	07		39,275	67,006					U
184	0607135A	Apache Product Improvement Program	07	62,964	66,441	66,441					U
185	0607136A	Blackhawk Product Improvement Program	07	64,011	46,765	46,765					U
186	0607137A	Chinook Product Improvement Program	07	31,122	91,848	91,848					U
187	0607138A	Fixed Wing Product Improvement Program	07	1,105	796	796					U
188	0607139A	Improved Turbine Engine Program	07	49,137	126,105	126,105					U
189	0607140A	Emerging Technologies from NIE	07	2,383	2,369	2,369					U
190	0607141A	Logistics Automation	07	1,318	4,563	4,563					U
191	0607142A	Aviation Rocket System Product Improvement and Development	07			8,000					U
192	0607143A	Unmanned Aircraft System Universal Products	07								U

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177	0909999A	Financing for Cancelled Account Adjustments	06								U
	RDT&E	Management Support		1,136,134	1,161,991		1,161,991	1,253,845		1,253,845	
178	0603778A	MLRS Product Improvement Program	07	9,663	34,763		34,763	8,929		8,929	U
179	0603813A	TRACTOR PULL	07	3,960	3,960		3,960	4,014		4,014	U
180	0605024A	Anti-Tamper Technology Support	07	3,638	3,638		3,638	4,094		4,094	U
181	0607131A	Weapons and Munitions Product Improvement Programs	07	14,517	19,617		19,617	15,738		15,738	U
182	0607133A	TRACTOR SMOKE	07	4,479	4,479		4,479	4,513		4,513	U
183	0607134A	Long Range Precision Fires (LRPF)	07	39,275	67,006		67,006	102,014		102,014	U
184	0607135A	Apache Product Improvement Program	07	66,441	66,441		66,441	59,977		59,977	U
185	0607136A	Blackhawk Product Improvement Program	07	46,765	46,765		46,765	34,416		34,416	U
186	0607137A	Chinook Product Improvement Program	07	91,848	91,848		91,848	194,567		194,567	U
187	0607138A	Fixed Wing Product Improvement Program	07	796	796		796	9,981		9,981	U
188	0607139A	Improved Turbine Engine Program	07	126,105	126,105		126,105	204,304		204,304	U
189	0607140A	Emerging Technologies from NIE	07	2,369	2,369		2,369	1,023		1,023	U
190	0607141A	Logistics Automation	07	4,563	4,563		4,563	1,504		1,504	U
191	0607142A	Aviation Rocket System Product Improvement and Development	07		8,000		8,000	10,064		10,064	U
192	0607143A	Unmanned Aircraft System Universal Products	07					38,463		38,463	U

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Line No	Program Element Number	Item	Act	FY 2016 Base + OCO	FY 2017 PB Request with CR Adj Base	FY 2017 Total PB Requests* with CR Adj Base	FY 2017 PB Request with CR Adj OCO	FY 2017 Total PB Requests* with CR Adj OCO	FY 2017 Less Enacted Div B P.L.114-254** OCO	FY 2017 Remaining Req with CR Adj OCO	Sec
193	0607665A	Family of Biometrics	07	7,179	12,098	12,098					U
194	0607865A	Patriot Product Improvement	07	87,537	49,482	49,482					U
195	0202429A	Aerostat Joint Project - COCOM Exercise	07	10,171	45,482	45,482					U
196	0203728A	Joint Automated Deep Operation Coordination System (JADOCS)	07	30,669	30,455	30,455					U
197	0203735A	Combat Vehicle Improvement Programs	07	382,176	316,857	327,357					U
198	0203740A	Maneuver Control System	07	14,864	4,031	4,031					U
199	0203743A	155mm Self-Propelled Howitzer Improvements	07								U
200	0203744A	Aircraft Modifications/Product Improvement Programs	07		35,793	35,793					U
201	0203752A	Aircraft Engine Component Improvement Program	07	349	259	259					U
202	0203758A	Digitization	07	4,188	6,483	6,483					U
203	0203801A	Missile/Air Defense Product Improvement Program	07	3,029	5,122	53,722					U
204	0203802A	Other Missile Product Improvement Programs	07	49,191	7,491	7,491		1,080		1,080	U
205	0203808A	TRACTOR CARD	07	34,686	20,333	20,333					U
206	0205402A	Integrated Base Defense - Operational System Dev	07	10,324				3,450		3,450	U
207	0205410A	Materials Handling Equipment	07	386	124	124					U
208	0205412A	Environmental Quality Technology - Operational System Dev	07								U

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193	0607665A	Family of Biometrics	07	12,098	12,098		12,098	6,159		6,159	U
194	0607865A	Patriot Product Improvement	07	49,482	49,482		49,482	90,217		90,217	U
195	0202429A	Aerostat Joint Project - COCOM Exercise	07	45,482	45,482		45,482	6,749		6,749	U
196	0203728A	Joint Automated Deep Operation Coordination System (JADOCS)	07	30,455	30,455		30,455	33,520		33,520	U
197	0203735A	Combat Vehicle Improvement Programs	07	316,857	327,357		327,357	343,175		343,175	U
198	0203740A	Maneuver Control System	07	4,031	4,031		4,031	6,639		6,639	U
199	0203743A	155mm Self-Propelled Howitzer Improvements	07					40,784		40,784	U
200	0203744A	Aircraft Modifications/Product Improvement Programs	07	35,793	35,793		35,793	39,358		39,358	U
201	0203752A	Aircraft Engine Component Improvement Program	07	259	259		259	145		145	U
202	0203758A	Digitization	07	6,483	6,483		6,483	4,803		4,803	U
203	0203801A	Missile/Air Defense Product Improvement Program	07	5,122	53,722		53,722	2,723	15,000	17,723	U
204	0203802A	Other Missile Product Improvement Programs	07	7,491	8,571		8,571	5,000		5,000	U
205	0203808A	TRACTOR CARD	07	20,333	20,333		20,333	37,883		37,883	U
206	0205402A	Integrated Base Defense - Operational System Dev	07		3,450		3,450				U
207	0205410A	Materials Handling Equipment	07	124	124		124	1,582		1,582	U
208	0205412A	Environmental Quality Technology - Operational System Dev	07					195		195	U

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209	0205456A	Lower Tier Air and Missile Defense (AMD) System	07	61,653	69,417	73,417					U
210	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07	36,032	22,044	38,044					U
211	0208053A	Joint Tactical Ground System	07	28,015	12,649	12,649					U
213	0303028A	Security and Intelligence Activities	07	13,156	11,619	11,619					U
214	0303140A	Information Systems Security Program	07	31,032	38,280	38,280					U
215	0303141A	Global Combat Support System	07	25,304	27,223	28,667					U
216	0303142A	SATCOM Ground Environment (SPACE)	07	9,045	18,815	18,815					U
217	0303150A	WWMCCS/Global Command and Control System	07	6,810	4,718	4,718					U
219	0305127A	Foreign Counterintelligence Activities	07			4,100					U
220	0305172A	Combined Advanced Applications	07								U
221	0305179A	Integrated Broadcast Service (IBS)	07	750							U
222	0305204A	Tactical Unmanned Aerial Vehicles	07	15,370	8,218	8,218					U
223	0305206A	Airborne Reconnaissance Systems	07	20,725	11,799	11,799					U
224	0305208A	Distributed Common Ground/Surface Systems	07	25,592	32,284	32,284					U
225	0305219A	MQ-1C Gray Eagle UAS	07	22,285	13,470	30,970					U
226	0305232A	RQ-11 UAV	07		1,613	1,613					U
227	0305233A	RQ-7 UAV	07	11,797	4,597	7,597					U
228	0307665A	Biometrics Enabled Intelligence	07				7,104	8,854		8,854	U

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209	0205456A	Lower Tier Air and Missile Defense (AMD) System	07	69,417	73,417		73,417	78,926		78,926	U
210	0205778A	Guided Multiple-Launch Rocket System (GMLRS)	07	22,044	38,044		38,044	102,807		102,807	U
211	0208053A	Joint Tactical Ground System	07	12,649	12,649		12,649				U
213	0303028A	Security and Intelligence Activities	07	11,619	11,619		11,619	13,807		13,807	U
214	0303140A	Information Systems Security Program	07	38,280	38,280		38,280	132,438		132,438	U
215	0303141A	Global Combat Support System	07	27,223	28,667		28,667	64,370		64,370	U
216	0303142A	SATCOM Ground Environment (SPACE)	07	18,815	18,815		18,815				U
217	0303150A	WWMCCS/Global Command and Control System	07	4,718	4,718		4,718	10,475		10,475	U
219	0305127A	Foreign Counterintelligence Activities	07		4,100		4,100				U
220	0305172A	Combined Advanced Applications	07					1,100		1,100	U
221	0305179A	Integrated Broadcast Service (IBS)	07								U
222	0305204A	Tactical Unmanned Aerial Vehicles	07	8,218	8,218		8,218	9,433	7,492	16,925	U
223	0305206A	Airborne Reconnaissance Systems	07	11,799	11,799		11,799	5,080	15,000	20,080	U
224	0305208A	Distributed Common Ground/Surface Systems	07	32,284	32,284		32,284	24,700		24,700	U
225	0305219A	MQ-1C Gray Eagle UAS	07	13,470	30,970		30,970	9,574		9,574	U
226	0305232A	RQ-11 UAV	07	1,613	1,613		1,613	2,191		2,191	U
227	0305233A	RQ-7 UAV	07	4,597	7,597		7,597	12,773		12,773	U
228	0307665A	Biometrics Enabled Intelligence	07	7,104	8,854		8,854	2,537	6,036	8,573	U

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229	0310349A	Win-T Increment 2 - Initial Networking	07	3,649	4,867	4,867					U
230	0708045A	End Item Industrial Preparedness Activities	07	58,503	62,287	62,287					U
231	1203142A	SATCOM Ground Environment (SPACE)	07								U
232	1208053A	Joint Tactical Ground System	07								U
9999	9999999999	Classified Programs		4,536	4,625	4,625					U
		Operational Systems Development		1,264,953	1,296,954	1,462,929	7,104	18,484		18,484	
233	0901560A	Continuing Resolution Programs	20		32,395	32,395	-99,022	-99,022		-99,022	U
		Undistributed			32,395	32,395	-99,022	-99,022		-99,022	
Total Research, Development, Test & Eval, Army				7,861,744	7,547,794	7,897,415	1,500	233,300	-78,700	154,600	

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229	0310349A	Win-T Increment 2 - Initial Networking	07	4,867	4,867		4,867	4,723		4,723	U
230	0708045A	End Item Industrial Preparedness Activities	07	62,287	62,287		62,287	60,877		60,877	U
231	1203142A	SATCOM Ground Environment (SPACE)	07					11,959		11,959	U
232	1208053A	Joint Tactical Ground System	07					10,228		10,228	U
9999	9999999999	Classified Programs		4,625	4,625		4,625	7,154		7,154	U
		Operational Systems Development		1,304,058	1,481,413		1,481,413	1,877,685	43,528	1,921,213	
233	0901560A	Continuing Resolution Programs	20	-66,627	-66,627		-66,627				U
		Undistributed		-66,627	-66,627		-66,627				
Total Research, Development, Test & Eval, Army				7,627,994	8,130,715	-78,700	8,052,015	9,425,440	119,368	9,544,808	

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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	27.157	25.675	22.862	-	22.862	23.885	24.658	25.297	25.954	-	-
976: *Army Threat Sim (ATS)*	-	27.157	25.675	22.862	-	22.862	23.885	24.658	25.297	25.954	-	-

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 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 (PEO) required user testing in System Integration Laboratories and hardware/simulation in-the-loop facilities. 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 and tri-service capabilities to eliminate duplication of products and services, while providing the proper mix of resources needed to support Army testing and training. These battlefield simulators represent systems (e.g. missile systems, command, control and communications systems, electronic warfare systems, etc.) that are used to portray a realistic threat environment during testing of U.S. weapon systems. 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 Instrumentation, Targets and Threat Simulators (PM ITTS) and the Director, Operational Test and Evaluation, Threat Simulator Investment Working Group.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	27.535	25.675	21.232	-	21.232
Current President's Budget	27.157	25.675	22.862	-	22.862
Total Adjustments	-0.378	0.000	1.630	-	1.630
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.378	-			
• Adjustments to Budget Years	0.000	0.000	1.555	-	1.555
• CivPay Adjustments	0.000	0.000	0.075	-	0.075

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604256A *I Threat Simulator Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2016	FY 2017
Project: 976: *Army Threat Sim (ATS)*		
Congressional Add: *Integrated Threat Distributed Cyber Environments*	7.500	-
Congressional Add Subtotals for Project: 976	7.500	-
Congressional Add Totals for all Projects	7.500	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
976: *Army Threat Sim (ATS)*	-	27.157	25.675	22.862	-	22.862	23.885	24.658	25.297	25.954	-	-
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 training and developmental and operational tests. 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 United States (U.S.) Army Test and Evaluation Command (ATEC), to conduct developmental and operational tests, and to support Program Executive Office (PEO) required user testing in System Integration Laboratories and hardware/simulation in-the-loop facilities. 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 and tri-service capabilities to eliminate duplication of products and services, while providing the proper mix of resources needed to support Army testing and training. These battlefield simulators represent systems (e.g. missile systems, command, control and communications systems, electronic warfare systems, etc.) that are used to portray a realistic threat environment during testing of U.S. weapon systems. Simulator development is responsive to Office of the Secretary of Defense and General Accounting 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 Instrumentation, Targets and Threat Simulators (PM ITTS) and the Director, Operational Test and Evaluation, Threat Simulator Investment Working Group.

Beginning in FY 2018, this Project will support the Next Generation Mobile Communication Network Infrastructure Test Range (MCNITR) activity.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Network Exploitation Test Tool (NETT).	3.410	3.883	3.675
Description: Continues Engineering Manufacturing and Development (EMD) for the NETT as a comprehensive Computer Network Operations (CNO) tool. Integrates new tools, tactics, and techniques into NETT to portray evolving Threat environments.			
FY 2016 Accomplishments: Continued EMD for the NETT. NETT will be a comprehensive CNO tool, designed for Test and Evaluation (T&E), to portray evolving hostile and malicious Threat effects within the cyber domain. The program provides an integrated suite of open-source/ open-method exploitation tools, which will be integrated with robust reporting and instrumentation capabilities. NETT issued by Threat CNO teams to replicate the tactics of state and non-state Threat and will be supported by a robust CNO development environment. The Cyber domain will be the most rapidly changing domain in which our systems operate. The NETT program to research new capabilities and to use an in-depth process to clean, fix, and integrate required Threat tools, tactics, and techniques			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
that are needed during T&E. Focus areas to include continued Threat integration, instrumentation, distributed collaboration, and remote agent development. ***FY 2017 Plans:*** Will continue EMD for the NETT. NETT will be a comprehensive Computer Network Operations (CNO) tool, designed for T&E, to portray evolving hostile and malicious Threat effects within the cyber domain. The program will provide an integrated suite of open-source/open-method exploitation tools which will be integrated with robust reporting and instrumentation capabilities. NETT will be used by Threat CNO teams to replicate the tactics of state and non-state Threat and will be supported by a robust CNO development environment. The Cyber domain will be the most rapidly changing domain in which our systems operate. The NETT program will research these new capabilities and will use an in-depth process to clean, fix, and integrate required Threat tools, tactics, and techniques that will be needed during T&E. Focus areas will include continued Threat integration, instrumentation, distributed collaboration between multiple users, targets and attack visualization, data collection and remote agent development. ***FY 2018 Plans:*** NETT is a comprehensive CNO tool, designed for T&E, to portray evolving hostile and malicious Threat effects within the cyber domain. The program will continue to provide an integrated suite of open-source/open-method exploitation tools which will be integrated with robust reporting and instrumentation capabilities. NETT is used by Threat CNO teams to replicate the tactics of state and non-state Threat and is supported by a robust CNO development environment. The Cyber domain will be the most rapidly changing domain in which our systems operate. The NETT program will continue research of these capabilities and will use an in-depth process to clean, fix, 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 ***Description:*** TSMO's Threat Operations program manages, maintains, and sustains a mission ready suite of threat systems within the Army's Threat inventory. ***FY 2016 Accomplishments:*** The Threat Operations program funded 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 test events including (Network Integration Evaluation - NIE/Army Warfighter Assessments - AWA) and anticipated excursion test events for numerous Systems Under Test (SUT)/Programs of Record (POR) currently identified through Fiscal Year (FY) 2017. FY16 funding provided for acquisition life cycle management support and operations, maintenance, spares, new equipment, training, special tools and instrumentation, additional Department of Defense (DoD) Information	2.959	3.395	3.627

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Assurance Certification and Accreditation Process (DIACAP) updates, etc. of new threat systems fielded into the Army's Threat inventory. ***FY 2017 Plans:*** 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 test events including (Network Integration Evaluation - NIE/Army Warfighter Assessments - AWA) and anticipated excursion test events for numerous Systems Under Test (SUT)/Programs of Record (POR) currently identified through FY17. ***FY 2018 Plans:*** 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 test events including NIE/AWA and anticipated excursion test events for numerous SUT/POR currently identified through FY18.			
Title: Integrated Threat Force (ITF), formerly named Threat Battle Command Center (TBCC) ***Description:*** Continues the EMD phase for the ITF program to continue hardware/software development and threat systems integration in support to the build-out of the threat force architecture. ***FY 2016 Accomplishments:*** Continued the EMD phase for Increment 4 of the ITF program to enhance the ITF's Threat Battle Command applications, the Command, Control, Communication (C3) interfaces with the Increment 1 - 3 threat systems as well as enhance the Command and Control (C2) functionality of the TBCC. FY16 supported the continued design and development of distributed C2 functionality from the TBCC. ***FY 2017 Plans:*** Will continue the EMD phase for Increment 4 of the ITF program to enhance the ITF's Threat Battle Command applications, the C3 interfaces with the Increment 1 - 3 threat systems as well as enhance the C2 functionality of the Threat Battle Command Center (TBCC). FY17 funding is expected to finish the design and development of distributed C2 functionality and fulfill the KPPs for Increment 4.	3.823	1.965	-
Title: Threat Computer Network Operations Teams (TCNOT) ***Description:*** The TCNOT supports Army Test and Evaluation events by maintaining a team of highly qualified, trained, and certified CNO professionals who execute cyber operations against systems under test. The TCNOT program was	3.003	4.051	5.764

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
designated a "Threat CNO Team" under Army Regulation (AR) 380-53 and is accredited as a United States Strategic Command (USSTRATCOM)/National Security Agency (NSA) certified "Red Team". ***FY 2016 Accomplishments:*** Funding supported unique training, credentials, and authorizations involving organizations such as the Intelligence and Security Command (INSCOM), NSA, Headquarters Department of Army (HQDA)-G2, and industry. FY16 funded requirements such as continued research of the intelligence-based TCNO TTP and threat portrayal capabilities up to the Nation State level; development of the necessary, highly specialized TCNO Training program; development, research, and analysis of continually emerging foreign threat capabilities; and data collection capability. ***FY 2017 Plans:*** Funding will support unique training, credentials, and authorizations involving organizations such as INSCOM, NSA, HQDA-G2, and industry. FY17 will fund requirements such as continued research of the intelligence-based TCNO TTP and threat portrayal capabilities up to the Nation State level; development of the necessary, highly specialized TCNO Training program; development, research, and analysis of continually emerging foreign threat capabilities; and data collection capability. ***FY 2018 Plans:*** Funding will support unique training, credentials, and authorizations involving organizations such as INSCOM, NSA, HQDA-G2, and industry. FY18 will fund requirements such as continued research of the intelligence-based TCNO TTP and threat portrayal capabilities up to the Nation State level; development of the necessary, highly specialized TCNO Training program; development, research, and analysis of continually emerging foreign threat capabilities; and data collection capability.			
Title: Threat Computer Network Operations (CNO) Fidelity Enhancements ***Description:*** Threat CNO Fidelity Enhancements establishes high-fidelity Threat malware and real-world tools, tactics, techniques, and procedures of Threat employment of CNO using commercial Information Technologies (IT) intended to engage complex U.S. operations. ***FY 2016 Accomplishments:*** Program continued to validate high-fidelity Threat malware and real-world tools, tactics, techniques, and procedures of Threat employment of CNO using commercial IT technologies intended to engage complex U.S. operations. Continued the development of state and non-state threat targeting packages that are "current", accurately profiling attack trends and timelines, intent, levels of sophistication, and threat training that will not be available to evaluate the exploitation of existing vulnerabilities in Enterprise Business Systems and network enabled systems. These threat packages range from "technological nomads" operating	1.312	1.333	1.402

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
autonomously to state level forces using both active and passive network attack to selectively degrade or disrupt Army Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) and Enterprise Business Systems. ***FY 2017 Plans:*** Program will continue to validate high-fidelity Threat malware and real-world tools, tactics, techniques, and procedures of Threat employment of CNO using commercial IT technologies intended to engage complex U.S. operations. Will continue to develop state and non-state threat targeting packages that are "current", accurately profiling attack trends and timelines, intent, levels of sophistication, and threat training that will not be available to evaluate the exploitation of existing vulnerabilities in Enterprise Business Systems and network enabled systems. These threat packages range from "technological nomads" operating autonomously to state level forces using both active and passive network attack to selectively degrade or disrupt Army C4ISR and Enterprise Business Systems. ***FY 2018 Plans:*** Program will continue to validate high-fidelity Threat malware and real-world tools, tactics, techniques, and procedures of Threat employment of CNO using commercial IT technologies intended to engage complex U.S. operations. Will continue to develop state and non-state threat targeting packages that are "current", accurately profiling attack trends and timelines, intent, levels of sophistication, and threat training that will not be available to evaluate the exploitation of existing vulnerabilities in Enterprise Business Systems and network enabled systems. These threat packages range from "technological nomads" operating autonomously to state level forces using both active and passive network attack to selectively degrade or disrupt Army C4ISR and Enterprise Business Systems.			
Title: Advanced Networked Electronic Support Threat Sensors (NESTS) ***Description:*** Program will begin prototype design and implementation to deliver advanced threat Electronic Support (ES) platforms. ***FY 2016 Accomplishments:*** The Advanced NESTS program will increase existing threat ES capabilities to match the U.S. Intelligence Community performance assessments of real-world threat capabilities. This program seeks to replicate emerging real-world threat capabilities targeting advanced U.S. communication systems operating up to 18GHz. Program to establish the detailed design and begin the integration effort. ***FY 2017 Plans:*** The Advanced NESTS program will continue to increase existing threat Electronic Support (ES) capabilities to match the U.S. Intelligence Community performance assessments of real-world threat capabilities. This program seeks to replicate emerging	2.392	4.701	2.500

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
real-world threat capabilities targeting advanced U.S. communication systems operating up to 18GHz. Program will continue the detailed design and the integration effort. ***FY 2018 Plans:*** The Advanced NESTS program will continue to increase existing threat ES capabilities to match the U.S. Intelligence Community performance assessments of real-world threat capabilities. This program seeks to replicate emerging real-world threat capabilities targeting advanced U.S. communication systems operating up to 18GHz. Program will continue the detailed design and the integration effort. The program will pursue Full Operational Capability (FOC) during FY18.			
Title: Advanced Jammer Suite (Next Generation Electronic Attack (EA)) ***Description:*** Begin development of the infrastructure and testing capacity for persistent portrayal of operationally realistic threat network environments and expertise needed to accurately characterize, plan, and assess the effects of both U.S. and adversary cyber capabilities. Enables ability to provide cyber attack capabilities from a realistic threat environment. ***FY 2016 Accomplishments:*** The Advanced Jammer Suite expanded the Army's open air and alternatives for Electronic Attack (EA) in a test environment by using variations of jamming to include direct jamming, open air jamming and Global Positioning System (GPS) jamming. Program kept the current jamming threat as an asset to the Army for use in testing, at lower test costs. The Advanced Jammer Suite expands the Army alternative EA in a test environment by using appropriate jamming techniques for the applied testing environment and procured upgraded injection jamming units, as well as develop new and future jamming threats, to include satellite jamming threats. This threat development includes, but is not limited to, techniques such as Frequency Follower Direct Sequence Spread Spectrum (DSSS) threat jamming; Digital Radio Frequency Modulation (DRFM) "spoofing;" and, extended Radio Frequency (RF) range into the Extremely High Frequency (EHF) range. ***FY 2017 Plans:*** The Advanced Jammer Suite expands the Army's open air and alternatives for EA in a test environment by using variations of jamming to include direct jamming, open air jamming and GPS jamming. This program will keep the current jamming threat as an asset to the Army for use in testing, at lower test costs. The Advanced Jammer Suite expands the Army alternative EA in a test environment by using appropriate jamming techniques for the applied testing environment. This program continues the threat representation for the Army in the jamming domain. This program will continue to procure upgraded injection jamming units, as well as develop new and future jamming threats, to include satellite jamming threats. This threat development would include, but is not limited to techniques such as Frequency Follower Direct Sequence Spread Spectrum (DSSS) threat jamming; Digital Radio Frequency Modulation (DRFM) "spoofing;" and, extended RF range into the Extremely High Frequency (EHF) range. ***FY 2018 Plans:***	1.758	4.394	3.000

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
The Advanced Jammer Suite will continue to expand the Army's open air and alternatives for EA in a test environment by using variations of jamming to include direct jamming, open air jamming and GPS jamming. It will keep the current jamming threat as an asset to the Army for use in testing, at lower test costs, and expands the Army alternative EA in a test environment by using appropriate jamming techniques for the applied testing environment. This program continues the threat representation for the Army in the jamming domain. This program will develop new and future jamming threats, to include satellite jamming. This threat development would include, but is not limited to, techniques such as Frequency Follower DSSS threat jamming; DRFM "spoofing;" and, extended RF range into the EHF range.			
Title: Threat Information Environment ***Description:*** Begin development of the infrastructure and testing capacity for persistent portrayal of operationally realistic threat network environments and expertise needed to accurately characterize, plan, and assess the effects of both U.S. and adversary cyber capabilities. Enables ability to provide cyber attack capabilities from a realistic threat environment. ***FY 2016 Accomplishments:*** This capability provided the infrastructure and testing capacity for routine and consistent portrayal of operationally realistic, threat representative environments and expertise and the means to accurately characterize, plan, and assess the effects of cyber adversaries. This program leveraged partnerships across the U.S. Army Cyber Command (ARCYBER)/ the1st Information Operations Command (1st IO CMD), the Research, Development, and Engineering Command (RDECOM)/ the Army Research Laboratory (ARL), and the Aviation/Missile Research and Development Center (AMRDEC) to ensure intellectual capital and manning is available to execute the capability. Army cost avoidance through this program due to corrected vulnerabilities and threat mitigation in Army systems would be both common and substantial.	1.000	-	-
Title: Threat Battle Command Force (TBCF) ***Description:*** The Threat Battle Command Force (TBCF) incorporates remote operations via distributed C2 while maintaining valid Threat tactics, techniques, and procedures (TTP) during T&E and training events. ***FY 2017 Plans:*** The Threat Battle Command Force (TBCF) incorporates remote operations via distributed C2 while maintaining valid Threat tactics, techniques, and procedures (TTP) during T&E and training events. This program will integrate the Next Generation Electronic Support Suite, Next Generation Electronic Attack Suite and Computer Network Operations into future Threat C2 operations. ***FY 2018 Plans:***	-	1.953	2.237

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Integrate the Next Generation Electronic Support Suite, Next Generation Electronic Attack Suite and Computer Network Operations into future Threat C2 operations.			
Title: Next Generation Mobile Communication Network Infrastructure Test Range ***Description:*** Next Generation MCNITR provides a mobile, dynamic closed loop cellular communications network infrastructure implementing multiple technologies capable of providing a realistic commercial 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. ***FY 2018 Plans:*** Will determine system functional requirements to full design specifications to meet threat and operational test requirements.	-	-	0.657
Accomplishments/Planned Programs Subtotals	19.657	25.675	22.862

	FY 2016	FY 2017
Congressional Add: Integrated Threat Distributed Cyber Environments	7.500	-
FY 2016 Accomplishments: Development of these provisions enabled real-time cyber causality assessment against the realistic cyber threat environment while retaining the ability to rapidly reconfigure required environments as the cyber threat adapts and proliferates. This capability utilized automated configuration and control of threat cyber environment operations in order to meet current demands. This capability is a solution to existing challenges of implementing, sustaining, and reconfiguring actual foreign network technology to replicate threat cyber environment requirements.		
Congressional Adds Subtotals	7.500	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	16.163	19.122	13.902	-	13.902	12.508	12.755	13.588	13.142	-	-
238: *Aerial Targets*	-	11.757	13.719	9.963	-	9.963	8.291	9.001	10.093	10.540	-	-
459: *Ground Targets*	-	4.406	5.403	3.939	-	3.939	4.217	3.754	3.495	2.602	-	-

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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	16.684	19.122	10.979	-	10.979
Current President's Budget	16.163	19.122	13.902	-	13.902
Total Adjustments	-0.521	0.000	2.923	-	2.923
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.521	-			
• Adjustments to Budget Years	0.000	0.000	2.923	-	2.923

Change Summary Explanation

Fiscal Year (FY) 18 adjustment for High-Speed Aerial Target replacement Engineering and Manufacturing Development (EMD) phase, Project 238.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
238: *Aerial Targets*	-	11.757	13.719	9.963	-	9.963	8.291	9.001	10.093	10.540	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aerial Targets Project supports Army readiness 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 program 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 resources the long-range planning 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 2016	FY 2017	FY 2018
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Target Control Systems (TCS) and aerial target control components.	0.514	0.674	-
Description: Continue EMD phase contract activities for the TCS and aerial target control components.			
FY 2016 Accomplishments: Continued EMD for the aerial and TCS ground target control components. Provided design modifications to solve obsolescence problems and updates software to correct anomalies. Provided software performance enhancement modifications to support Test and Evaluation (T&E) missions, improve test sets and develop upgraded operator displays. Updated documentation of the system and operations and maintenance manuals. Supported operational repair and maintenance with engineering analysis of target control system performance.			
FY 2017 Plans: Will continue Engineering and Manufacturing Development (EMD) for the aerial target test sets, relays, avionics components, and other aerial ancillary equipment. Will continue to provide for design modifications to solve obsolescence problems and update software to correct anomalies and provide for software performance enhancement modifications to support T&E missions and upgrade test sets and other aerial ancillary equipment. Will continue to update documentation of the system as well as operations			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
and maintenance manuals. Will continue to support operational repair and maintenance with engineering analysis of target control system performance..			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Towed Targets/Ancillary devices. ***Description:*** Continue EMD phase contract activities for the Towed Targets/Ancillary devices. ***FY 2016 Accomplishments:*** Engineering, manufacturing and development for the Towed Targets/Ancillary devices. Continue the development, enhancement, maintenance, and storage for all Research, Development, Test, and Evaluation (RDTE) aerial targets, towed targets, and ancillary devices. Continuation of development and testing of Low Cost Towed target systems (Cruise Missile Tow Target and Reduced Radar Tow Target) emulating current threats at a very low cost to Patriot, Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) and classified customers. Signature modification and performance enhancement efforts for these targets is ongoing. Investigates/tests other cost-saving towed systems (Glide-Tow, Towed Spheres, Height-Keeping-Tow, and Tow Test Bed) for Air Defense Weapons System customers. ***FY 2017 Plans:*** Will continue EMD for the Towed Targets/Ancillary devices. Will continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Continuation of development and testing of Low Cost Towed target systems (Cruise Missile Tow Target and Reduced Radar Tow Target) emulating current threats at a very low cost to Patriot, JLENS and classified customers. Signature modification and performance enhancement efforts for these targets is ongoing. Investigates/tests other cost-saving towed systems (Glide-Tow, Towed Spheres, Height-Keeping-Tow, and Tow Test Bed) for Air Defense Weapons System customers. ***FY 2018 Plans:*** Continues engineering and manufacturing for the Towed Targets/Ancillary devices, to include development, enhancement, maintenance, and storage for all RDTE aerial targets, towed targets, and ancillary devices as needed. Continued development and testing of Low Cost Towed target systems (Sphere Tow, Reduced Radar Tow Target, and the Glide Tow Target) emulating current threats at a very low cost to Patriot, Indirect Fires Protection Capability (IFPC), United States Army Center for Countermeasures/Office of the Secretary of Defense, 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.	0.610	0.746	0.557
Title: Engineering and Manufacturing Development (EMD) phase contract activity for Aerial Virtual Targets. ***Description:*** Continue EMD phase contract activities for Aerial Virtual Targets. ***FY 2016 Accomplishments:***	0.727	1.211	0.791

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Continued EMD for Aerial Virtual Targets for evolving Army and Department of Defense (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, to 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 testing (OT) test 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 are used by multiple DoD agencies and multiple weapon systems such as Close Combat Weapon System (CCWS), Unmanned Aerial System, Lower Tier Program offices, and Longbow Hellfire. ***FY 2017 Plans:*** Will continue EMD 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 testing (OT) test 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 Close Combat Weapon System (CCWS), Unmanned Aerial System, Lower Tier Program offices, and Longbow Hellfire. ***FY 2018 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 test 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 CCWS, Unmanned Aerial System, Lower Tier Program offices, and Longbow Hellfire.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Army Ground Aerial Target Control System (AGATCS). ***Description:*** EMD phase contract activities for the AGATCS which supports a modern current technology target control system for control of both aerial and ground targets.	7.246	8.088	2.893

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018

FY 2016 Accomplishments:
Engineering and development for Army Ground Aerial Target Control System (AGATCS) which provides remote control of aerial (both fixed and rotary wing), 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 Department of Defense Instruction (DODI) 8510.01 mandate / DOD Information Assurance Certification and Accreditation Process (DIACAP)/Risk Management Framework (RMF) 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 United States (U.S.) Army test ranges. Develops and maintains a small fleet of seaborne and Unmanned Helicopter Vehicle-Target (UHV-T) assets for use by the T&E community. 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. Acquires Surface Target Instrumentation (STI) to support all test ranges critical to the Army Test and Evaluation Command's (ATEC's) requirement for threat representative surface targets.

FY 2017 Plans:
Will Continue EMD for AGATCS which provides remote control of aerial (both fixed and Rotary Wing), 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 Information Assurance Certification and Accreditation Process (DIACAP/RMF) 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. Develops and maintains a small fleet of seaborne and UHV-T assets for use by the T&E community. 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. Acquires and sustains STI to support all test ranges critical to ATEC's requirement for threat representative surface targets.

FY 2018 Plans:
Will continue AGATCS engineering, manufacturing and development to provide remote control of aerial (both fixed and rotary wing), 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. Develops and maintains a small fleet of seaborne and UHV-T assets for use by the Test & Evaluation community. Provides Test Centers and the T&E community with a versatile seaborne and rotary wing resource for use in conducting tests to include

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
live fire testing, observation, signal repeater and cargo transportation. Acquires STI to support all test ranges critical to ATEC's requirement for threat representative surface targets.			
Title: Life Cycle Management activities for the Unmanned Aerial System - Target (UAS-T). ***Description:*** Continue technical updates and life cycle management activities for the UAS-T to provide threat representative support for test and experimentation missions. ***FY 2016 Accomplishments:*** Provided an operational UAS-T to operate and maintain as a generic, tactical class unmanned aircraft system target. The UAS-T supported a wide variety of test requirements by providing generic threat representative support for test and experimentation missions. Funds enabled the identification and correction of system anomalies identified during operations and the flight demonstration of system corrections. Funds provided for limited engineering capability to address minor enhancements to the basic target system to meet shortcomings identified during operations. Funds also provided for updating of the system drawing package and systems documents to incorporate modifications made to the system. Supported all Army systems needing to test Intelligence, Surveillance and Reconnaissance (ISR), kinetic, Electronic Warfare, infrared or ISR capabilities against an unmanned aerial target with a threat representative flight envelope. Maintained operator and maintainer proficiency with the aerial target system. ***FY 2017 Plans:*** Will continue EMD 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 High Energy Laser project, the JIAMDO sponsored Black Dart 2015, Littoral Combat Ship operational and live fire testing, and a variety of research and development efforts. Funds will continue to enable the identification and correction of anomalies identified during flight operations and the flight demonstration of the corrective actions. Funds will continue to provide for limited engineering capability to address minor enhancements to the basic target system to meet shortcomings identified during operations. ***FY 2018 Plans:*** Will continue 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 High Energy Laser project, the Joint Integrated Air and Missile Defense Organization (JIAMDO) sponsored Black Dart 2018, Littoral Combat Ship operational and live fire testing. This program 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.	0.575	0.597	0.361
Title: Life Cycle Management activities for the High Speed Aerial Target (HSAT).	1.155	1.413	0.854

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Technical and life cycle management activities for the High Speed Aerial Target (MQM-107) equipment, to include engineering change proposals, technology obsolescence, safety and system data documentation. ***FY 2016 Accomplishments:*** Kept the aging HSAT, MQM-107 operational, ensuring 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 to aid in training operational units employing production missile systems. Funds were used to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations, including EMD. Supports all Army systems needing to test ISR, kinetic, electronic warfare, infra-red or ISR capabilities against an aerial target with high speed, high altitude flight envelope. ***FY 2017 Plans:*** Will continue EMD for the aging HSAT, MQM-107 that will provide 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 to aid in training operational units employing production missile systems. Funds will continue to be required to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, IAMD, Sentinel Radar, CMDS and classified programs for Army and Tri-Service customers. ***FY 2018 Plans:*** Will continue life cycle management for the aging HSAT, MQM-107 which 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 to aid in training operational units employing production missile systems. Funds will continue to be required to overcome technology obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, Integrated Air and Missile Defense (IAMD), Sentinel Radar, Cruise Missile Defense System (CMDS) and classified programs for Army and Tri-Service customers.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the High Speed Aerial Target Replacement. ***Description:*** EMD for the replacement of aging HSAT, MQM-107 to provide a realistic aerial target capable of simulating the performance of enemy aircraft. This will aid in the research, development, test, and evaluation of weapons systems and aid in training operational units employing production missile systems. Funds required for the replacement HSAT system to be cost effective and able to meet capabilities currently supported by the MQM-107. 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. Supports T&E programs such as Patriot, Stinger, IAMD, Sentinel Radar, CMDS and classified programs for Army and Tri-Service customers. ***FY 2016 Accomplishments:***	0.930	0.990	4.507

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Began the EMD for the replacement of aging High Speed Aerial Target (HSAT, MQM-107) that will provide 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 to aid in training operational units employing production missile systems. Funds required to replace HSAT system to ensure cost effectiveness and meet capabilities currently supported by the MQM-107. 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 and other activities related to getting it operational is essential. Target to support T&E programs such as Patriot, Stinger, IAMD, Sentinel Radar, CMDS and classified programs for Army and Tri-Service customers. ***FY 2017 Plans:*** Will continue the EMD for the replacement of aging High Speed Aerial Target (HSAT, MQM-107) that will provide 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 to aid in training operational units employing production missile systems. Funds are required for the replacement HSAT system that will need to be cost effective and able to meet capabilities currently supported by the MQM-107. This program will continue to require technical support for investigation, demonstration, and integration of a more economical target. Technical oversight of the replacement targets' acquisition along with ground support equipment and other activities related to getting it operational is essential. This target will continue to support T&E programs such as Patriot, Stinger, IAMD, Sentinel Radar, CMDS and classified programs for Army and Tri-Service customers. ***FY 2018 Plans:*** Funds Engineering and Manufacturing Development (EMD) for mission-essential High Speed Aerial Target (HSAT, MQM-107) which will provide 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 to aid in training operational units employing production missile systems. Funds are required for the replacement HSAT system that will be cost effective and meet capabilities currently supported by the MQM-107. This program will continue to require technical support for investigation, demonstration, and integration of a more economical target. Technical oversight of the replacement targets' acquisition along with ground support equipment and other activities related to getting it operational is essential. This target will continue to support T&E programs such as Patriot, Stinger, IAMD, Sentinel Radar, CMDS and classified programs for Army and Tri-Service customers.			
Accomplishments/Planned Programs Subtotals	11.757	13.719	9.963

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
459: *Ground Targets*	-	4.406	5.403	3.939	-	3.939	4.217	3.754	3.495	2.602	-	-
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 Transformation by developing 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. 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 program also manages use of current assets and operates centralized spare parts program. The United States (U.S.) Army is the Tri-Service lead for providing mobile ground targets for T&E.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Mobile Ground Target Operations (MGTO)	1.815	2.432	2.216
Description: MGTO provides oversight of five Primary Operating Centers to include operation, storage, maintenance, repair, safety and configuration management. ***FY 2016 Accomplishments:*** MGTO provided oversight to five Primary Operating Centers to include operations, storage, maintenance, repair, safety and configuration management for Foreign Mobile Ground Target Vehicles, and acquisition of new material and spare parts. Efforts will support users such as U.S. Army Test and Evaluation Command (ATEC), Apache 64E, Joint Air to Ground Missile (JAGM) , Javelin, Program Management (PM) CREW, Brigade Modernization Command, Joint Light Tactical Vehicle (JLTV) , PM Force Protection System, Unmanned Aircraft System (UAS), Light Armored Vehicle Add PM Future Fighting Vehicle (FFV), and others. ***FY 2017 Plans:*** Maintains a fleet of reusable ground targets emulating relevant, current, and emerging threats which provides cost effective solutions for T&E. The objective of the Mobile Ground Target Operations (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. The MGTO provides 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 ATEC, Apache 64E, GMLRS, Brigade Modernization Command, KIOWA, JAGM, Gray Eagle, Add PM Future Fighting Vehicle (FFV), and others. ***FY 2018 Plans:***			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will maintain a fleet of reusable ground targets emulating relevant, current, and emerging threats which provides cost effective solutions for T&E. 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. 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 ATEC, Apache 64E, Guided Multiple Launch Rocket System (GMLRS), Brigade Modernization Command, JAGM, Gray Eagle, and FFV.			
Title: Ground Virtual Targets	0.636	0.966	0.831
Description: Government System Test and Evaluation to support the research and development of Ground Virtual Targets. ***FY 2016 Accomplishments:*** Continued Government System Test and Evaluation to fund the research and development of Ground Virtual Targets for evolving Army and Department of Defense (DoD) simulation standards and implementation techniques. Focused on simulation target models of wheeled and tracked ground vehicles in commonly used model formats; to develop simulation target models visualization simulations, infrared analysis simulations, and radio frequency analysis simulations; to support verification and validation of models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Simulation target models employed to facilitate simulations for both Development Testing (DT) and Operational Testing (OT); Virtual Targets support test 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 were used by multiple DoD agencies and multiple weapon systems such as the JAGM and Longbow Hellfire offices. ***FY 2017 Plans:*** Continuing Government System Test and Evaluation to fund the research and development of Ground Virtual Targets for evolving Army and DoD simulation standards and implementation techniques. Will continue to focus on simulation target models of wheeled and tracked ground vehicles in commonly used model formats; will continue to develop simulation target models visualization simulations, IR analysis simulations, and RF analysis simulations; will continue to support verification and validation of models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Simulation target models will continue to be employed to facilitate simulations for both DT and OT; Virtual Targets support test 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 continue to be used by multiple DoD agencies and multiple weapon systems such as the JAGM and Longbow Hellfire offices. ***FY 2018 Plans:***			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will continue Government System Test and Evaluation for evolving Army and DoD simulation standards and implementation techniques for Ground Virtual Targets. The focus is on simulation target models of wheeled and tracked ground vehicles in commonly used model formats; will continue to develop simulation target models visualization simulations, infrared analysis simulations, and radio frequency analysis simulations. Will support verification and validation of models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Simulation target models will continue to be employed to facilitate simulations for both DT and OT; Virtual Targets support test 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 continue to be used by multiple DoD agencies and multiple weapon systems such as the JAGM and Longbow Hellfire offices.			
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 2016 Accomplishments:*** The MGTH program provided an optimized mix of varying fidelity ground targets to cost-effectively meet the functionality and signature fidelity requirements of the objective force. Program to initiate analysis and design efforts to address specific capability shortfalls that include the T-90 and Armata Main Battle Tank signatures and the ability to develop surrogates. Additionally, the development of air defense artillery (ADA) surrogates are critical to meet the current emerging threat. The acquisition and/or development of insurgent vehicles is also essential capabilities that are required to defeat emerging threat forces from particular regions. ***FY 2017 Plans:*** Continuing to provide an optimized mix of varying fidelity ground targets to cost-effectively meet the functionality and signature fidelity requirements of the objective force. Will continue to initiate analysis and design efforts to address specific capability shortfalls that include the T-90 and Armata Main Battle Tank signatures and the ability to develop surrogates. Additionally, the development of air defense artillery (ADA) surrogates are critical to meet the current emerging threat. The acquisition and/or development of insurgent vehicles is also essential capabilities that are required to defeat emerging threat forces from particular regions. ***FY 2018 Plans:*** Will continue to provide an optimized mix of varying fidelity ground targets to cost-effectively meet the functionality and signature fidelity requirements of the objective force. Will continue to initiate analysis and design efforts to address specific capability shortfalls and the ability to develop surrogates. The development of ADA surrogates are critical to meet the current emerging	1.955	2.005	0.892

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
threat. The acquisition and development of insurgent vehicles is also an essential capability required to defeat emerging threat forces from particular regions.			
Accomplishments/Planned Programs Subtotals	4.406	5.403	3.939

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604759A *I Major T&E Investment*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	65.059	84.777	102.901	-	102.901	108.632	111.437	82.994	85.508	-	-
983: *Reagan Test Site (RTS) T&E Investments*	-	7.231	7.032	7.213	-	7.213	7.391	7.431	7.623	7.849	-	-
984: *Major Developmental Testing Instrumentation*	-	34.394	31.741	29.692	-	29.692	36.567	39.187	40.007	41.250	-	-
986: *Major Operational Test Instrumentation*	-	6.713	17.971	18.990	-	18.990	15.660	15.843	16.073	16.559	-	-
EY9: *Range Radar Replacement Program (RRRP)*	-	16.721	26.333	42.006	-	42.006	49.014	48.976	19.291	19.850	-	-
FA4: *Warrior Injury Assessment Manikin (WIAMan)*	-	0.000	1.700	5.000	-	5.000	0.000	0.000	0.000	0.000	-	-

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 (US) Army Test and Evaluation Command's (ATEC) test activities: White Sands Test Center (WSTC), NM; Yuma Test Center, (YTC), AZ; Aberdeen Test Center (ATC), MD; Electronic Proving Ground (EPG), AZ; Redstone Test Center (RTC), AL; and for the Reagan Test Site (RTS) at the US 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. 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. Army testing facilities are also surveyed to determine major testing capability shortfalls.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army					Date: May 2017
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	66.580	84.777	71.037	-	71.037
Current President's Budget	65.059	84.777	102.901	-	102.901
Total Adjustments	-1.521	0.000	31.864	-	31.864
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.321	-			
• Adjustments to Budget Years	0.800	0.000	31.846	-	31.846
• CivPay Adjustments	0.000	0.000	0.018	-	0.018

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2016	FY 2017
Project: 984: *Major Developmental Testing Instrumentation*		
Congressional Add: *Congressional Add for Cyber Vulnerabilities Research*	4.000	-
Congressional Add Subtotals for Project: 984	4.000	-
Congressional Add Totals for all Projects	4.000	-

Change Summary Explanation

Net FY18 funding increase of $31.864 million from previous submission reflects: a realignment of Range Radar Replacement Program (RRRP) funding in the amount of $35.506 million from Other Procurement, Army (OPA) to Research, Development, Test & Evaluation (RDTE) to align with the Acquisition Strategy; civilian pay adjustments ($0.018 Million); and non-RRRP reductions totaling $3.66 Million. Since RRRP provides equipment to the test community, all procured equipment will be appropriately resourced in the RDT&E appropriation.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
983: *Reagan Test Site (RTS) T&E Investments*	-	7.231	7.032	7.213	-	7.213	7.391	7.431	7.623	7.849	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Programs ending in Fiscal Year (FY) 2017: Transmitter Reliability, Multiple Simultaneous Engagement (MSE) Flight Safety, Legacy Servo Upgrade Program Phase 2, Target Resolution Discrimination Experiment (TRADEX) L-Band Modulator, Net Centric Operations Upgrade.

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). Funds 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 Department of Defense (DoD) agencies. Without modernization these instrumentation systems face obsolescence or degraded capability. The RTS instrumentation is required to support data collection for test & evaluation assessments and operational decisions 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 2016	FY 2017	FY 2018
Title: Radar Open Systems Architecture (ROSA) Refresh	-	0.600	0.900
Description: The ROSA Refresh plan is to incorporate subsystem technologies at GBR-P, then transition those technologies to the other RTS sensors. Much of the testing and integration lessons will be learned ahead of time, providing a drop-in updated solution for legacy ROSA components at the other radars identified as having long-term sustainability issues. In this approach, the ROSA refresh effort is coupled with the GBR-P modernization leading to a cleaner and more cost-effective program. ***FY 2017 Plans:*** Continue design and development of open systems with a focus on extending the design to work with phased array radar systems in addition to the Kiernan Reentry Measurement System (KREMS) radar sites. ***FY 2018 Plans:*** Integrate and test new ROSA sub-systems at GBR-K radar.			
Title: Radar Reliability Improvement Program (RRI).	0.278	0.300	0.300

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: The Radar Improvement and Sustainment (RIS) Project is an Improvements and Modernizations (I&M) Umbrella Program to push technology into the radar systems. RIS is a group of complimentary I&M Projects that mitigate annual 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 Remoting Operation and Monitoring; Enhanced Capabilities ***FY 2016 Accomplishments:*** .Continue execution of projects to increase reliability and lower operating costs of RTS radars by incorporating modern commercially available parts into radar systems when legacy parts are obsolete and a drop in replacement is not available. ***FY 2017 Plans:*** Will continue execution of projects to increase reliability and lower operating costs of RTS radars by incorporating modern commercially available parts into radar systems when legacy parts are obsolete and a drop in replacement is not available. ***FY 2018 Plans:*** Initiate new projects to address Operations and Maintenance (O&M) concerns and increase radar reliability			
Title: Telemetry (TM) Modernization Study. ***Description:*** This Project 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 backend processing chain is currently comprised of discrete frequency-specific hardware components that are replicated for each telemetry channel required for a test event. This project 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, which this project will avoid much of that future cost. This project will provide enough hardware to increase capacity of the telemetry system. ***FY 2016 Accomplishments:*** Implement software defined radio design with a modernized frequency agile receiver on one antenna at RTS. ***FY 2017 Plans:*** Extend implementation to multiple antenna sites at RTS. ***FY 2018 Plans:***	1.506	2.310	2.427

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Extend implementation to additional antenna sites at RTS.			
Title: Multiple Simultaneous Engagement (MSE) Flight Safety. ***Description:*** RTS has an aging land-based command destruct range safety system that can communicate with and activate the Flight Termination System onboard a test missile. This Project will modernize the existing command destruct system, providing multiple improvements, and satisfying newly mandated requirements. This Project will also add the capability to control the flight termination systems on up to 4 missiles simultaneously. This Project will upgrade the failing Roi-Namur command destruct transmitters. Limited distributed operations will be extended to Huntsville. This Project will upgrade all safety hardware to support Enhanced Flight Termination System standards. Display capabilities and recording capabilities will be greatly enhanced. IA (information Assurance) compliant equipment will be used to replace non-compliant components and commonality with other ranges will be achieved. ***FY 2016 Accomplishments:*** Complete implementation of RTS safety control system replacement.	0.200	-	-
Title: Legacy Servo Upgrade Program. ***Description:*** This Project 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 2016 Accomplishments:*** Continue development of TRADEX antenna upgrade and begin upgrade of additional radar or optics servo systems ***FY 2017 Plans:*** Complete TRADEX servo upgrade and continue upgrade of additional radar or optics servo systems.	1.300	0.272	-
Title: Mission Data Network (MDN) Modernization. ***Description:*** The MDN Modernization Program ensures sustained seamless, high speed intra-range data/voice/video transfer capabilities for mission critical operations. Specifically, this program will procure up-to-date, high speed fiber optic network and communications equipment for the intra-range network at RTS. This equipment will meet the demands of future communication requirements that enable remote mission operations. Equipment will be installed to connect the sensors located on the remote islands, leveraging the previous Army Installation Information Infrastructure Modernization Program (I3MP) investment. Additionally, new information assurance requirements (DIACAP) will be accommodated and improvements made to reduce sustainment cost.	0.084	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: Complete new network architecture changes to improve on-atoll bandwidth to support increasing custom requirements.			
Title: RTS Automation and Decision Support. ***Description:*** As missions become more complex and challenging, the operator workload increases significantly. This Project improves automation and decision support to reduce human operator workload and operator errors associated with a higher workload. There will be additional capabilities to operate the range as a cohesive meta-sensor and capabilities to program contingencies, react with a priori information and decision algorithms and resource brokers. This will improve mission assurance. The RTS radar control software will be upgraded to automate processes that computers do better than humans, and reduce the need for labor intensive tuning efforts. The human computer interface (HCI) for the radars will be improved to allow operators to interact with the RTS sensor suite more intuitively with a small set of high-level commands. The control center data fusion algorithms will be improved and streamlined to reduce complexity and decrease operator workload. ***FY 2016 Accomplishments:*** Complete radar automation and begin work on displays and control center automation. ***FY 2017 Plans:*** Will continue work on displays and control center automation. ***FY 2018 Plans:*** Complete displays and control center automation scoped in FY17.	0.222	0.200	0.100
Title: Net Centric Operations Upgrade ***Description:*** Net-Centric Operations is a DoD mandate to enable agility through sharing of data across mission areas and components. Sharing of data is enabled by using standards where appropriate, forming communities of interest (COI) to agree on common vocabularies, common computing services infrastructure on a single network, and robust dynamic security access control. This Project will improve on how RTS interacts to receive Inter-range vectors (IRVs) from other ranges (e.g., Pacific Missile Range Facility (PMRF), Vandenberg Air Force Base (VAFB)) to establish the connectivity and messaging required to avoid antiquated point-to-point connections over Secure Telephone Equipment (STE). This would leverage Terrorist Explosive Device Analytical Center (TEDAC) and Joint Mission Environment Test Capability (JMETC) networks and RTS Distributed Operations (RDO) and Test Enabling Network Architecture (TENA) based data messages, but will also consider operational systems that are needed for RTS to participate more fully in real world events by sharing data and cues. A prototype TENA gateway will be the first phase in connecting RTS to other ranges with this new paradigm. ***FY 2016 Accomplishments:***	0.366	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Complete development of software to allow communication between the RDO software and Net Centric enterprises such as TENA.			
Title: Optics Focal Plane Technology Replacement Study ***Description:*** This study leverages the Massachusetts Institute of Technology (MIT) Lincoln Laboratory and external sponsor investments to build and integrate a Digital Focal Plane Array (DFPA) based long-wave infrared (LWIR) camera system and telescope onto an existing Super Recording Automation Digital Optical Tracker (RADOT) mount at RTS. The major efforts in this study are: DFPA Camera assembly and test, telescope procurement and test, software development, and on-site integration and test at RTS. ***FY 2016 Accomplishments:*** Complete DFPA camera/telescope and integrate onto the Super RADOT-5 mount on Roi-Namur	0.175	-	-
Title: Multi-Statics for Radars and Telemetry - Prototype ***Description:*** This development will enable all the existing KREMS radars to be used as illuminators and the RTS telemetry systems to be used as receivers in a multi-static array that will increase the sensitivity of the systems, reduce the need for high power operation in the systems, and in conjunction with the software radio radar project and the solid state transmitter project will allow the radars to be operated at a lower O&M cost. ***FY 2017 Plans:*** This development will enable all the existing KREMS radars to be used as illuminators and the RTS telemetry systems to be used as receivers in a multi-static array that will increase the sensitivity of the systems, reduce the need for high power operation in the systems, and in conjunction with the software radio radar project and the solid state transmitter project will allow the radars to be operated at a lower O&M cost. ***FY 2018 Plans:*** Continue design of a multi-static prototype and procure hardware to support the prototype.	-	0.200	0.486
Title: Ground Based Discrimination Radar ***Description:*** The Ground Based Discrimination Radar Project will provide the RTS with an instrumentation-quality, X-band phased array radar to more robustly support customer mission requirements and provide a relatively cost-effective phased array technology testbed capability. To control costs, the existing Ground Based Radar Prototype (GBR-P), provided by the Missile Defense Agency and initially developed as the prototype fire control radar, will be upgraded. ***FY 2016 Accomplishments:***	3.100	3.150	3.000

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Requirements definition and preliminary design for the Ground Based Radar (GBR) upgrade. The GBR is being transferred from the Missile Defense Agency (MDA) to the Space and Missile Defense Command (SMDC) in FY16. ***FY 2017 Plans:*** Development, integration, and testing of the GBR upgrade ***FY 2018 Plans:*** Integrate new sub-systems and backend processing onto the GBR-K radar on Kwajalein.			
Accomplishments/Planned Programs Subtotals	7.231	7.032	7.213

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
984: *Major Developmental Testing Instrumentation*	-	34.394	31.741	29.692	-	29.692	36.567	39.187	40.007	41.250	-	-
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 U. S. 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.

Projects are designated as a major test program based on their visibility, assessed relative technical risk (medium-high), schedule risk, cost (greater than $1.5 Million per year or $7.5 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. FY18 funds will be used for modernization of outdated instrumentation in support of developmental testing for Army Department of Defense programs.

Electromagnetic Environmental Effects (E3) Electromagnetic Radiation Effects (EMRE) Systems Modernization will upgrade equipment at the White Sands Missile Range (WSMR) EMRE site where E3 testing is performed to evaluate survivability and vulnerability of military systems. Project will upgrade and replace signal transmitters, refurbish an anechoic test chamber, replace data acquisition equipment and install a new turntable to support test items. Nuclear Effects Test Capabilities Modernization acquires and upgrades Special Test Equipment for nuclear facilities located at WSMR. These acquisitions and upgrades include the Pulse Current Injection Simulator, Prompt Gamma Simulator, Gamma Range Facility, Linear Electron Accelerator (LINAC), Semi-Conductor Test Lab, Electromagnetic Pulse and the Solar Furnace. Common Range Integrated Instrumentation System (CRIIS) Objective Program provides precision location instrumentation which will significantly increase the Test and Evaluation (T&E) ranges' capability to meet the test instrumentation needs of the tri-service range users. 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. Telemetry Systems Modernization (TSM) program will upgrade/replace mobile and fixed site telemetry equipment and telemetry data processing equipment thereby gaining spectrum efficiency at RTC, ATC, WSMR and Yuma Proving Ground (YPG). Future Wireless Network program (FWN) will procure and integrate wireless network technologies across ATEC test activities which will provide near real-time data collection support for Developmental Test and Operational Test events. Robotics/Unmanned Aerial Systems (UAS) Instrumentation Suite to develop and procure instrumentation for testing controlled and autonomous ground and aerial robotic systems. System of Systems Cooperative Engagement Test Infrastructure (SCETI) 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.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Electromagnetic Environmental Effects (E3) Systems Modernization (EMRE) project. ***Description:*** EMD phase contract activities for the EMRE project. This effort will upgrade 27 instrumentation test facilities as WSMR. ***FY 2016 Accomplishments:*** Funds for EMD for the EMRE 14 Test Facility Characterization Studies and 9 Site Surveys, Upgrade of support equipment and integration of four transmitter facilities, one turntable replacement and upgrading support equipment of two instrumentation vans, Electromagnetic Interface (EMI) test facility, Data Acquisition Software, and Radiation Hazard Testing Facilities. ***FY 2017 Plans:*** Funds for EMD for the E3 Systems Modernization (EMRE) and acquire the Electromagnetic Interference (EMI) and Peak Pulse Power systems and Electronic Discharge Test Facilities. ***FY 2018 Plans:*** Will continue the EMD phase E3 Systems contract activity. Funds will procure the Electronic and Electromagnetic Interference Test facilities.	16.978	5.300	0.769
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Nuclear Effects Test Capability Modernization. ***Description:*** EMD phase contract activity for the Nuclear Effects Test Capability Modernization. ***FY 2016 Accomplishments:*** Continue the EMD phase contract activity for the Nuclear Effects Test Capability Modernization. Program to upgrade Special Test Equipment for nuclear facilities located at WSMR. Funds acquisition and upgrades of Linear Accelerator, Pulsed Current Injection capability, Gamma Radiation Facility, Vertical Electromagnetic Pulse Facility, High-Altitude Electromagnetic Pulse Facility, Enhanced Low Dose Rate Sensitivity capability, Dosimetry Laboratory, and Solar Furnace. ***FY 2017 Plans:*** Will continue the Engineering and Manufacturing Development (EMD) phase contract activity for the Nuclear Effects Test Capability Modernization. Funds acquisition and upgrades of Special Test Equipment for Prompt Gamma Simulator facility and Rapid Response Laboratory. Funding adjusted in FY17 to accommodate program acquisition lead time for competitive procurement of Prompt Gamma Simulator. ***FY 2018 Plans:***	9.974	9.986	4.835

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will continue the EMD phase contract activity for the Nuclear Effects Test Capability Modernization. Funds acquisition and upgrades of Special Test Equipment for Prompt Gamma Simulator facility and Rapid Response Laboratory.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity of the Common Range Integrated Instrumentation System (CRIIS) Objective Program. ***Description:*** EMD phase contract activities of the CRIIS Objective Program. This is a replacement system for the Advanced Range Data System (ARDS). This system will meet the critical need for measuring the precision location of units under test within the Time-Space domain. It provides a significant increase to the Test & Evaluation ranges' capability to meet the test instrumentation needs of the tri-service range users. The improvements are the data link, TSPI accuracy, miniaturization, standard interfaces, and system encryption of high dynamic instrumentation tracking pods CRIIS instrumentation upgrades will be delivered to WSMR. ***FY 2016 Accomplishments:*** Continued EMD of the CRIIS Objective Program. Funds acquisition of CRIIS support equipment: Two Instrumentation Pods, and associated remote ground stations and support equipment. ***FY 2017 Plans:*** Will continue EMD of the Common Range Integrated Instrumentation System (CRIIS) Objective Program. Funds acquisition of CRIIS support equipment: Ten Instrumentation Pods, and associated remote ground stations and support equipment. ***FY 2018 Plans:*** Will continue EMD of the CRIIS Objective Program. Funds acquisition of CRIIS Lot 3 support equipment comprised of five Instrumentation Pods, and associated remote ground stations and support equipment.	1.104	3.785	2.475
Title: Engineering and Manufacturing Development (EMD) phase contract activity of the Test Network Modernization Program. ***Description:*** Engineering and Manufacturing Development phase contract activity for the Test Network Modernization. This program will provide a modern test infrastructure capable of reliable, secure transport of test data and test communications for all ATEC developmental test ranges. ***FY 2016 Accomplishments:*** Starts the EMD phase contract activity for the Test Network Modernization. This program will provide a modern test infrastructure capable of reliable, secure transport of test data and test communications for all ATEC developmental test ranges. ***FY 2017 Plans:***	0.389	3.032	12.307

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will continue the Engineering and Manufacturing Development (EMD) phase contract activity for the Test Network Modernization. This program will provide a modern test infrastructure capable of reliable, secure transport of test data and test communications for all ATEC developmental test ranges. ***FY 2018 Plans:*** Will continue the EMD phase contract activity for the Test Network Modernization. This program will provide a modern test infrastructure capable of reliable, secure transport of test data and test communications for all ATEC developmental test ranges. Funds will procure and install End of Life network hardware for five Test Centers (Aberdeen, Electronic Proving Grounds, Redstone, White Sands, and Yuma), replacing existing obsolete hardware that no longer meets Risk Management Framework (RMF) requirements for operational availability. Includes procurement of a standardized Network Monitoring System across five Test Centers (Aberdeen, Electronic Proving Grounds, Redstone, White Sands, and Yuma) to allow operators the ability to monitor and track network traffic and trouble shoot network failure points.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for Robotics/UAS Instrumentation Suite ***Description:*** Robotics/Unmanned Autonomous System (UAS) Instrumentation Suite for testing controlled and autonomous ground and aerial robotic systems. ***FY 2016 Accomplishments:*** Starts the EMD phase contract activity for the Robotics Unmanned Autonomous System (RUAS) Instrumentation Suite. This program will develop and procure instrumentation for testing controlled and autonomous ground and aerial robotic systems at four (4) ATEC Test Centers (Aberdeen, Redstone, White Sands and Yuma) ***FY 2017 Plans:*** Leveraging requirements analysis conducted by ATEC Test Centers, project will begin EMD Phase to develop and procure instrumentation for testing controlled and autonomous ground and aerial robotic systems. ***FY 2018 Plans:*** Will continue Engineering and Manufacturing Development (EMD) phase contract activity for the Robotics/UAS Instrumentation Suite. This program will procure instrumentation to be installed on aerial and ground platforms to collect performance test data. Initial instrumentation acquisition will focus on Global Position System (GPS) tracking and accuracy.	0.300	3.030	3.247
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Applied Environments Modernization program. ***Description:*** EMD phase contract activity for the Applied Environments Modernization program ***FY 2016 Accomplishments:***	0.394	2.061	4.621

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Started the EMD phase contract activity for the Applied Environments Modernization program. This 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. ***FY 2017 Plans:*** Will continue the Engineering and Manufacturing Development (EMD) phase contract activity for the Applied Environments Modernization program. This 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. ***FY 2018 Plans:*** Will continue the EMD phase contract activity for the Applied Environments Modernization program. This 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.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for System of Systems Cooperative Engagement Test Infrastructure (SCETI) ***Description:*** System of Systems Cooperative Engagement Test Infrastructure (SCETI) ***FY 2016 Accomplishments:*** Leveraging requirements analysis conducted by ATEC Test Centers, project will begin the EMD phase of System of Systems Cooperative Engagement Test Infrastructure (SCETI) 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. ***FY 2017 Plans:*** Leveraging requirements analysis conducted by ATEC Test Centers, project will begin the EMD phase of System of Systems Cooperative Engagement Test Infrastructure (SCETI) 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. ***FY 2018 Plans:*** Will continue EMD phase contract activity for the SCETI program. This program will design and develop a test chamber to replicate degraded visual environments for various environmental conditions (i.e. rain, dust, snow, etc.) for helicopters.	0.206	0.973	1.438
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Future Wireless Network program. ***Description:*** EMD phase contract activity for the Future Wireless Network program. ***FY 2016 Accomplishments:***	0.606	1.574	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Start the EMD phase contract activity for the Future Wireless Network program. This program will procure and integrate wireless network technologies across ATEC test activities which will provide near real-time data collection support for developmental test and operational test events. ***FY 2017 Plans:*** Will continue the Engineering and Manufacturing Development (EMD) phase contract activity for the Future Wireless Network program. This program will procure and integrate wireless network technologies across ATEC test activities which will provide near real-time data collection support for developmental test and operational test events.			
Title: Engineering and Manufacturing Development (EMD) phase contract activity for the Telemetry Systems Modernization program ***Description:*** EMD phase contract activity for the Telemetry Systems Modernization program ***FY 2016 Accomplishments:*** Start the EMD phase contract activity for the Telemetry Systems Modernization program. This program will upgrade/replace mobile and fixed site telemetry equipment and telemetry data processing equipment RTC, ATC, WSMR and YPG. ***FY 2017 Plans:*** Will continue the Engineering and Manufacturing Development (EMD) phase contract activity for the Telemetry Systems Modernization program. This program will upgrade/replace mobile and fixed site telemetry equipment and telemetry data processing equipment Redstone Test Center (RTC), Aberdeen Test Center (ATC), White Sands Missile Range (WSMR) and Yuma Proving Ground (YPG).	0.443	2.000	-
Accomplishments/Planned Programs Subtotals	30.394	31.741	29.692

	FY 2016	FY 2017
Congressional Add: Congressional Add for Cyber Vulnerabilities Research ***FY 2016 Accomplishments:*** Congressional Add for Cyber Vulnerabilities Research provided comprehensive cyber data analytics and fusion instrumentation capabilities including response times, actions, levels of difficulty and visualization for both Red and Blue actors in live and high fidelity virtual environments during developmental and operational test, evaluation and assessments.	4.000	-
Congressional Adds Subtotals	4.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
986: *Major Operational Test Instrumentation*	-	6.713	17.971	18.990	-	18.990	15.660	15.843	16.073	16.559	-	-
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 United States (U.S.) Army Test and Evaluation Command's (ATEC) 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. Program focus is to address Director Operational Test and Evaluation (DOT&E) identified Army test realism shortfalls. FY18 funds will be used for Follow-On Operational Test and Evaluation (FOT&E) in support of PM Apache, Joint Light Tactical Vehicle (JLTV) and Rifleman Radio.

Projects are designated as a major test program based on their visibility, assessed relative technical risk (medium-high), schedule risk, cost (greater than $1.5 Million per year or $7.5 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.

Director Operational Test and Evaluation (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 Systems (GPS), encryption components, and integrates 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 into the Network Integration Evaluation (NIE), M1A2, M2A4, Stryker, Armored Multi-Purpose Vehicle (AMPV), AH-64E, Gray Eagle and other operational tests.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Integrated Live-Virtual-Constructive (LVC) Test Environment (ILTE) - formerly "Real-Time Casualty Assessment (RTCA)"	6.713	17.971	18.990

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018

Description: Transition from Technology Maturation and Risk Reduction (TMRR) Phase to Engineering, Manufacturing, and Development (EMD) Phase and acquisition of ILTE capabilities required to conduct Operational Tests.

FY 2016 Accomplishments:
Materiel development decision approved Feb 2016. Project office has been established. Concept of Operations (CONOPS), Use Cases, and derived requirements have been identified and documented. Applicable technology maturation efforts have been identified for monitoring and transition into ILTE. Gaps have been identified for Science and Technology (S&T) development. Projects have been initiated for low risk solutions to critical capabilities.

FY 2017 Plans:
ILTE project transitions from Technology Maturation and Risk Reduction (TMRR) to Engineering and Manufacturing Development (EMD) Phase. Project ramps up to provide capabilities in direct support of Operational Test of the Joint Light Tactical Vehicle and Armored Multi-Purpose Vehicle. Will continue to fund the development of hardware, software, interfaces, and new capabilities to ensure RTCA/ILTE requirements for upcoming operational tests are satisfied. Will fund integration of improved representation of unmanned aerial system in operational test environments. Will continue to develop capability to provide a realistic operational test environment. Funds will continue to be allocated for RTCA instrumentation and simulation systems to be used to support Force-on-Force Operational Tests which support a more comprehensive operational test. New development efforts will include integration of classified and unclassified simulations into a common environment. Continued development efforts include, integration with new tactical systems under test, integration with Live, Virtual, and Constructive simulation environments, RTCA capabilities for active protection systems and countermeasures, RTCA capabilities for communications/sensor kills and degradations, development, integration, and testing of mission command effects and degradations, communications upgrade, new communications sub-systems, new encryption and RTCA capabilities for electronic warfare and countermeasures.

FY 2018 Plans:
ILTE project transitions from TMRR to EMD Phase. Project ramps up to provide capabilities in direct support of Operational Test of the AH-64E, Joint Light Tactical Vehicle (JLTV), and Armored Multi-Purpose Vehicle (AMPV). Will continue to fund the development of hardware, software, interfaces, and new capabilities to ensure Real-Time Casualty Assessment(RTCA)/ILTE requirements for upcoming operational tests are satisfied. Will fund integration of improved representation of unmanned aerial system in operational test environments. Will continue to develop capability to provide a realistic operational test environment. Funds will continue to be allocated for Real-Time Casualty Assessment (RTCA) instrumentation and simulation systems to be used to support Force-on-Force Operational Tests which support a more comprehensive operational test infrastructure. New development efforts will include integration of classified and unclassified simulations into a common environment. Continued development efforts include, integration with new tactical systems under test, integration with Live, Virtual, and Constructive simulation environments, RTCA capabilities for active protection systems and countermeasures, RTCA capabilities

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
for communications/sensor kills and degradations, development, integration, and testing of mission command effects and degradations, communications upgrade, new communications sub-systems, new encryption and RTCA capabilities for electronic warfare and countermeasures.			
Accomplishments/Planned Programs Subtotals	6.713	17.971	18.990

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
EY9: *Range Radar Replacement Program (RRRP)*	-	16.721	26.333	42.006	-	42.006	49.014	48.976	19.291	19.850	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In Fiscal Year (FY) 2017 Range Radar Replacement Program (RRRP) was realigned within this Program Element from Project 984/Major Developmental Testing Instrumentation to Project EY9/RRRP. RRRP transferred to Program Executive Office (PEO) Missiles and Space (M&S) for completion of mission. Prior development effort was funded in Army Program Element (APE) 0604756 / Project 984.

A. Mission Description and Budget Item Justification

The RRRP develops modern instrumentation radars to replace obsolete tracking and surveillance radars at United States (U.S.) Army Test and Evaluation Command's (ATEC) Developmental Test Command (DTC) activities which include: Aberdeen Test Center (ATC), MD; Redstone Test Center (RTC), AL; White Sands Test Center (WSTC), NM; and Yuma Test Center (YTC), AZ. The acquisition of modern instrumentation radar systems will provide the Army critical testing data essential for the development of complex 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 for the program requirements is a modular open architecture system consisting of four primary items: a Long Range Radar (LRR), a Medium Range Radar (MRR), a Short Range Radar (SRR), and a Radar Operations Console (ROC). The resulting system will not only reduce operation and sustainment costs for the ranges, but improve data collection, thus enhancing development of Army systems being tested at these ranges. The current fleet of instrumentation radars located at ATC, RTC, WSTC, and YTC has become antiquated to the extent that they are not able to support the test needs of the test centers.

The Project will procure Commercial-Off-The-Shelf (COTS) radars for both the MRR and SRR solutions along with a COTS replacement for the FPS-16 LRR. Also, the program will conduct EMD for upgrading three MPS-39 LRRs and the ROC.

FY18 funds the Engineering and Manufacturing Development (EMD) for the RRRP Block One (I) LRR and ROC systems in preparation for replacement of equipment at ATC, RTC, WSTC and YTC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Engineering and Manufacturing Development (EMD) Phase Contract Activity	16.721	26.333	42.006
Description: EMD phase contracts activities for RRRP			
FY 2016 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Engineering Manufacturing Development (EMD) continued for the RRRP with adjustments for the Long Range Radar (LRR) and the Medium Range Radar (MRR) systems in preparation for replacement of equipment at Aberdeen Test Center (ATC), Redstone Test Center (RTC), White Sands Test Center (WSTC) and Yuma Test Center (YTC). ***FY 2017 Plans:*** Continue Engineering and Manufacturing Development (EMD) for the RRRP for the Long-Range Radars (LRR). Procure Commercial-Off-The-Shelf (COTS) Medium Range Radars (MRR) and Short Range Radars (SRR) systems in preparation for replacement of equipment at Aberdeen Test Center (ATC), Redstone Test Center (RTC), White Sands Test Center (WSTC) and Yuma Test Center (YTC). ***FY 2018 Plans:*** Conduct EMD for the RRRP LRR (MPS-39 Radar Upgrade) and Radars Operations Console (ROC). Results of the Business Case Analysis (BCA) completed in FY17 have refocused/realigned the program to procure Commercial Off-The-Shelf (COTS) radars for the remaining SRR and MRR systems; COTS for replacement of the remaining FPS-16 Radar system; Recapitalize/ Upgrade three MPS-39 Radar systems as replacements of equipment at ATC, RTC, WSTC, and YTC.			
Accomplishments/Planned Programs Subtotals	16.721	26.333	42.006

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604759A / *Major T&E Investment*	Project (Number/Name) FA4 / *Warrior Injury Assessment Manikin (WIAMan)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
FA4: *Warrior Injury Assessment Manikin (WIAMan)*	-	0.000	1.700	5.000	-	5.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

New Start for Fiscal Year (FY) 17: Warrior Injury Assessment Manikin (WIAMan) Anthropomorphic Test Device (ATD). Project FA4 is a New Project in Army Program Element 0604759A, created for WIAMan.

A. Mission Description and Budget Item Justification

WIAMan ATD will develop and produce Warrior-representative ATDs that incorporate associated biomechanically-validated injury assessment tools to better characterize dynamic events and injury risks measured in Live Fire Test & Evaluation (LFT&E) and vehicle development efforts. This capability is comprised of an ATD system purpose built for the Title 10 live fire test and evaluation environment and associated biomechanics data and analysis tools.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Warrior Injury Assessment Manikin (WIAMan) Anthropomorphic Test Device (ATD)	-	1.700	5.000
Description: Will begin the transition from Technology Maturation and Risk Reduction (TMRR) phase for WIAMan ATD. ***FY 2017 Plans:*** Will begin the transition from Technology Maturation and Risk Reduction (TMRR) phase with Warrior Injury Assessment Manikin (WIAMan) Anthropomorphic Test Device (ATD) prototype refinement to source selection activities preparing for entry into EMD phase. ***FY 2018 Plans:*** Will continue the transition from an RDECOM conducted science and technology research akin to Technology Maturation and Risk Reduction (TMRR) phase with WIAMan ATD prototype refinement to source selection activities and entry into the Engineering and Manufacturing Development (EMD) phase. FY18 increased funding covers additional costs associated with testing, engineering and procurement of a prototype.			
Accomplishments/Planned Programs Subtotals	-	1.700	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604759A / *Major T&E Investment*	**Project (Number/Name)** FA4 / *Warrior Injury Assessment Manikin (WIAMan)*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	20.014	20.658	20.140	-	20.140	20.147	20.144	20.533	21.155	-	-
732: *Arroyo Center Spt*	-	20.014	20.658	20.140	-	20.140	20.147	20.144	20.533	21.155	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the RAND Arroyo Center, the Department of the Army's Federally Funded Research and Development Center (FFRDC) for studies and analysis. The Arroyo Center draws its 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. The RAND Arroyo Center provides for continuing analytical research across a broad spectrum of issues and concerns, grouped in four major research areas: Strategy, Doctrine, and Resources; Military Logistics; Manpower and Training; and Force Development and Technology. The RAND Arroyo Center research agenda is primarily focused on mid/long-term concerns. Results and analytical findings directly affect senior leadership deliberations on major issues. Arroyo Center research is sponsored by the Chief of Staff, Vice Chief, the Deputy Chiefs of Staff of the Army; the Army Assistant Secretaries; and most of the Army's major commands. The Arroyo Center is provided guidance from the Army 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 project requires General Officer (or Senior Executive Service (SES) equivalent) sponsorship and involvement on a continuing basis. RAND Arroyo provides the Army with a unique multidisciplinary capability for independent analysis.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	19.382	20.658	20.659	-	20.659
Current President's Budget	20.014	20.658	20.140	-	20.140
Total Adjustments	0.632	0.000	-0.519	-	-0.519
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	0.632	0.000	-0.519	-	-0.519

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605103A / *Rand Arroyo Center*	Project (Number/Name) 732 / *Arroyo Center Spt*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
732: *Arroyo Center Spt*	-	20.014	20.658	20.140	-	20.140	20.147	20.144	20.533	21.155	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the RAND Arroyo Center, the Department of the Army's Federally Funded Research and Development Center (FFRDC) for studies and analysis. The Arroyo Center draws its 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. The RAND Arroyo Center provides for continuing analytical research across a broad spectrum of issues and concerns, grouped in four major research areas: Strategy, Doctrine, and Resources; Military Logistics; Manpower and Training; and Force Development and Technology. The RAND Arroyo Center research agenda is primarily focused on mid/long-term concerns. Results and analytical findings directly affect senior leadership deliberations on major issues. Arroyo Center research is sponsored by the Chief of Staff, Vice Chief, the Deputy Chiefs of Staff of the Army; the Army Assistant Secretaries; and most of the Army's major commands. The Arroyo Center is provided guidance from the Army 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 project requires General Officer (or Senior Executive Service (SES) equivalent) sponsorship and involvement on a continuing basis. RAND Arroyo provides the Army with a unique multidisciplinary capability for independent analysis.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Research addressing manpower and training	5.060	4.899	5.093
Description: Addresses key issues for the Army, including recruiting and personnel fill requirements; reserve component readiness; leader development; training (major combat operations and stability operations skills); distance learning, simulation training development and application; training support systems; retention (active command/reserve command); officer career fields, selection, assignment sequencing; and medical forces and operations.			
FY 2016 Accomplishments: The Planned Study program included numerous key issues for the Army such as recruiting and personnel fill requirements; reserve component readiness; leader development; training (major combat operations and stability operations skills); distance learning, simulation training development and application; training support systems; retention (active command/reserve command); officer career fields, selection, assignment sequencing; and medical forces and operations.			
FY 2017 Plans: The Planned Study program includes numerous key issues for the Army such as recruiting and personnel fill requirements; reserve component readiness; leader development; training (major combat operations and stability operations skills); distance learning, simulation training development and application; training support systems; retention (active command/reserve command); officer career fields, selection, assignment sequencing; and medical forces and operations.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605103A / *Rand Arroyo Center*	**Project (Number/Name)** 732 / *Arroyo Center Spt*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
The Planned Study program will include numerous key issues for the Army such as recruiting and personnel fill requirements; reserve component readiness; leader development; training (major combat operations and stability operations skills); distance learning, simulation training development and application; training support systems; retention (active command/reserve command); officer career fields, selection, assignment sequencing; and medical forces and operations.			
Title: Research addressing force development and technology ***Description:*** Addresses key issues for the Army, including systems and technology analysis; networks and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); modeling and simulation; force and organizational development; acquisition policies; and assessment of tactics, techniques, and procedures. ***FY 2016 Accomplishments:*** The Planned Study Program in force development and technology includes key issues for the Army such as including systems and technology analysis; networks and C4ISR; modeling and simulation; force and organizational development; acquisition policies; and assessment of tactics, techniques, and procedures. ***FY 2017 Plans:*** The Planned Study Program in force development and technology includes key issues for the Army such as systems and technology analysis; networks and C4ISR; modeling and simulation; force and organizational development; acquisition policies; and assessment of tactics, techniques, and procedures. ***FY 2018 Plans:*** The Planned Study Program in force development and technology will include key issues for the Army such as systems and technology analysis; networks and C4ISR; modeling and simulation; force and organizational development; acquisition policies; and assessment of tactics, techniques, and procedures.	4.948	4.791	4.979
Title: Research addressing Army logistics ***Description:*** Addresses key issues for the Army, including supply chain management; fleet management and modernization; logistics force development; and infrastructure management. ***FY 2016 Accomplishments:*** The Planned Study Program in Army logistics included key issues for the Army such as supply chain management; fleet management and modernization; logistics force development; and infrastructure management. ***FY 2017 Plans:*** The Planned Study Program in Army logistics includes key issues for the Army such as supply chain management; fleet management and modernization; logistics force development; and infrastructure management. ***FY 2018 Plans:***	4.393	4.253	4.420

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605103A / *Rand Arroyo Center*	**Project (Number/Name)** 732 / *Arroyo Center Spt*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
The Planned Study Program in Army logistics will include key issues for the Army such as supply chain management; fleet management and modernization; logistics force development; and infrastructure management.			
Title: Research addressing strategies, doctrine, and resources ***Description:*** Addresses key issues for the Army, including the evolving operating environment; capabilities to face new challenges; partner capabilities; capabilities for stability operations; improvement of resource management; learning from past and present operations; and supporting Army wargames and analysis. ***FY 2016 Accomplishments:*** The Planned Study Program in strategy, doctrine, and resources included key issues for the Army such as the evolving operating environment; capabilities to face new challenges; partner capabilities; capabilities for stability operations; improvement of resource management; learning from past and present operations; and supporting Army wargames and analysis. ***FY 2017 Plans:*** The Planned Study Program in strategy, doctrine, and resources includes key issues for the Army such as the evolving operating environment; capabilities to face new challenges; partner capabilities; capabilities for stability operations; improvement of resource management; learning from past and present operations; and supporting Army wargames and analysis. ***FY 2018 Plans:*** The Planned Study Program in strategy, doctrine, and resources will include key issues for the Army such as the evolving operating environment; capabilities to face new challenges; partner capabilities; capabilities for stability operations; improvement of resource management; learning from past and present operations; and supporting Army wargames and analysis.	4.334	5.477	4.361
Title: Research addressing military health ***Description:*** Addresses key issues for the Army, including the impact of deployment on soldiers and families; quality of Army health care; medical manpower requirements; medical readiness of soldiers and programs; and implications of advances in medical technology. ***FY 2016 Accomplishments:*** The Planned Study Program in military health included key issues for the Army such as the impact of deployment on soldiers and families; quality of Army health care; medical manpower requirements; medical readiness of soldiers and programs; and implications of advances in medical technology. ***FY 2017 Plans:***	1.279	1.238	1.287

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605103A / *Rand Arroyo Center*	**Project (Number/Name)** 732 / *Arroyo Center Spt*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
The Planned Study Program in military health includes key issues for the Army such as the impact of deployment on soldiers and families; quality of Army health care; medical manpower requirements; medical readiness of soldiers and programs; and implications of advances in medical technology. ***FY 2018 Plans:*** The Planned Study Program in military health will include key issues for the Army such as the impact of deployment on soldiers and families; quality of Army health care; medical manpower requirements; medical readiness of soldiers and programs; and implications of advances in medical technology.			
Accomplishments/Planned Programs Subtotals	20.014	20.658	20.140

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	200.393	236.648	246.663	-	246.663	249.157	244.784	240.442	246.989	-	-
DW7: *Army Kwajalein Atoll Facilities Sustainment*	-	12.884	35.043	41.905	-	41.905	44.212	45.092	45.617	52.546	-	-
DW8: *Army Kwajalein Atoll Installation Services*	-	117.337	120.086	126.880	-	126.880	127.019	129.896	132.988	134.758	-	-
DW9: *Army Kwajalein Atoll Restoration And Modernization*	-	6.435	14.810	66.987	-	66.987	66.984	58.559	49.940	47.600	-	-
DX2: *Army Kwajalein Test Ranges and Mission Support*	-	63.737	66.709	10.891	-	10.891	10.942	11.237	11.897	12.085	-	-

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 Installations Management responsibilities on Army Kwajalein Atoll. These responsibilities include provision of the totality of Municipal Services required to maintain a strategically vital Army Garrison and mission support infrastructure in a logistically challenging remote Pacific island chain.

The United States (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) supported by US Army Garrison Kwajalein Atoll (USAG-KA). USAKA/RTS supports test and evaluation of major Army and Department of Defense (DoD) acquisition programs and provides space operations (surveillance and object identification) in support of U.S. Strategic Command (USSTRATCOM) and National Aeronautics and Space Administration (NASA) scientific and space programs. USAG-KA provides Base Operations (BOS), Infrastructure and Services support to the USAKA/RTS mission and other resident Programs. These programs include Army missile defense, Air Force and Navy Intercontinental Ballistic Missile (ICBM) developmental and operational tests; Army, Air Force, Navy and Defense Advanced Research Projects Agency (DARPA) hypersonic developmental tests; 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. Operations at Kwajalein Atoll are predominantly government-managed/contractor-operated (GMCO) and are dependent upon associated support contractors for operations and maintenance (O&M). The PE funds contractors to accomplish O&M for both the RTS instrumentation suite and installation/base operations and provides mission essential bandwidth via a fiber optics cable system. The instrumentation suite consists of a number of sophisticated, 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 (KREMS); Super Recording Automatic Digital Optical Tracker (SRADOT) 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 (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), and the Target Resolution Discrimination Experiment (TRADEX) radars located at RTS, are the only radars in this area of operation that have deep-space tracking capability. The Millimeter Wave Radar (MMW) is one of the highest resolution imaging radars in the world providing critical intelligence data. Funding 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 (THAAD), and AEGIS weapon systems), and NASA space experiments.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	203.905	236.648	248.708	-	248.708
Current President's Budget	200.393	236.648	246.663	-	246.663
Total Adjustments	-3.512	0.000	-2.045	-	-2.045
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-7.619	-			
• Adjustments to Budget Years	0.000	0.000	59.137	-	59.137
• CivPay Adjustments	0.000	0.000	0.033	-	0.033
• Adjustment to Budget Years	4.107	0.000	0.000	-	0.000
• Realignment of Funds to New Program Element	0.000	0.000	-61.215	-	-61.215

Change Summary Explanation

Fiscal Year (FY) 2018 net decrease of $2.045 Million includes: $61.215 Million realignment of funds from Project DX2 (Army Kwajalein Test Ranges and Mission Support) to Program Element (PE) 0606002A (Ronald Reagan Ballistic Missile Defense Test Site) / Project XW9 (Reagan Test Site); and $52 Million increase to Project DW9 (Army Kwajalein Atoll Restoration and Modernization) to fully fund Restoration and Modernization requirements in accordance with approved 10-year plan. The realignment of funds separates Kwajalein installation management functions from the operational and testing functions of the Ronald Reagan Ballistic Missile Defense Test Site, while the increase to Project DW9 continues the process of returning facilities to acceptable standards. Additional Adjustments to Budget Years in this PE include necessary improvements to Base Operations and United States Army Vessel (USAV) Worthy Dry Dock operations, along with inflation adjustments.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
DW7: *Army Kwajalein Atoll Facilities Sustainment*	-	12.884	35.043	41.905	-	41.905	44.212	45.092	45.617	52.546	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides resources for preventive maintenance and repair necessary to sustain Kwajalein facilities preventing further deterioration and allows keeping good facilities in working order and in accordance with industry standards. Proposed Fiscal Year (FY) 2018 funding provides 75% of the Department of Defense (DoD) Facility Sustainment Model (FSM) version 18.2 requirement. Kwajalein facilities currently exhibit significant deterioration due to harsh environmental climate and historical resource shortfalls.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Facility Sustainment	12.884	35.043	-
Description: Beginning in FY18, Facility Sustainment activities are delineated into three separate Titles: Army Family Housing, Real Property Maintenance, and Environmental Quality. ***FY 2016 Accomplishments:*** Sustained deteriorated facilities and allowed improvement to some facility infrastructure on United States (US) Army Garrison Kwajalein Atoll (USAGKA). ***FY 2017 Plans:*** Sustains current condition of facility infrastructure on US Army Garrison Kwajalein Atoll (USAGKA).			
Title: Army Family Housing (AFH) Maintenance	-	-	2.413
Description: Funds all costs associated with the operations of a residence to include management, services, furnishing and utilities, in the U.S. and foreign locations, excluding leased housing. ***FY 2018 Plans:*** Fund costs associated with the operations of Family Housing (FH) inventory consisting of 438 units which includes 106 condemed units and is comprised of three different types: housing units constructed of concrete masonry and poured concrete circa 1955 and 1994; units constructed of wood, metal studs and aluminum siding circa 1988, and modular housing (prefabricated, commonly referred to as 'trailers'). The Billeting Section consists of 185 transient rooms; 3 Distinguished Visitor's Quarters; and 6 multi-purpose/recreational housing. Transient housing facilities are located on Kwajalein and Roi-Namur and consist of permanent buildings constructed of concrete masonry. The Unaccompanied Personnel Housing (UPH) inventory consists of 833 units			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
comprised of permanent buildings constructed of concrete masonry and poured concrete. UPH units are located on both Kwajalein and Roi-Namur.			
Title: Real Property Maintenance ***Description:*** Resources maintenance and repair activities necessary to keep a typical inventory of facilities in good working order over their expected service lives. 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, heating, 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 2018 Plans:*** FY18 is the second year of a 15-year investment plan and focuses on the repair of the Bucholz Army Airfield runway. This will repair 1000 feet on both ends of the runway down to subgrade, resurface center section of runway, repair aged and deteriorating airfield pavements to include airfield lighting and back up generator. Will continue to service over 1,700 facilities on Kwajalein and Roi-Namur at 11 defense sites totaling 2.6 Million square feet. Will also: establish and implement maintenance based on the USAGKA 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.	-	-	39.378
Title: Environmental Quality ***Description:*** Provides manpower and funding 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. Also includes costs associated with Range Military Construction (MILCON) to address one-time mitigation actions. ***FY 2018 Plans:***	-	-	0.114

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Provide necessary/routine environmental quality services to the Installation.			
Accomplishments/Planned Programs Subtotals	12.884	35.043	41.905

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
DW8: *Army Kwajalein Atoll Installation Services*	-	117.337	120.086	126.880	-	126.880	127.019	129.896	132.988	134.758	-	-
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) located in the Republic of the Marshall Islands, a remote, secure activity designated as a Major Range and Test Facility Base. Kwajalein is a government-managed/contractor-operated site and is primarily dependent upon its associated support contracts for the daily operations and maintenance of Base Ops/Installation Services Support. Installation Services Support consists of Medical/Dental Services; Education (K-12) Services; Food/Grocery Services; Contracted Security Guards; Aviation/Marine support; and logistical (fuel/transportation) operations support requirements. Base Operations/Installation Services Support resourcing is a critical enabler to ensure continuity of operations supporting Test and Evaluation and Space Operations of the Reagan Test Site in its role as a Major Range and Test Facility Base Activity.

For Fiscal Year (FY) 16, the "Municipal Services" activity designates the same range of activities later itemized (in FY17 and FY18) into 23 separate functional activities. Realignment into, and addition of, activities in FY17 and FY18 provides a more logical functional segmentation of installation management programs and aligns programs into more discrete/recognizable bins. This breakout facilitates improved programming visibility, articulation, justification, and definition of the unique scope of Army Kwajalein Atoll Installation Services. Activities included in the FY16 "Municipal Services" activity include: Base Operations Support, Logistical Support, Medical/ Dental Support, Army Family Housing (AFH) Operations, Army Airfields (AAF) and Heliports (AHP), Army Community Services (ACS), Child and Youth Services (CYS), Engineering Services, Soldier Recreation and Community Support, Fire and Emergency Services (FES), Financial Management (FM) Activities, Food Services, Unaccompanied Housing, Materiel Maintenance, Installation Command and Management, Physical Security Matters, Army Security Programs, Supply Logistics, Transportation Services, Utilities, Environmental Quality, and Anti-Terrorism (AT). For FY18, "Municipal Services" designates resources for municipal services including grounds maintenance, custodial, pest management, solid waste or refuse handling operations, pavement clearance through the removal of snow/ice/sand and street sweeping, and homeless shelter support.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Base Operations Support	-	61.567	-
Description: Provides for Base Operations to ensure the health, safety and welfare of garrison, tenant personnel, and families. Functions supported: Installation Management, Administrative and Civil Law, Criminal Law and Discipline, Client Services, Claims, Religious Support, Public Affairs, Equal Employment Opportunity (EEO), Internal Review, Installation Safety and Occupational Health, Administrative Services, Resource/Financial Management, Unaccompanied Personnel Housing and Basic Officers Quarters Management, Family Housing Management, Army Substance Abuse Program, Army Community Services, Child and Youth Sports, Recreation, and Libraries, Business Operations, Schools, Fire and Emergency Response Services, Custodial Services, Refuse Removal, Grounds Maintenance, Electrical Services, Heating/Cooling Services, Water Services, Waste			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Water Services, Other Utility Services, Compliance and Conservation Programs, Pollution Prevention Programs, Indoor and Outdoor Pest Management, Physical Security, Law Enforcement Services, Anti-Terrorism Services, Installation Security Program Management Support, Army Emergency Management Services, Military Personnel Services, Civilian Personnel Services, Continuing Education, Emergency Disaster Prep, Host Nation Services, and Protocol Services. ***FY 2017 Plans:*** Provides for Base Operations to ensure the health, safety and welfare of garrison, tenant personnel, and families. Functions supported: Installation Management, Administrative and Civil Law, Criminal Law and Discipline, Client Services, Claims, Religious Support, Public Affairs, Equal Employment Opportunity (EEO), Internal Review, Installation Safety and Occupational Health, Administrative Services, Resource/Financial Management, Unaccompanied Personnel Housing and Basic Officers Quarters Management, Family Housing Management, Army Substance Abuse Program, Army Community Services, Child and Youth Sports, Recreation, and Libraries, Business Operations, Schools, Fire and Emergency Response Services, Custodial Services, Refuse Removal, Grounds Maintenance, Electrical Services, Heating/Cooling Services, Water Services, Waste Water Services, Other Utility Services, Compliance and Conservation Programs, Pollution Prevention Programs, Indoor and Outdoor Pest Management, Physical Security, Law Enforcement Services, Anti-Terrorism Services, Installation Security Program Management Support, Army Emergency Management Services, Military Personnel Services, Civilian Personnel Services, Continuing Education, Emergency Disaster Prep, Host Nation Services, and Protocol Services.			
Title: Logistical Support ***Description:*** Provides all logistic functions to include marine and air field operations along with transportation, supply, laundry, food service and maintenance. Transportation includes the operation of transportation motor pools, installation transportation offices, intra-installation rail equipment, and cost of leased vehicles; also includes storage and movement of privately-owned household goods of military personnel (and civilian personnel in overseas areas). Excludes OSA and Watercraft. Supply provides for installation supply operations which include: Ammunition Supply Point services, operation of a central receiving point for goods delivered to the installation, management of Organizational Clothing and Individual Equipment (OCIE), management of non-deployable installation property, and receipt, storage, issue, reutilization and tracking of hazardous materials, secondary items and bulk petroleum for garrison and non-brigade tenant units. Procures petroleum, oils and lubricants (POL) of which approximately 90% of POL is for power generation and the remainder for intra atoll marine and aviation transportation, and for intra-island land transportation and heavy equipment. Laundry account funds Government Owned Contractor Operated (GOCO) and Contractor Owned Contractor Operated (COCO) facilities that provide laundry and dry cleaning service for OCIE items to units in accordance with (IAW) Army Regulation (AR) 210-130. Food account funds the operation of Active, Guard, and Reserve dining facilities and Troop Issue Subsistence Activities (TISA), including pay of government and contract employees, food service supplies, and replacement equipment. Maintenance includes DS/GS support maintenance (Non-Tactical Support).	-	51.828	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2017 Plans: Provides all logistic functions to include marine and air field operations along with transportation, supply, laundry, food service and maintenance. Transportation includes the operation of transportation motor pools, installation transportation offices, intra-installation rail equipment, and cost of leased vehicles; also includes storage and movement of privately-owned household goods of military personnel (and civilian personnel in overseas areas). Excludes OSA and Watercraft. Supply provides for installation supply operations which include: Ammunition Supply Point services, operation of a central receiving point for goods delivered to the installation, management of Organizational Clothing and Individual Equipment (OCIE), management of non-deployable installation property, and receipt, storage, issue, reutilization and tracking of hazardous materials, secondary items and bulk petroleum for garrison and non-brigade tenant units. Procures petroleum, oils and lubricants (POL) of which approximately 90% of POL is for power generation and the remainder for intra atoll marine and aviation transportation, and for intra-island land transportation and heavy equipment. Laundry account funds Government Owned Contractor Operated (GOCO) and Contractor Owned Contractor Operated (COCO) facilities that provide laundry and dry cleaning service for OCIE items to units IAW AR 210-130. Food account funds the operation of Active, Guard, and Reserve dining facilities and Troop Issue Subsistence Activities (TISA), including pay of government and contract employees, food service supplies, and replacement equipment. Maintenance includes DS/GS support maintenance (Non-Tactical Support).			
Title: Medical/Dental Support ***Description:*** Supports a fully operational community hospital, a secondary medical clinic, veterinarian services, physical therapy clinic and a dental clinic. Support includes but is not limited to medical lab and imaging services, pharmacy services, medical services management, and all medical functions to include inspections of medical facilities and calibration of equipment. ***FY 2017 Plans:*** Support a fully operational community hospital, a secondary medical clinic, veterinarian services, physical therapy clinic and a dental clinic. Support includes but is not limited to medical lab and imaging services, pharmacy services, medical services management, and all medical functions to include inspections of medical facilities and calibration of equipment.	-	6.691	-
Title: Army Family Housing (AFH) Operations ***Description:*** Funds all costs associated with the operations of a residence to include management, services, furnishing and utilities - in the U.S. and foreign locations, excludes leased housing. ***FY 2018 Plans:*** Fund costs associated with the operations of Family Housing (FH) inventory consisting of 438 units which includes 106 condemned units and is comprised of three different types: Housing units constructed of concrete masonry and poured concrete circa 1955 and 1994; units constructed of wood, metal studs and aluminum siding circa 1988, and modular housing- prefabricated,	-	-	6.834

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
commonly referred to as trailers. The Billeting Section consists of 185 transient rooms; 3 Distinguished Visitor's Quarters; and 6 multi-purpose/recreational housing. Transient housing facilities are located on Kwajalein and Roi-Namur and consist of permanent buildings constructed of concrete masonry. The Unaccompanied Personnel Housing (UPH) inventory consists of 833 units comprised of permanent buildings constructed of concrete masonry and poured concrete. UPH units are located on both Kwajalein and Roi-Namur.			
Title: Army Airfields (AAF) and Heliports (AHP) ***Description:*** Resources Continental United States (CONUS) and Outside Continental United States (OCONUS) Operations and Maintenance (O&M) for active Army, United States Army Reserve (USAR) and Army National Guard (ARNG) AAF and AHP functions. Provides manpower, equipment acquisition, sustainment and maintenance in support of airfield operations, airfield management, aircraft services, air traffic services (ATS), 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 force projection, force generation, homeland security, and air and ground forces combat training, and reduces risk of major accidents/incidents. ***FY 2018 Plans:*** Provide services for all mission essential DoD, commercial, and transient aircraft. Operate 2 Airfields and 8 outer islands helipads. Operate and maintain 1 Air Traffic Control (ATC) tower with class D airspace, 2 separate airfield operations and integrated STARS radar for aircraft separation and de-confliction. Support all intra atoll cargo and personnel movements with 2 fixed wing and 4 rotary wing aircraft.	-	-	2.722
Title: Army Community Services (ACS) ***Description:*** Provides funding and manpower to ensure compliance with statutory and regulatory requirements for Army Community Service and Reserve Component Family Programs to promote self-reliance and satisfaction with military life through Prevention, Education and Training to aid Soldier retention, readiness, morale and Family preparedness. Funding provides support services to equip Families of an expeditionary Army both at installations and geographically dispersed with the right resources at the right time; sustain the All-Volunteer Force by providing high quality and standardized programs and services; and assist them to achieve and maintain a high state of personal readiness and quality of life. Programs prevent Family violence/ fatalities through Family Advocacy Programs; provide specialized assistance to Families with Exceptional Family Members (EFMs), Survivors, and Wounded Warriors and their families; provide prevention, education and Family sustainment throughout the deployment cycle for military and civilian personnel and their families; and provide critical financial, employment and relocation education and training to Soldiers and their Families.	-	-	0.267

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
FY 2018 Plans: Provide necessary/routine Army Community Services to the Installation.			
Title: Child and Youth Services (CYS) ***Description:*** Funds child care, youth, and school services (CYSS) programs for children and youth. Funds child and youth spaces required to meet Army's child care and youth participation demand goals (80% child care spaces and 35% youth spaces). 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; 7) Community Based Care; 8) Parent & Outreach Services; 9) Deployment 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 2018 Plans:*** Continue to provide resources to operate CYS programs on Kwajalein to include a Child Development Center (CDC), School Age Services (SAC) programs, Supplemental Programs and Services (SPS), 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.	-	-	2.350
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 2018 Plans:*** Provide necessary/routine engineering services to the Installation.	-	-	3.601
Title: Soldier Recreation and Community Support	-	-	8.522

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: Provides resources for 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, Better Opportunities for Single Soldiers (BOSS), recreation centers, libraries, outdoor recreation, skill development, bowling (16 lanes or less); Direct Common FMWR 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 support to survivors and enables rehabilitation of Wounded Warriors; funds opportunities for Soldiers and Families to reconstitute for future deployments and prepare Soldiers to reintegrate between deployments; and 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 2018 Plans:*** Continue to provided resources necessary to perform selected retail and base food service operations at the USAKA/Reagan Test Site (RTS) typical of those found in an American community of 1400 population, to 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. Operate a Small Boat Marinas at Kwajalein and Roi-Namur offering watercraft-licensing to include water safety and boating instructions for all classes of available rental boats on a reimbursable basis. Provide postal services to meet the needs of USAKA/RTS residents, tenants, satellite activities, range users, and other authorized organizations/personnel on Kwajalein and Roi-Namur Islands.			
Title: Fire and Emergency Services (FES)	-	-	7.677
Description: Provides resources 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. Includes civilian pay, uniform allowances, personal protection equipment (PPE), fire prevention, fire prevention public education and training. ***FY 2018 Plans:*** Fire and Emergency Services 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.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Provide fire safety education and activities for the schools and day-care centers and for adult residents of USAG-KA and RTS. Train personnel normally assigned to work on Illeginni, Ennylabegan, Gagan, and Legan islands as their normal and permanent work sites 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.			
Title: Financial Management (FM) Activities ***Description:*** Provides resources for Directorate of Resource Management (DRM) and DRM base support for Army tenants resident on or receiving support from Army installations. Functions of the DRM include program, budget, manpower, documentation, Memorandum of Understanding (MOU)/Memorandum of Agreement (MOA)/Support Agreement management, finance and accounting. ***FY 2018 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 a 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. Provide resource management support for the development of the new base-support contract.	-	-	0.768
Title: Food Services ***Description:*** Provides resources for the operation of Active, Guard, and Reserve dining facilities and Subsistence Supply Management Office (SSMO), including pay of government and contract employees, food service supplies, and replacement equipment. Does not include dollar value of food or costs of Army Field Feeding System associated with Military Table of Operational Equipment (MTOE) units. ***FY 2018 Plans:*** 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, Army and Air Force Exchange Service (AAFES) retail stores, AAFES food court, catering services and private organizations. Monitored and approved food purchases and preparation. Conduct food service inspections.	-	-	4.385
Title: Unaccompanied Housing ***Description:*** Provides resources (manpower and funding) for Government owned and leased Unaccompanied Housing including appropriated funded Army lodging, lifecycle replacement furnishings, leases and other associated costs. Includes purchase, control, moving, management and handling of lifecycle replacement and repair for all unaccompanied housing	-	-	1.543

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furnishings. Includes all costs of authorized replacement furnishings in existing inventory for Active, Guard and Reserve. Excludes management costs for reception stations, processing centers, disciplinary barracks, and confinement facilities. ***FY 2018 Plans:*** Provide contractor management, oversight, maintenance and repair (M&R), and control of all USAGKA and RTS 833 Housing/ Billeting Facilities Utilized best commercial residential business practices to ensure quality of life standards are achieved and enhanced, and are in compliance with adequacy and life and safety standards comparable to those found in commercial properties. 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 Household Goods (HHG) arrive and from HHG shipment until departure. Provide Change of Occupancy Maintenance (COOM) on all FH facilities prior to reassignment to in-coming resident.			
Title: Law Enforcement	4.082	-	1.905
Description: Resources Law Enforcement (LE) activities/services which provide 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 leases (special LE Mission /Military Working Dog (MWD) Support when General Service Administration (GSA) vehicles are not available), 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, game warden operations, and liaison with civilian LE agencies. Resources programs for MWD management and equipping the explosive and drug detection dog capabilities. 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. Program costs includes Pre- and Post-Trial confinement for 30 days or less and associated expenses, escorts and transportation of Soldiers convicted via court-martial to Military Correctional Facilities, and escorts and transportation of absentee / deserters charged with aggravating crimes in accordance with (IAW) Department of Defense Instruction (DoDI) 1355.2. ***FY 2016 Accomplishments:*** Provided LE activities/services for the protection of people and property, enforcement of laws, and maintenance of order. Covered, but not limited to, all personnel and operating costs associated with LE operations, salaries, overtime, benefits, material and supplies, equipment, vehicles leases, training and management for LE response forces (Department of the Army Civilian Police (DACP)). ***FY 2018 Plans:***			

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Will 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 leases, training and management for LE response forces.			
Title: Materiel Maintenance ***Description:*** Provides resources for Automotive, Construction, General Equipment, and Armament Maintenance. Also provides Field and Sustainment level maintenance services to Army activities IAW AR 750-1; provides maintenance technical assistance to supported units and activities, and provides material maintenance on base operations support equipment. ***FY 2018 Plans:*** Provide resources for the maintenance of all 6 aircraft, 14 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.	-	-	9.129
Title: Municipal Services ***Description:*** For FY16, "Municipal Services" designates the same range of activities later itemized (in FY17 and FY18) into 23 separate functional activities. Activities included in the FY16 "Municipal Services" designation include: Base Operations Support, Logistical Support, Medical/Dental Support, Army Family Housing (AFH) Operations, Army Airfields (AAF) and Heliports (AHP), Army Community Services (ACS), Child and Youth Services (CYS), Engineering Services, Soldier Recreation and Community Support, Fire and Emergency Services (FES), Financial Management (FM) Activities, Food Services, Unaccompanied Housing, Materiel Maintenance, Installation Command and Management, Physical Security Matters, Army Security Programs, Supply Logistics, Transportation Services, Utilities, Environmental Quality, and Anti-Terrorism (AT). For FY18, "Municipal Services" designates resources for municipal services including grounds maintenance, custodial, pest management, solid waste or refuse handling operations, pavement clearance through the removal of snow/ice/sand and street sweeping, and homeless shelter support. Realignment into, and addition of, activities in FY17 and FY18 provides a more logical functional segmentation of installation management programs and aligns programs into more discrete/recognizable bins. This breakout facilitates improved programming visibility, articulation, justification, and definition of critical requirements. ***FY 2016 Accomplishments:***	113.255	-	5.949

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
blank ***FY 2018 Plans:*** Provide necessary/routine municipal services to the Installation.			
Title: Installation Command and Management ***Description:*** Provides resources for offices of the Commander, Inspector General (IG), Staff Judge Advocate (SJA), Chaplain, Equal Employment Opportunity (EEO), Internal Review (IR), Public Affairs (PA), and Safety Office for installations. Activity is responsible for conduct and integration of Base Operations (BASOPS) functions during peacetime, mobilization, and post-mobilization. Supports civilian pay and benefits, training, duty travel, Permanent Change of Station (PCS) costs, supplies and equipment, and contractual services for installation command and management activities. Also resources administrative services, which is management of information from creation to final disposition per federal laws and Army record keeping requirements, as well as installation Plans, Analysis and Integration Office (PAIO) and management of Directorate of Plans, Training, Mobilization, and Security (DPTMS) services. ***FY 2018 Plans:*** Execute base support operations, through the Base Operations Support (BOS) contractor, supporting the strategically important RTS which includes 11 defense sites. USAG-KA support to the U.S. Embassy advancing the relationship with the Republic of the Marshall Islands. Provide installation management functions for a diverse population of 288 Department of the Army Civilians and active duty military personnel & 1100 contractor's their respective dependents. Provide necessary/routine Installation Command and Management services to the Installation. Plan, organize, staff, direct, and control the USAKA Medical and Dental programs including management and administration of total health care at USAKA. Provide routine and emergency inpatient and outpatient medical and dental services to USAKA residents, designated indigenous personnel, and official visitors at USAKA. Perform diagnosis, treatment, and preventative health services and administer the Medical and Dental programs efficiently, using standards of care similar to small stateside community hospitals. Provide a full range of Educational services on USAKA to include kindergarten, elementary, junior high, senior high, and adult education.	-	-	2.282
Title: Physical Security Matters ***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; personnel protection (excluding hard cars); sensors; site improvements; management/planning; and security forces and technicians. ***FY 2018 Plans:***	-	-	5.293

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Continue to provide the necessary physical security procedures and materials to ensure USAG-KA maintains all proper security measures.			
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 2018 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.	-	-	0.114
Title: Supply Logistics ***Description:*** Provides resources for installation supply operations which include: ammunition supply point services, secondary items and bulk petroleum for garrison and Army tenants, operation of a central receiving point and/or Installation Supply Support Activity (SSA) for goods delivered to the installation, management of OCIE, management of non-deployable installation property, and receipt, storage, issue, reutilization and tracking of hazardous materials. Also resources the Military Clothing Sales Stores management fee paid to AAFES. ***FY 2018 Plans:*** Provided resources for property accountability of all Government Furnished Equipment/Contractor Acquired Property (GFE/CAP), reutilization items, Military Standard Requisitioning and Use Procedures (MILSTRIP) ordering, hazardous items, bulk fuel ordering and delivery to multiple outer islands. Provided Quality Assurance Evaluator (QAE) services for Defense Logistics Agency - Europe 9 (DLA-E) fuel farm; disposition of obsolete items to the host nation government;	-	-	2.911
Title: Transportation Services ***Description:*** Provides resources for the operation of installation transportation offices, transportation motor pools, intra-installation rail equipment, and cost of GSA or commercial leased non-tactical vehicles; also includes storage and 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 when no PCS orders are issued. Excludes OSA and Watercraft. ***FY 2018 Plans:*** Provide resources for the operation of all transportation services to include 6 aircraft, 14 marine vessels, and over 200 pieces of rolling stock. Operated a centralized motor pool. Fund operations for movement of all international and intra atoll air and surface	-	-	21.577

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cargo to include government and contractor household goods, HAZMAT, United States Postal Service (USPS) mail and food items. Safely ferry over 48,000 passengers per month within the atoll on various USAGKA marine assets.			
Title: Utilities ***Description:*** Provides resources for utility services -procurement, production and distribution of utilities including expenses for connection charges, privatization impacts, alternatively financed energy savings contracts, purchased electricity, steam, hot water, fuels and other utilities, and operation of electrical, heating, air conditioning, refrigeration, water distribution, and wastewater collection and treatment plants and systems. Also resources the Utilities Privatization program. ***FY 2018 Plans:*** Provide resources 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.	-	-	35.888
Title: Environmental Quality ***Description:*** Provides manpower and funding 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. Also includes costs associated with Range Military Construction (MILCON) to address one-time mitigation actions. Excludes: compliance related cleanup activities addressed in Military Decision Package ENVR, costs associated with preparing National Environmental Protection Act documentation (proponent bill), and all non-range MILCON mitigation actions.	-	-	3.114

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
FY 2018 Plans: Provide necessary/routine environmental quality services to the Installation.			
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. ***FY 2018 Plans:*** Continue to monitor and improve all Antiterrorism programs. Provide personnel with the necessary training and identify high risk individuals when appropriate. Continue to work with our resident military intelligence organization to keep abreast of new developments and trends within terrorist organizations which may effect our installation. Continue to identify and update vulnerabilities to our facilities and emplace protective measures to reduce risks to mission.	-	-	0.049
Accomplishments/Planned Programs Subtotals	117.337	120.086	126.880

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
DW9: *Army Kwajalein Atoll Restoration And Modernization*	-	6.435	14.810	66.987	-	66.987	66.984	58.559	49.940	47.600	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds the restoration and modernization of United States (U.S.) Army Kwajalein Atoll 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 inadequate sustainment funding for a number of years. 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. The proposed funding levels support a small fraction of critical infrastructure restoration and modernization work necessary to current and enduring deficiencies based analysis of infrastructure identified.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Recapitalization Deficit R&M	6.435	14.810	66.987
Description: Resources facility revitalization for the Active and Reserve Component 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: land acquisition, National Environmental Policy Act (NEPA) compliance, imbedded facility Information Technology (IT) connectivity to the existing installation IT backbone; common user support, baseline, and core IT services; standard furnishings, fixtures, and equipment; and Intrusion Detection Systems (IDS). ***FY 2016 Accomplishments:*** Provided necessary/routine recapitalization support to the Installation ***FY 2017 Plans:*** Will continue to provide for additional updates and/or replacement of infrastructure critical to the mission and well being of the island tenants. Will continue to restore facilities currently at risk to the health and safety of the civilians, military, and families stationed on the island due to inadequate sustainment in past years. ***FY 2018 Plans:*** Fiscal Year (FY) 2018 is the second year of our 15 year investment plan and focuses on the repair of the Bucholz Army Airfield runway. This will repair 1000' on both ends of the runway down to subgrade, resurface center section of runway, repair aged and deteriorating airfield pavements to include airfield lighting and back up generator.			
Accomplishments/Planned Programs Subtotals	6.435	14.810	66.987

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
DX2: *Army Kwajalein Test Ranges and Mission Support*	-	63.737	66.709	10.891	-	10.891	10.942	11.237	11.897	12.085	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2018, funds for Operations and Mission Support functions at Ronald Reagan Ballistic Missile Defense Test Site are realigned from Project DX2 to PE 0606002A (Ronald Reagan Ballistic Missile Defense Test Site) / Project XW9 (Reagan Test Site).

A. Mission Description and Budget Item Justification

Beginning in FY 2018, 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. Funds for operational and mission support functions at Ronald Reagan Ballistic Missile Defense Test Site are realigned to PE 0606002A (Ronald Reagan Ballistic Missile Defense Test Site) / Project XW9 (Reagan Test Site).

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 2016	FY 2017	FY 2018
Title: Civilian Pay (RTS)	3.843	5.488	-
Description: Funding covers civilians to perform management oversight of Army and DOD Missile Test programs.			
FY 2016 Accomplishments: Continues to provide government personnel support (salaries) to enable the management of the test and evaluation of major Army and Department of Defense (DoD) missile systems.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will continue to provide government personnel support (salaries, training, and travel, and Government Purchase Card (GPC) requirements) to enable the management of the test and evaluation of major Army and DoD missile systems.			
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 2016 Accomplishments:*** Continues to provide government personnel support (training, and travel, GPC) to enable the management of the test and evaluation of major Army and DoD missile systems. ***FY 2017 Plans:*** Will continue to provide government personnel support (training, and travel, GPC) to enable the management of the test and evaluation of major Army and DoD missile systems.	0.620	0.630	-
Title: Outside Obligations/Other Government Agencies ***Description:*** Funding provided to other Government Agencies for reimbursable-type work efforts ***FY 2016 Accomplishments:*** Continues to provide support to test and evaluation of major Army and DoD missile systems. ***FY 2017 Plans:*** Will continue to provide support to test and evaluation of major Army and DoD missile systems.	5.160	5.237	-
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 2016 Accomplishments:*** Continues to provide funding for lease of the KCS fiber optic cable between Kwajalein Island and Guam, and for backup satellite. Includes $4.039M for one time repairs. ***FY 2017 Plans:*** Will continue to provide funding for lease of the KCS fiber optic cable between Kwajalein Island and Guam, and for backup satellite.	16.605	11.374	-
Title: RTS Contractor Prime Pay (KRS)	14.350	20.562	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Provide funding for Prime contractor to perform technical Operation and Maintenance support to support test and space missions. ***FY 2016 Accomplishments:*** Continues to provide technical O&M support (test planning, instrumentation operations and maintenance, systems engineering, flight safety, launch ordnance, Kwajalein Mobile range Safety System (WORTHY, etc) to assure the capability of the Range to support test and space missions. ***FY 2017 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.			
Title: Contractor Material ***Description:*** Provide for materials to maintain range capabilities and support test operations. ***FY 2016 Accomplishments:*** Continues to provide critical non-labor materials to maintain critical range capabilities and prevent obsolescence in support of test operations. ***FY 2017 Plans:*** Will continue to provide critical non-labor materials to maintain critical range capabilities and prevent obsolescence in support of test operations.	2.169	1.840	-
Title: Federally Funded Research and Development Centers (FFRDC) Contractor Pay (MIT/LL) ***Description:*** Provide for technical expertise to RTS leadership for the overall performance of Range Operations. ***FY 2016 Accomplishments:*** Continues to provide technical advice to RTS leadership in support of Range operations, strategic planning, and technical execution of critical technology. ***FY 2017 Plans:*** Will continue to provide technical advice to RTS leadership in support of Range operations, strategic planning, and technical execution of critical technology.	4.602	4.671	-
Title: Contractor Pay Meteorological ***Description:*** Provide capability for weather sensing capability which allows for test planning and execution of the program.	1.897	1.925	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
FY 2016 Accomplishments: Continues 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 2017 Plans:*** 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.			
Title: Ground Transportation ***Description:*** Provide transportation of material and passenger between Kwajalein and CONUS. ***FY 2016 Accomplishments:*** Continues to provide mission specific material and passenger transportation via air (Air Mobility Command) and sea (SDDC) between Kwajalein Atoll and CONUS. ***FY 2017 Plans:*** Will continue to provide mission specific material and passenger transportation via air (Air Mobility Command) and sea (SDDC) between Kwajalein Atoll and CONUS.	1.446	1.468	-
Title: Mission Specific Environmental ***Description:*** Ensures Range Readiness and all regulatory environmental requirements are compliant with range and test requirements. ***FY 2016 Accomplishments:*** Continues to provide the capability to assess and maintain the Range readiness and compliance with environmental requirements. ***FY 2017 Plans:*** Will continue to provide the capability to assess and maintain the Range readiness and compliance with environmental requirements.	0.526	0.534	-
Title: Network Enterprise Technology Command (NETCOM) C4IM ***Description:*** Provides Army civilian pay, manpower service contracts, supporting IT equipment, and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Information Technology Services Management. ***FY 2016 Accomplishments:***	12.105	12.584	10.891

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
NETCOM funded Department of Army civilian pay, manpower service contracts, supporting IT equipment, and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Information Technology Services Management. Provided C4IM services in accordance with the DA 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). Included 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. Provided Collaboration and Messaging Services including services and tools for workforce to communicate and share information. Provided Application and Web-hosting including operation and management services required to support web and application hosting. Provided Desktop Management Support including management and support for end-user hardware and software services and tools. Included Service Desk Support, Continuity of Operations, and Disaster Recovery support.			
FY 2017 Plans: NETCOM - The Network Enterprise Technology Command (NETCOM) will fund Department of Army civilian pay, manpower service contracts, supporting IT equipment, and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Information Technology Services Management. Will provide Command, Control, Communications, Computers, and Information Management (C4IM) services in accordance with the DA PAM 25-1-1 and the Army C4IM Services List. Will provide Base Communications Support (Service 701), Visual Information (Service 702), Information Assurance (Service 703), and Automation (Service 700). Will include delivery of services consisting of secure and non-secure fixed voice communications, wireless voice, data and video connectivity services, and studio video conferencing services. Will provide infrastructure support, including the design, installation, and maintenance of special circuits/systems in support of life safety/ security systems and monitoring/control systems. Will provide Collaboration and Messaging Services including services and tools for workforce to communicate and share information. Will provide Application and Web-hosting including operation and management services required to support web and application hosting. Will 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. Justification: Each of the baseline services to be provided with this funding are priority zero, must fund, IT utility requirements. Not funding or reducing the programmed funding will directly impact communications and mission command at all levels on Kwajalein Atoll.			
FY 2018 Plans: Will fund Department of Army civilian pay, manpower service contracts, supporting IT equipment, and associated costs specifically identified and measurable to plan, manage, coordinate, and execute Information Technology Services Management. Will provide Command, C4IM services in accordance with the DA PAM 25-1-1 and the Army C4IM Services List. Will provide Base Communications Support (Service 701), Visual Information (Service 702), Information Assurance (Service 703), and Automation (Service 700). Will include delivery of services consisting of secure and non-secure fixed voice communications, wireless voice,			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
data and video connectivity services, and studio video conferencing services. Will provide infrastructure support, including the design, installation, and maintenance of special circuits/systems in support of life safety/security systems and monitoring/ control systems. Will provide Collaboration and Messaging Services including services and tools for workforce to communicate and share information. Will provide Application and Web-hosting including operation and management services required to support web and application hosting. Will 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.			
Title: Army Contracting Command (ACC) Support ***Description:*** Contracting support to administrator the contract vehicle for the program. ***FY 2016 Accomplishments:*** Provides contracting support (salaries, training, travel, etc) to test and evaluation of major Army and DoD Missile System. ***FY 2017 Plans:*** Will provide contracting support (salaries, training, travel, etc) to test and evaluation of major Army and DoD Missile System.	0.414	0.396	-
Accomplishments/Planned Programs Subtotals	63.737	66.709	10.891

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	18.705	25.596	29.820	-	29.820	35.321	62.062	61.666	62.631	-	-
312: *Army/Joint Experimentation*	-	0.486	0.325	7.099	-	7.099	7.902	8.214	8.216	8.324	-	-
317: *Current Force Capability Gaps*	-	16.581	23.779	20.898	-	20.898	25.577	51.983	51.550	52.524	-	-
33B: *Soldier-Centered Analyses For Future Force*	-	1.638	1.492	1.823	-	1.823	1.842	1.865	1.900	1.783	-	-

A. Mission Description and Budget Item Justification

The Army Concepts Experimentation Program Element (PE) supports current and future concepts and capabilities involving Soldiers and Leaders within live, virtual, and constructive environments by exploring concepts, capability requirements and solution across Doctrine, Organization, Training, Materiel, Leadership and Education, personnel, and Facilities (DOTMLPF) domains in order to learn and mitigate risk for current and future forces. Experiments and projects inform the Army future concepts and assess high-risk conceptual assumptions in order to focus required capabilities and represent the user's 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, refinements, and assessment of future force concepts - to inform capability developments and validate concepts for current and future force. Simulated Experiments (SIMEX) will integrate and assess Army Concepts, Force Designs phases, with Army level issues across the breadth of a campaign that highlights validation and integration of Force 2025 outcomes.

Enables TRADOC Capability Development and Integration Directorates (CDID)/TRADOC Capability Managers (TCM) Joint Capabilities Integration and Development System (JCIDS) development to support Program Executive Offices (PEOs) and Program Managers (PMs) for acquisition milestone decisions. The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT) organizational community of PEOs/PMs supplemented manpower shortfalls to TRADOC for many years. This was necessary to ensure work affecting their materiel development programs, specifically the mandated JCIDS process necessary for Milestone acquisition Army Requirements Oversight Council/Joint Requirements Oversight Council (AROC/JROC) decisions, was executed in a timely manner. Funding ensures TRADOC acts independently as the voice of the warfighter, the user, in complement with the materiel developer in providing total capability management including integration of all DOTMLPF consideration for warfighting functional areas. Provides for TRADOC to serve as the lead 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 wargaming, 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. Enables TRADOC to serve as the central coordinating organization for Headquarters Department of the Army (HQDA) staff support requirements related to accelerated capabilities developments and integrate accelerated capabilities development activities between proponent force modernization domains to include Joint/Service coordination. Provides Army Warfighter Assessments (AWA), which will allow TRADOC to physically integrate, assess and evaluate the network, capability sets and other adaptive capabilities to accelerate the systems acquisition process of providing DOTMLPF recommendations to the Army. Provides support to the Army Warfighting Challenges (AWFC) that are used by the Army to frame learning and collaboration.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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*

The Soldier-Centered Analysis For Future Force 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. Design analyses, constructive simulations and Soldier-in-the loop assessments will ensure that manpower requirements and workload and skill demands are considered to avoid information and physical task overloads, and take optimum advantage of aptitudes, individual and collective training, and numbers of Soldiers for an affordable Future Force.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	19.430	25.596	29.339	-	29.339
Current President's Budget	18.705	25.596	29.820	-	29.820
Total Adjustments	-0.725	0.000	0.481	-	0.481
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.725	-			
• Adjustments to Budget Years	0.000	0.000	0.474	-	0.474
• CivPay Adjustments	0.000	0.000	0.007	-	0.007

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
312: *Army/Joint Experimentation*	-	0.486	0.325	7.099	-	7.099	7.902	8.214	8.216	8.324	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Army / Joint Experimentation 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 in order to learn and mitigate risk for current and future forces. Experiments inform Army future concepts and assess high-risk conceptual assumptions in order to focus required capabilities and represent the user's 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, refinements, and assessment of future force concepts - to inform capability developments and validate concepts for current and future force. Beginning in FY 2015, this Project supports the Army's Simulated Experiments to integrate and assess Army Force 2025 and Beyond (F2025B) Concepts, Capabilities, Force Designs, Operational and Organizational Plans in the near (2014-2020), mid (2020-2030) and far (2030-2040) term.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Experimentation - High-Fidelity Live-Virtual-Constructive Experiments	0.486	0.325	7.099
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 2016 Accomplishments:*** Simulated Experiments (SIMEX) became the focus to integrate and assess Army Comcepts, Force Designs, and Capabilities. ***FY 2017 Plans:*** Simulated Experiments (SIMEX) will become the focus to integrate and assess Army Concepts, Force Designs, and Capabilities to support Force 2025B Maneuvers to develop, refine, and validate rerequisite Force 2025 and Beyond Concepts, Operational and Organizational Plans, and DOTMLPF solutions to achieve the vision of the Army's Force in the near (2014-2020), mid (2020-2030), and far (2030-2040) terms. ***FY 2018 Plans:*** Enables the Army to conduct early fidelity exploration of Doctrine, Organization and Materiel solution through exposure of Soldiers to new innovative ideas and material. Establishes a continuing collaboration, feedback, and electronic analytical collection capability which captures, through simulated application of future force prototype concepts, explicit qualitative feedback of Soldiers experience gathered from simulated environments intertwined with surveys, polls, and discussion boards. Directed SIMEX leverage unique support analytics which capture Soldier and Team interaction during virtual small unit, first-person operating			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
environment events from shooter engagements to high tempo teaming events which will become the focus to integrate and assess Army Concepts, Force Designs, and Capabilities to support Force 2025B Maneuvers to develop, refine, and validate prerequisite Force 2025 and Beyond Concepts, Operational and Organization Plans, and DOTMLPF solutions to achieve the vision of the Army's Force in the near (2014-2020), mid (2020-2030)((and far (2030-2040) terms. Empowers participants to explore innovative techniques and participate in equipment and material design options which enables the Maneuver Battle Lab to be innovative in partnering with Department of Defense (DoD) Research and Development organizations in the development of solutions to Army Warfighting Challenges that would be assessed through Army Experimentation assessments. Leverages design of a high echelon, strategy environment which examines how units organize and employ future capabilities on the battlefield. The Army Capabilities Integration Center (ARCIC) continues, through a distributive network capability to support the Army Level Acquisition Design and merge with the Experimentation Mission while leveraging and sharing the expense of the Battle Labs to interject a new dynamic interactive process into proponent mission to engage Soldiers to select academia and industry solutions into a research opportunity through virtual exploration of the introduced concepts and equipment throughout a simulated operational environment selected from any location in the world. As Soldiers explore new ideas, concepts, material, and doctrine, they employ new techniques in coordination with the development of requirements documents provide improved insight to environment solutions to techniques and material during the conceptual development stage rather than post construction.			
Accomplishments/Planned Programs Subtotals	0.486	0.325	7.099

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
317: *Current Force Capability Gaps*	-	16.581	23.779	20.898	-	20.898	25.577	51.983	51.550	52.524	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Enables Army Capability Development and Integration Programs through TRADOC/Army Capabilities Integration Center (ARCIC) Capability Managers (TCM) to implement the Joint Capabilities Integration and Development System (JCIDS) in support of Program Executive Offices (PEOs) and Program Managers (PMs) for acquisition milestone decisions. The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT) requires mandated work enabling their materiel development programs, specifically the mandated JCIDS process necessary for Milestone acquisition AROC/JROC decisions, executed in a timely manner. Funding ensures TRADOC acts independently as the voice of the warfighter, the user, in complement with the materiel developer in providing total capability management including integration of all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) consideration for warfighting functional areas. Provides for TRADOC to execute its assigned responsibilities as the lead 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. Supports critical research, development, test, and evaluation for Early Synthetic Prototyping enables wargaming, 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. Enables TRADOC execution of its responsibilities as central coordinating organization for Headquarters Department of the Army (HQDA) staff support requirements related to accelerated capabilities developments. Integrate accelerated capabilities development activities between proponent force modernization domains to include Joint/Service coordination. Provides Army Warfighter Assessments (AWA), which will allow TRADOC to physically integrate, assess and evaluate the network, capability sets and other adaptive capabilities to accelerate the systems acquisition process of providing DOTMLPF recommendations to the Army. Provides support to the Army Warfighting Challenges (AWFC) that are used by the Army to frame learning and collaboration.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Army Expeditionary Warrior Experiment (AEWE) (formerly Prototype Solution Demonstrations)	0.153	-	-
Description: AEWE addresses live, prototype experimentation requirements. ***FY 2016 Accomplishments:*** This series of experiments was critical to promote research, development, and experimentation associated with Force 2025 and Beyond (F2025B) efforts. AEWE provides a live prototype experimentation venue to address current operational needs and F2025B requirements. FY16 campaign of experiments, Spiral K, is focused on technologies to support five primary study areas: Cellular Communications, Robics, Solider Load and Protection, Power Solutions, and Resupply.			
Title: Maneuver Fires Center Integration Exercise (MFIX)	0.200	-	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: MFIX will conduct DOTMLPF assessments. ***FY 2016 Accomplishments:*** MFIX to conduct DOTMLPF assessments; test and certification training in support of small units across 5 domains (lethality, mission command, training and leader development, mobility and force protection). MFIX to integrate efforts to allow small units to operate in complex and uncertain environments, see and fight across a wide area, make contact with the enemy under favorable conditions, overmatch the enemy in encounter actions, maneuver rapidly to seize and retain the initiative, identify and act on opportunities, adapt rapidly to changing battle conditions, and operate as part of a combined arms, air-ground and Joint Team.			
Title: Net Zero Expeditionary Base Camp (NET 0) (Formerly Operational Energy) ***Description:*** Continue acceleration of Operational Energy initiative for remote Combat Outposts and Soldier Power iniatives. ***FY 2016 Accomplishments:*** Continued acceleration of Operational Energy initiative for remote Combat Outposts and Soldier Power initiatives. Operational Energy provides the Warfighter with increased levels of agility, flexibility, and interoperability when operating in the expeditionary environment. Operational energy solutions will extend combat and tactical system's mission endurance and resilience, ensure uninterrupted and optimal energy to systems within the mission command network, and mitigate force risk by reducing energy demand. Phase two of multi-phased approached will support development of integrated operational energy solutions requiring a system-of-systems engineering approach. This approach will ensure that capability impacts are identified and addressed prior to delivering solutions, and that necessary employment guidance is provided and operational impacts are assessed.	0.275	-	-
Title: Manned Unmanned Teaming Ground (MUM-T(G) ***Description:*** Follow-on focused assessment to test interoperability, assess integration with manned systems, and evaluate advanced technologies. ***FY 2016 Accomplishments:*** Follow-on focused assessment to test interoperability, assess integration with manned systems, and evaluate advanced technologies. MUM-T (G) capabilities will provide greater automation, improved performance, flexible use profiles, and greater survivability in contested environments. In addition, system will demonstrate improved communications, security from tampering, and streamlined system design. Capabilities must also demonstrate a reduction in manpower requirements to operate and support unmanned systems.	0.203	-	-
Title: CDID/TCM Joint Capabilities Integration and Development System (JCIDS) Development in support of PEOs and PMs for acquisition milestone decisions.	15.750	21.779	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Funding ensures TRADOC acts independently as the voice of the warfighter, the user, in complement with the materiel developer in providing total capability management including integration of all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) considerations for warfighting functional areas. ***FY 2016 Accomplishments:*** Provides approximately 87 CMEs to CDIDs across TRADOC to develop and integrate the capabilities for which the ASA(ALT) community is developing and fielding materiel solution. FY 2014 would have been the first year of incremental funding until 100% of the requirement is funded in FY 2017 and beyond. ***FY 2017 Plans:*** blank			
Title: Accelerated Capabilities Initiatives in support of Force 2025 and Beyond ***FY 2017 Plans:*** Will provide for TRADOC to serve as the lead Accelerated Capability Developments (ACD) to address current critical operational needs in enabling development and deployment/employment of accelerated capabilities (both materiel and non-materiel) to the current force. Serve as TRADOC central coordinating organization for Headquarters Department of the Army (HQDA) staff support requirements related to accelerated capabilities developments. Integrate ACD activities to ensure unity and priority of effort and synchronization and optimization of resources. Integrate accelerated capabilities development activities between proponent force modernization domains to include Joint/Service coordination.	-	2.000	-
Title: Army Warfighting Assessments (Executed as part of NIE '.1' Events) ***FY 2018 Plans:*** Support Joint Expeditionary Manuever and Entry Operations, Set the Theater, Special Operations Forces/Coalition Forces Interoperability, Air-Ground Reconnaissance and Security, Joint/Multinational Operations, Sea Basing/Joint Logistics Over the Shore (JLOTS), Mobile Command Posts (Expeditionary), Man Unmanned Teaming, (Ground/Air) (MUM-T), Accelerated Capabilities Developments, Early Synthetic Prototyping and Architecture Army Warfighting Assessments (AWA).	-	-	2.085
Title: Accelerated Capabilites Develpment ***FY 2018 Plans:*** Provide for TRADOC to serve as the lead Accelerated Capability Development (ACD) to address current critical operational needs in enabling development and deployment/employment of accelerated capabilities (both materiel and non-materiel) to the current force. Serve as TRADOC central coordinating organization for Headquarters Department of the Army (HQDA) staff support requirements related to accelerated capabilities developments. Integrate ACD activities to ensure unity and priority of effort and	-	-	1.520

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
synchronization and optimization of resources. Integrate accelerated capabilities development activities between proponent force modernization domains to include Joint/Service coordination.			
Title: CDID/TCM JCIDS Requirements Documentation ***FY 2018 Plans:*** Provide complete support necessary to finalize the transfer of Mission from the Assistant Secretary of the Army for Acquisition, Logistics, and Technology ASA(ALT) organizational community of PEOs/PMs to TRADOC underway since FY14. Ensure TRADOC acts independently as the voice of the warfighter, the user, in complement with the materiel developer in providing total capability management including integration of all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) consideration for warfighting functional areas.	-	-	15.281
Title: ArCADIE New Requirements ***Description:*** ArCADIE is the Army authoritative source for architecture data and supports the community of practice requirement. ***FY 2018 Plans:*** Enable ARCIC to maintain ArCADIE and develop, verify, and validate operational architecture for 8 major BCT formations. Provide storage, accessibility, production, and certification of authoritative architecture data and supporting systems IAW DoD and DA information Assurance and management standards.	-	-	2.012
Accomplishments/Planned Programs Subtotals	16.581	23.779	20.898

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
33B: *Soldier-Centered Analyses For Future Force*	-	1.638	1.492	1.823	-	1.823	1.842	1.865	1.900	1.783	-	-
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. Design analyses, constructive simulations and Soldier-in-the-loop assessments will ensure that manpower requirements and workload and skill demands are considered to avoid information and physical task overloads, and take 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 Army Research Laboratory (ARL).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Manpower and Personnel Integration (MANPRINT)	1.638	1.492	1.823

Description: Provide dedicated modeling and analysis cell for early and accurate MANPRINT estimates to Army Materiel Command (AMC), Research, Development, and Engineering Command (RDECOM) and its Research, Development, and Engineering Centers (RDECs), Training and Doctrine Command (TRADOC) Centers, Schools and Centers of Excellence (CoEs), Army Test and Evaluation Command (ATEC) and other service laboratories.

FY 2016 Accomplishments:

Developed model-based predictive analyses of Dismounted Infantry (DI) missions that provided Department of Defense (DOD) leadership with analytic data to inform requirements development and trade-off decisions as early as Milestone A. This analyses integrated Human Systems Integration (HSI) and Systems Engineering (SE) inputs to generate critical tasks combinations that provided the necessary analytical data to support cognitive workload measurement, Measures of Effectiveness and Measures of Performance for DI. Expanded digital library by developing three dimensional (3D) models of Air Soldier Clothing and equipment items to perform early human figure modeling assessments of future aviation platform designs. Developed 3D models of mounted and dismounted Soldier clothing and equipment items that are sized and fitted to ANTHRO II based human figure model sets for early assessments of future ground vehicle platform designs.

FY 2017 Plans:

Conducting analysis to determine appropriate parameters to capture Soldier information for system engineering that will improve system design and analysis progresses; expand scenario development and model based decision analysis framework to support Soldier system engineering methodology; develop and expand human performance apps for HSI data collection and analysis;

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
expand the digital library by developing 3D models of vehicle Soldier clothing and equipment items to perform early human figure modeling assessments of future vehicle platform designs and enhancements; and demonstrate a virtual physical accommodation analysis concept by integrating a virtual human figure embedded in a space with a CAD representation. ***FY 2018 Plans:*** Will perform verification and validation of fixed-heel point accommodation model that will enable early assessment of driver's crew station designs for future combat vehicles; develop human figure modeling methodology for determining seat placement of encumbered manikin sets for improved assessment of future aviation and ground platforms; develop rapid modeling technique incorporating portable handheld laser scanning technology and point cloud reduction software to construct vehicle models compatible with human figure modeling analysis to support the Route Clearance Interrogation System (RCIS) program; conduct an analysis into the Army's Preventative Maintenance Checks and Services (PMCS) process to identify Human System Integration issues; develop algorithms to automate the PMCS level ten process, conduct experiments to demonstrate that the PMCS process can be automated resulting in a reduction of training requirements, entry errors to Global Combat Support System (GCSS)-Army, incorrect maintenance work orders, incorrect parts order, and significant reduction in maintenance man hours to perform the PMCS mission; and improve the accuracy of threat prediction algorithm to support command mission planning and course of action analyses. Develop Apps to support anthropometric data collection and analysis.			
Accomplishments/Planned Programs Subtotals	1.638	1.492	1.823

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	220.833	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
861: *SMALL BUS TECH - AMC*	-	28.804	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
M40: *SMALL BUSINESS-AMC*	-	192.029	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

Note

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.

A. Mission Description and Budget Item Justification

There is no FY17 funding. This program is for SBIR only and only shows prior years.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	220.833	0.000	0.000	-	0.000
Total Adjustments	220.833	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	220.833	0.000	0.000	-	0.000

Change Summary Explanation

FY16 adjustments attributed to internal Army reprogrammings ($220.833 Million) to support SBIR.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
861: *SMALL BUS TECH - AMC*	-	28.804	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
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-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M40: *SMALL BUSINESS-AMC*	-	192.029	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
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: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	273.275	307.882	307.588	-	307.588	313.280	307.361	318.716	323.540	-	-
F30: *Army Test Ranges & Facilities*	-	273.275	307.882	307.588	-	307.588	313.280	307.361	318.716	323.540	-	-

Note

Beginning in Fiscal Year (FY) 2017, this Program Element (PE) funds labor for physical security civilian guards and equipment as well as the UH-60 helicopters. Beginning in FY18, this PE will fund the Network Enterprise Center (NEC), Computer Network Defense Service Provider (CNDSP), and airfield operations, which were previous funded by the Operations and Maintenance - Army (OMA) appropriation.

A. Mission Description and Budget Item Justification

This Program Element (PE) provides the institutional funding required to operate test activities, in accordance with Section 232 of the Fiscal Year (FY) 2003 National Defense Authorization Act (NDAA), in support of Department of Defense (DoD) Program Executive Officers, Program and Product Managers, and Research, Development, and Engineering Centers. Resources provided by this project operate six elements of the DoD Major Range and Test Facility Base (MRTFB): White Sands Test Center (WSTC),White Sands Missile Range, New Mexico; Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; and Yuma Test Center (YTC), Yuma Proving Ground, 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 Department of Defense Instruction (DODI) 3200.18 and Department of Defense 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 current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. The test capabilities at these ranges have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded weapons 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, electromagnetic effects, and quality of materiel in development and in production.

This PE 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: Aircraft, Air Delivery, 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 System, Missiles, Rockets, Mission Command Network, and Tactical Command, Control, and Communication.

Specific systems supported include: Network Integration Evaluation (NIE), Joint Light Tactical Vehicle (JLTV), Rifleman Radio, defense (PAC-3), Army Integrated Air and Missile Defense (AIAMD), Paladin Integrated Management, XM25 Counter Defilade Target Engagement (CDTE), Gray Eagle, Handheld, Manpack and Small Form Fit

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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*

(HMS) Man Pack Radio, Soldier Protective System, M829E4 120MM Advanced Kinetic Energy, Precision Guidance Kit (PGK), and Mid-tier Networking Vehicular Radios (MNVR).

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	279.896	293.748	295.388	-	295.388
Current President's Budget	273.275	307.882	307.588	-	307.588
Total Adjustments	-6.621	14.134	12.200	-	12.200
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.847	-			
• Adjustments to Budget Years	-2.774	0.000	12.200	-	12.200
• Request for Additional FY17 Appropriation	0.000	14.134	0.000	-	0.000

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
F30: *Army Test Ranges & Facilities*	-	273.275	307.882	307.588	-	307.588	313.280	307.361	318.716	323.540	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides the institutional funding required to operate test activities, in accordance with Section 232 of the Fiscal Year (FY) 2003 National Defense Authorization Act (NDAA), in support of Department of Defense (DoD) Program Executive Officers, Program and Product Managers, and Research, Development, and Engineering Centers. Resources provided by this project operate six elements of the DoD Major Range and Test Facility Base (MRTFB): White Sands Test Center (WSTC),White Sands Missile Range, New Mexico; Aberdeen Test Center (ATC), Aberdeen Proving Ground, Maryland; Electronic Proving Ground (EPG), Fort Huachuca, Arizona; and Yuma Test Center (YTC), Yuma Proving Ground, 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 Project finances the overhead (institutional) test operating costs not billable to DoD test customers per Department of Defense Instruction (DODI) 3200.18 and Department of Defense 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 current testing capabilities and improvements to safety, environmental protection, efficiency of test operations, and technological advances. The test capabilities at these ranges have been uniquely established, are in place to support test and evaluation (T&E) requirements of funded weapons 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, 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: Aircraft, Air Delivery, 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 System, Missiles, Rockets, Mission Command Network, and Tactical Command, Control, and Communication.

Specific systems supported include: Network Integration Evaluation (NIE), Joint Light Tactical Vehicle (JLTV), Rifleman Radio, defense (PAC-3), Army Integrated Air and Missile Defense (AIAMD), Paladin Integrated Management, XM25 Counter Defilade Target Engagement (CDTE), Gray Eagle, Handheld, Manpack and Small Form Fit (HMS) Man Pack Radio, Soldier Protective System, M829E4 120MM Advanced Kinetic Energy, Precision Guidance Kit (PGK), and Mid-tier Networking Vehicular Radios (MNVR).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Mission Support	93.972	95.828	79.041

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Funds support test equipment upgrades and maintenance; test facility maintenance; routine calibration; 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; printing and reproduction; communications; land leases; and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) in accordance with DODI 3200.18 and DODFMR 7000.14-R. ***FY 2016 Accomplishments:*** Funds support test equipment upgrades and maintenance; test facility maintenance; routine calibration; 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; printing and reproduction; communications; land leases; and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) in accordance with DODI 3200.18 and DODFMR 7000.14-R. ***FY 2017 Plans:*** $14.134M Request for Additional FY17 Appropriation for Major Range and Test Facility Base (MRTFB) Range sustainment: Funding provides annual sustainment and maintenance for ATEC facilities and equipment directly supporting the 337 ATEC test capabilities in the MRTFB. These test capabilities provide vital Test and Evaluation for Soldier Systems, Engineering and General Equipment, Ground Vehicles, C4ISR Systems, Aircraft, and Air and Missile Defense Systems. Funds will continue to support test equipment upgrades and maintenance; test facility maintenance; routine calibration; 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; printing and reproduction; communications; land leases; and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) in accordance with DODI 3200.18 and DODFMR 7000.14-R. ***FY 2018 Plans:*** Funds will continue to support test equipment upgrades and maintenance; test facility maintenance; routine calibration; 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; printing and reproduction; communications; land leases; and range road maintenance. Funding supports indirect costs for MRTFB Activities (ATC, EPG, WSTC, YTC (including CRTC & TRTC)) in accordance with DODI 3200.18 and DODFMR 7000.14-R.			
Title: T&E Civilian Pay	130.176	143.739	144.626
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			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
resource for testing of a particular program. Funding is essential to maintain core T&E skills as part of the Government civilian workforce. ***FY 2016 Accomplishments:*** Funds 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 2017 Plans:*** Funds will continue to support the overhead costs of the civilian labor for Program Budget Guidance (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 2018 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.			
Title: Contractor Support ***Description:*** This funding supports contractor labor costs not billable to the customer. Contract labor is essential to augment core civilian T&E personnel. 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 2016 Accomplishments:*** Funds 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 2017 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,	44.127	44.169	44.553

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
warehousing support, project management, maintenance of support fleet aircraft, recurring/general maintenance to test facilities and data acquisition support. ***FY 2018 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.			
Title: Revitalization/Upgrade ***Description:*** Funds support the revitalization/upgrade of 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 test and evaluation capabilities for the highest priority Army programs. ***FY 2016 Accomplishments:*** Funds supported the revitalization/upgrade of test infrastructure and capabilities. MRTFB elements will be required to use institutional funding to sustain, upgrade or create capabilities that support multiple customers. Funding will be focused on improving test and evaluation capabilities for the highest priority Army programs. For FY2016 Revitalization/Upgrade funded the refurbishment of the ATC Moving Target Simulator, this test facility is necessary for the T&E or ground vehicle fire control systems such as; the Bradley Engineering Change Proposal (ECP) (Bradley Modernization), Light Armored Vehicle (LAV), Common Remotely Operated Weapon Station (CROWS), M1A2 Abrams ECP (Abrams Modernization), and Stryker ECP. ***FY 2017 Plans:*** Funds will continue to support the revitalization/upgrade of test infrastructure and capabilities. MRTFB elements will be required to use institutional funding to sustain, upgrade or create capabilities that support multiple customers. Funding will be focused on improving test and evaluation capabilities for the highest priority Army programs. ***FY 2018 Plans:*** Funds will continue to support the revitalization/upgrade of test infrastructure and capabilities. MRTFB elements will be required to use institutional funding to sustain, upgrade or create capabilities that support multiple customers. Funding will be focused on improving test and evaluation capabilities for the highest priority Army programs. Anticipated for FY2018 are three projects; WSTC fire suppression system for the range control facility, EPG improvements to the Antenna Test Facility, and RTC upgrades to the missiles and rockets sensor integration facility.	5.000	5.000	5.000
Title: Physical Security Guards and Equipment	-	12.279	12.438

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: This funding supports physical security guards mandated by regulation to guard Army Test and Evaluation Command's (ATEC's) Fast Burst Nuclear Reactor (FBR) at White Sands Missile Range (WSMR) in accordance with (IAW) Army Regulation (AR) 190-54 and Chemical Biological (CB) facilities located at Dugway Proving Ground (DPG) IAW AR 190-50 and AR 190-17. These surety facilities maintain nuclear, biological, and chemical (NBC) materials and agents in order to test the effects and effectiveness of defensive or protective equipment and measures. The physical security equipment consists of concrete barriers, security fencing around test sites, cameras, gate controllers, access and intrusion detection systems, alarms, and maintenance contracts for equipment. This equipment is necessary to secure arms rooms, ammunition storage facilities, The Fast Burst Nuclear Reactor and chemical biological surety sites. Physical security equipment is critical to maintain current security requirements as outlined in AR 190-17, AR 190-59, AR 190-51, and AR 190-13. ***FY 2017 Plans:*** Funds will support the physical security guards and equipment for the FBR at WSMR and CB facilities at DPG. ***FY 2018 Plans:*** Funds will support the physical security guards and equipment for the FBR at WSMR and CB facilities at DPG.			
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. In accordance with 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 2017 Plans:*** Funds will support UH-60 helicopter maintenance, aircrew labor, mandatory training and aircraft flying hours. ***FY 2018 Plans:*** Funds will support UH-60 helicopter maintenance, aircrew labor, mandatory training and aircraft flying hours.	-	6.867	7.004
Title: Network Enterprise Center ***Description:*** This funding supports the Network Enterprise Center (NEC) operations for WSTC and YTC. 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 2018 Plans:***	-	-	12.181

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Funds will support all labor, support equipment, and training required for the Network Enterprise Center.			
Title: Computer Network Defense Service Provider ***Description:*** This requirement supports compliance with Department of Defense Directive (DoDD) 8530.1, which directed that all component information systems and computer networks must enter into a service agreement with a CNDSP. United States 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 Engineering Network (SDREN) enclaves are aligned with the United States (US) Army Research Laboratory as their CNDSP to ensure cyber defense oversight and information security continuous monitoring going forward. ***FY 2018 Plans:*** Funds will support cyber defense oversight and continuous monitoring of information security.	-	-	1.619
Title: Airfield Operations ***Description:*** This funding supports aviation operations in developmental testing of direct fire, air transportability, indirect fire and aerial delivery systems, and transportation of chemical/biological agents. Funding supports manpower, flight management, aircraft and air traffic control services along with the maintenance of vehicles. ***FY 2018 Plans:*** Funds will support manpower, flight management, aircraft and air traffic control services along with maintenance of vehicles.	-	-	1.126
Accomplishments/Planned Programs Subtotals	273.275	307.882	307.588

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	52.254	64.127	49.242	-	49.242	57.601	56.541	58.002	59.606	-	-
628: *Developmental Test Technology & Sustainment*	-	42.783	52.782	33.948	-	33.948	39.096	37.687	38.661	39.687	-	-
62C: *Modeling and Simulation Instrumentation*	-	9.471	11.345	15.294	-	15.294	18.505	18.854	19.341	19.919	-	-

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 (M&S) and instrumentation prototypes; and the full development of test instrumentation for the United States 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 three forward Test Directorates (Airborne and Special Operations Test Directorate, Fort Bragg, North Carolina; Integrated Test and Evaluation 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. These activities support the development and fielding cycle of all Army acquisition programs including rapid fielding initiatives. 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 M&S and instrumentation systems to assure adequate test data collection capabilities. This data supports acquisition milestone decisions for all commodity areas throughout the Army including programs such as the Joint Light Tactical Vehicle (JLTV), Advanced Multi-Purpose Vehicle (AMPV), Network Integration Evaluation (NIE), Patriot Advance Capability Phase 3 (PAC-3), Warfighter Information Network - Tactical (WIN-T), Stryker, Bradley, Abrams, Guided Multiple Launch Rocket System (GMLRS), Joint Tactical Radio System (JTRS),and the Distributed Common Ground System - Army (DCGS-A).

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army					Date: May 2017
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*			
B. Program Change Summary ($ in Millions)	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	51.550	52.404	49.354	-	49.354
Current President's Budget	52.254	64.127	49.242	-	49.242
Total Adjustments	0.704	11.723	-0.112	-	-0.112
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.912	-			
• Adjustments to Budget Years	2.616	0.000	-0.132	-	-0.132
• Other Adjustments	0.000	11.723	0.000	-	0.000
• CivPay Adjustments	0.000	0.000	0.020	-	0.020

Change Summary Explanation

Request for Additional FY17 Appropriation includes $10.270 Million in Project 628 and $1.453 Million in Project 62C to meet lethality objectives through improvement of Developmental Test & Evaluation capabilities.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
628: *Developmental Test Technology & Sustainment*	-	42.783	52.782	33.948	-	33.948	39.096	37.687	38.661	39.687	-	-
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 commodity 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 2016	FY 2017	FY 2018
Title: Developmental Test Technology Investment	42.783	52.782	33.948
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 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 models and simulations needed for testing the Army materiel. Acquires instrumentation to measure performance of C4 systems; RAM data collection on tracked and wheeled vehicles; ballistic transducers for measuring chamber pressures during ammunition tests; supports development of common data collection instrumentation and data management systems used in testing across all test commodity areas and test lifecycles; continues replacement and upgrade of range control instrumentation, radar, optics and telemetry equipment 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: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018

FY 2016 Accomplishments:
Continued to provide, acquire and upgrade instrumentation for RAM, ballistic, missile, aviation and environmental testing across all test commodity areas and support the test capability of live fire survivability testing. At the Redstone Test Center (RTC), amplifiers used in testing electromagnetic environmental effects (E3) of Army aviation and missile programs were refurbished to provide the necessary reliability for a system that is utilized extensively. This refurbishment replaced obsolete equipment that has been in use for the past 40 years to extend the life of the amplifiers. The Aberdeen Test Center (ATC) continued their development of a complete test capability to support high volume, high-speed production/acceptance test capability for body armor and vehicle armor plates. The ATC also continued the improvement and development of methodology for capturing crew survivability data during live fire and fire suppression testing for combat vehicle programs. Instrumentation, transducers, and other sensing technologies are being developed to measure parameters which my result in crew injuries. At the Electronic Proving Ground (EPG), instrumentation was developed to increase the capability to test C4ISR tactical networks in support of developmental testing. The new equipment ensures compliance with customer requirements for speed, capacity, and reliability. At the White Sands Test Center (WSTC), provided funding to replace obsolete components for existing FPS-16 Monopulse Tracking Radar systems supporting missile defense programs. The WSTC also acquired the excessed Multiple Object Tracking Radar – 4 (MOTR-4) from Vandenberg Air Force Base to replace two degraded FPS-16s. At the Yuma Test Center (YTC), a usability life extension effort for the Close-In radar systems (Continuous Wave Doppler/Pulse Systems) was begun to mitigate obsolescence and a lack of available components from industry. This effort will result in extended operational capabilities that are supported by the manufacturer with enhancements to support smart munitions.

FY 2017 Plans:
Request for Additional FY17 Appropriation includes $10.270 Million for minor investment / upgrades to Developmental Test capabilities: provides funding to upgrade / replace instrumentation and equipment, develop new test technologies, develop and procure new instrumentation systems, and develop modeling and simulation capabilities across ATEC's Developmental Test activities. The majority of the tasks funded by this account involve upgrading or replacing instrumentation and equipment that has met, and often well-exceeded its technological and economic life-span.

Continue to provide, acquire and upgrade instrumentation for C4, RAM, 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.

FY 2018 Plans:
Will continue to provide, acquire and upgrade instrumentation for C4, RAM, 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. This includes the continuation and completion of previous fiscal year initiatives in addition to the execution of

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
new initiatives to modernize test infrastructure. The WSTC will complete the development of a secure wireless network to provide internet protocol data and communication connectivity to the Test Support Network (TSN) from “unwired” areas of the test range. The YTC will replace tape video recorders with hard drive based video recorders due to obsolescence of the technology. This effort will include procurement of high definition cameras to support missions throughout the range. The RTC will design, procure, develop, and integrate an end-to-end mobile system to measure the performance of couter-unmanned aircraft systems (UAS) systems under test. The ATC will develop a common methodology and technology for collection of analog data to support the next generation of instrumentation used for ballistics analysis and automotive instrumentation. This common methodology will provide a more efficient use of resources and broaden a common understanding of these measurements for evaluator across the command. The EPG will develop a test data management and control system to provide test personnel and evaluators cloud-like, secure access of current and prior test data allowing for quick analysis and review.			
Accomplishments/Planned Programs Subtotals	42.783	52.782	33.948

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
62C: *Modeling and Simulation Instrumentation*	-	9.471	11.345	15.294	-	15.294	18.505	18.854	19.341	19.919	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States (U.S.) Army Test and Evaluation Command (ATEC) plans, conducts and reports on operational tests, assessments and experiments in order to provide essential information for the acquisition and fielding of War Fighting Systems. Operational Test (OT) Instrumentation collects required data from systems under test and the systems which they integrate with to support effectiveness, survivability, and suitability analysis; these systems also provide real-time position location and status tracking to support test control. The Army's Operations Tempo (OPTEMPO) has reduced the number of tactical units and vehicles available to support OT, making enhancement of live forces through simulation essential for testing in a realistic, operational environment by simulating tactical engagements, additional units, message traffic, effects, and terrain. ATEC OT Modeling, Simulation and Instrumentation (MS&I) funding is used to adapt capabilities from other organizations (including within ATEC), purchase off-the-shelf systems, and develop and sustain OT-unique simulation and instrumentation systems. As required, the Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) Project Manager for Instrumentation, Targets and Threat Simulators (PM ITTS) provides development and integration of major simulation and instrumentation systems. The MS&I (Sustainment and Minor Development) program funds the expertise and the adaptation, purchases, minor development and sustainment requirements that support systems undergoing OT. Costs unique to specific systems under test may require Program Manager (PM) funding.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Modeling, Simulation and Instrumentation	9.471	11.345	15.294
Description: Develops and enhances ATEC's simulation/stimulation of Mission Command, Fire Support, Air Defense, Reconnaissance and Surveillance, and Network systems. Improves and sustains Real-Time Casualty Assessment (RTCA) (including Integrated Live, Virtual, Constructive (LVC) Test Environment (ILTE)) capabilities. Also develops, enhances, and sustains Performance Instrumentation Systems, Time Space Positioning Information (TSPI) and Telemetry Systems, and Imaging Systems together with their associated data management.			
FY 2016 Accomplishments: Continued to sustain and enhance ATEC's simulation/stimulation of Mission Command, Fire Support, Air Defense, Reconnaissance and Surveillance, and Network systems. Continue to improve our RTCA (including ILTE) capabilities to support future Advanced Multi-Purpose vehicle (AMPV) and the Bradley Performance Improvement Program (PIP), Stryker PIP, and Abrams PIP OTs. Sustain and develop our Performance Instrumentation Systems and associated data management,Time Space			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Positioning Information (TSPI) and Telemetry Systems and associated data management, and Imaging Systems and associated data management. ***FY 2017 Plans:*** Request for Additional FY17 Appropriation includes $1.453 Million for minor investment / upgrades to Developmental Test capabilities: provides funding to upgrade / replace instrumentation and equipment, develop new test technologies, develop and procure new instrumentation systems, and develop modeling and simulation capabilities across ATEC's Developmental Test activities. The majority of the tasks funded by this account involve upgrading or replacing instrumentation and equipment that has met, and often well-exceeded its technological and economic life-span. Continue to sustain ATEC's Fire Support, Air Defense, Reconnaissance and Surveillance, and Network OT tools. Improve our Real-Time Casualty Assessment (RTCA) secure network and tactical engagement capabilities to support future AMPV, AH-64 FOT&E, and the Bradley Performance Improvement Program (PIP), Stryker PIP, and Abrams PIP OTs. Sustain Performance Instrumentation Systems, Time Space Positioning Information (TSPI) and Telemetry Systems, and Imaging Systems and associated data management capabilities. ***FY 2018 Plans:*** Will continue to sustain ATEC's Fire Support, Air Defense, Reconnaissance and Surveillance, and Network OT tools. Improve our RTCA secure network and tactical engagement capabilities to support future AMPV, AH-64 Follow-on Operational Test and Evaluation (FOT&E), and the Bradley PIP, Stryker PIP, and Abrams PIP OTs. Sustain Performance Instrumentation Systems, TSPI and Telemetry Systems, and Imaging Systems and associated data management capabilities.			
Accomplishments/Planned Programs Subtotals	9.471	11.345	15.294

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	33.069	38.571	41.843	-	41.843	33.341	34.428	35.758	36.419	-	-
675: *Army Survivability Analysis & Evaluation Supp*	-	33.069	38.571	41.843	-	41.843	33.341	34.428	35.758	36.419	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds analytical products necessary for inherently-governmental Army Test & Evaluation Command/Army Evaluation Center's (ATEC/AEC) mission. Products result from investigating, analyzing, assessing, and reporting on the survivability of Soldiers, and on the survivability, lethality and vulnerability (SLV) of the highest priority Army systems whether those systems are employed during stability, support, defensive, or offensive missions. Developed through measurement, experiment, test support, and modeling and simulation (M&S), the products funded by this PE are used in many ways to make the Army force more survivable.This PE provides quantitative lethality and survivability analyses and data for fielded and developmental systems as the Army makes the required choices to decisively transform into a modular Brigade Combat Team (BCT) based organization. Products concern Army fire support systems, direct fire munitions; Army air defense and missile defense systems; Army aviation systems including Unmanned Aerial Vehicles; network communications and other network enabled battle command and communication systems; and selected joint services systems particularly relevant to the Army's joint and expeditionary role. Products also include analysis and data concerning individual Soldier items including protective equipment such as helmets and vests. These survivability products are leveraged into rapid-equipping initiatives and other technical support for operational forces involved in the current fight. Continued development of these products also guarantees preservation of the Army's vitally needed technical corporate memory for expert survivability advice.

Survivability analyses funded by this PE are conducted across the spectrum of battlefield threats to include guns, missiles, mines and other methods of inflicting physical damage; jammers, countermeasures, and other electronic warfare techniques; cybersecurity and computer network operations; and directed energy weapons. This survivability information enables developers, users, and decision makers to perform credible survivability tradeoffs for both Soldiers and materiel. These technical survivability details enable properly informed decisions concerning systems and tactics that maximize both the combat power and survivability of Army forces. Survivability 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 the Army accurate and consistent treatment of survivability across all classes of systems, across all formal system Evaluations, and across the Army's Army Regulation (AR) 5-5 studies process. Work program is prioritized principally by the ATEC/AEC and is used by them in the Army's formal Evaluation process in such a way that ATEC can comply with its legally mandated responsibility to assess system survivability along with effectiveness and suitability. Program Managers (PM) and the Program Executive Officers (PEO) use the survivability analyses and data funded by this PE to make design decisions that are optimized for survivability, to direct specific weapon system development efforts that are needed for survivability enhancement, and to structure product improvement programs. Soldier survivability data and analysis is leveraged to support the survivability portion of the Headquarters' Department of the Army (HQDA) Deputy Chief of Staff, Personnel (G1) Human Systems Integration (HSI) program. United States (U.S.) Army Training and Doctrine Command (TRADOC) combat developers exploit the survivability products funded by this PE to initiate and improve survivability/lethality requirements, and to develop and refine doctrine and tactics. Also, the quantitative analytical results funded by the PE are leveraged as core inputs to formal Army regulation (AR) 5-5 studies and other studies as directed by Army leaders. While the Army is at war, analytical results funded by this PE are also directly leveraged for survivability support

to current operations. Finally, for particularly urgent or controversial survivability issues, data and analysis funded by this PE are used directly by senior Army decision makers to assure technically sound program/production decisions.

This PE also supports cybersecurity survivability analysis of Army battle command/networked systems as well as Army network architectures and technology. Supports ATEC and other electronic warfare vulnerability testers and evaluators by developing and providing highly technical specialized field countermeasure environments that threat forces may employ against Army communications networks, air defense and other systems. In conjunction with PMs and Army intelligence agencies, this PE also analyzes technical vulnerabilities of foreign weapons, network related systems, and intelligence Electronic Warfare (EW) systems to U.S. Army EW systems.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	33.246	38.571	33.909	-	33.909
Current President's Budget	33.069	38.571	41.843	-	41.843
Total Adjustments	-0.177	0.000	7.934	-	7.934
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.177	-			
• Adjustments to Budget Years	0.000	0.000	7.754	-	7.754
• CivPay Adjustments	0.000	0.000	0.180	-	0.180

Change Summary Explanation

Fiscal Year (FY) 2018 net increase of $7.934M includes: $5.0M for a second year increase for Excalibur Live Fire Test and Evaluation (LFT&E) Analyses; $3.0M in support of Survivability, Lethality, Vulnerability Analyses (SLVA) for cybersecurity; $0.180M for CivPay adjustments; and a decrease of $0.246M due to an inflation rate adjustment.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675: *Army Survivability Analysis & Evaluation Supp*	-	33.069	38.571	41.843	-	41.843	33.341	34.428	35.758	36.419	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds analytical products necessary for inherently-governmental Army Test & Evaluation Command/Army Evaluation Center's (ATEC/AEC) mission. Products result from investigating, analyzing, assessing, and reporting on the survivability of Soldiers, and on the survivability, lethality and vulnerability (SLV) of the highest priority Army systems whether those systems are employed during stability, support, defensive, or offensive missions. Developed through measurement, experiment, test support, and modeling and simulation (M&S), the products funded by this Project are used in many ways to make the Army force more survivable. The Project provides quantitative lethality and survivability analyses and data for fielded and developmental systems. Products concern Army fire support systems, direct fire munitions; Army air defense and missile defense systems; Army aviation systems including Unmanned Aerial Vehicles; network communications and other network enabled battle command and communication systems; and selected joint services systems particularly relevant to the Army's joint and expeditionary role. Products also include analysis and data concerning individual Soldier items including protective equipment such as helmets and vests. These survivability products are leveraged where possible into rapid-equipping initiatives and other technical support for operational forces involved in the current fight. Continued development of these products also guarantees preservation of the Army's vitally needed technical corporate memory for expert survivability advice.

Survivability analyses funded by this Project are conducted across the spectrum of battlefield threats to include guns, missiles, mines and other methods of inflicting physical damage; jammers, countermeasures, and other electronic warfare techniques; cybersecurity and computer network operations; and directed energy weapons. This survivability information enables developers, users, and decision makers to perform credible survivability tradeoffs for both Soldiers and materiel. These technical survivability details enable properly informed decisions concerning systems and tactics that maximize both the combat power and survivability of Army forces. Survivability data and analysis results funded by this Project 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 the Army accurate and consistent treatment of survivability across all classes of systems, across all formal system Evaluations, and across the Army's AR 5-5 studies process. Work program is prioritized principally by the ATEC/AEC and is used by them in the Army's formal Evaluation process in such a way that ATEC can comply with its legally mandated responsibility to assess system survivability along with effectiveness and suitability. Program Managers (PM) and the Program Executive Officers (PEO) use the survivability analyses and data funded by this Project to make design decisions that are optimized for survivability, to direct specific weapon system development efforts that are needed for survivability enhancement, and to structure product improvement programs. Soldier survivability data and analysis is leveraged to support the survivability portion of the HQDA G1 Human Systems Integration (HIS) program. United States (U.S.) Army Training and Doctrine Command (TRADOC) combat developers exploit the survivability products funded by this Project to initiate and improve survivability/lethality requirements, and to develop and refine doctrine and tactics. Also, the quantitative analytical results funded by the Project are leveraged as core inputs to formal Army regulation (AR) 5-5 studies and other studies as directed by Army leaders. When the Army is at war, analytical results funded by this Project are also directly leveraged for survivability support to current operations. Finally, for particularly urgent or controversial survivability issues, data and analysis funded by this Project are used directly by senior Army decision makers to assure technically sound program/production decisions.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

This Project also supports highly technical cyber survivability analysis of Army battle command/networked systems as well as Army network architectures and technology. Supports ATEC and other electronic warfare vulnerability testers and evaluators by developing and providing highly technical specialized field countermeasure environments that threat forces may employ against Army communications networks, air defense and other systems. In conjunction with PMs and Army intelligence agencies, analyzes technical vulnerabilities of foreign weapons, network related systems, and intelligence Electronic Warfare (EW) systems to U.S. Army EW systems. Provides survivability analysis to System of Systems Network Vulnerability Assessments, to Chief Information Office (CIO) G6, Network Integration Evaluation (NIE), to triad (the Brigade Modernization Command (BMC), ATEC, and the System of Systems Integration (SoSI) Directorate.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Survivability, Lethality, Vulnerability Analyses (SLVA) for Ground, Aviation, Munitions, and Soldier Systems	14.477	14.654	19.468

Description: Conduct integrated survivability, lethality, vulnerability analyses for developmental aviation, ground, soldier and munition systems including Stryker, Ground Soldier System, Excalibur, and Intelligent Mine System (IMS). Completed ballistic survivability/vulnerability analysis for Mine Resistant Ambush Protected (MRAP) vehicle Test & Evaluation, Guided Multiple Launch Rocket system (GMLRS) Alternative Warhead Initial Operational Test and Evaluation (IOT&E) and Excalibur Live Fire Test and Evaluation (LFT&E) System Engineering Test-P1 test events, which included providing pre-shot predictions, performing damage assessments after each live fire test, completing post-shot analyses, behind armor debris (BAD) test/analyses, and crew survivability analysis and providing technical data required by ATEC for the Systems Evaluation Reports. Additionally, results and recommendations from our crosswalk of MRAP LFT&E assessed casualty/selected Theater casualty incidents were briefed to MRAP PM & vendors, ATEC, Headquarters Department of Army (HQDA) and the Director, Operational Test & Evaluation resulting in vehicle design improvements for MRAP platforms.

FY 2016 Accomplishments:
Conducted ballistic SLVA on AEC's highest priority platform and weapon systems, supporting LFT&E pre-shot predictions, damage assessments, post-shot analysis, and crew survivability analysis and provided technical data for system evaluation reports. Provided vulnerability reduction recommendations to PMs for those systems supported. For systems analyzed provided data to the Army Materiel Systems Analysis Activity (AMSAA) for support of Army Analyses of Alternatives. Made the necessary preparations for the start of Armored Multi-PurposeP Vehicle (AMPV) and Bradley full-up system-level LFT&E in Fiscal Year (FY) 2017. Performed damage and crew casualty assessments as well as post-shot analyses during the Joint Light Tactical Vehicle (JLTV) and the Joint Assault Bridge (JAB) LFT&E programs; collected data incorporated into the Director, Operational Test and Evaluation (DOT&E) live-fire report to Congress as well as the System Evaluation Reports prepared by ATEC.

FY 2017 Plans:
Conduct ballistic and other needed SLVA on AEC's highest priority platform and weapon systems, supporting LFT&E pre-shot predictions, damage assessments, post-shot analysis, and crew survivability analysis and providing technical data for system evaluation reports. Provide vulnerability reduction recommendations to PMs for those systems supported. For systems analyzed,

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
provide data to AMSAA for support of Army Analyses of Alternatives; incorporate collected data into the DOT&E live-fire report to Congress as well as the System Evaluation Reports prepared by ATEC. ***FY 2018 Plans:*** Will conduct ballistic, cyber and EW SLVA on AEC's highest priority platform and weapon systems, supporting LFT&E pre-shot predictions, damage assessments, post-shot analysis, and crew survivability analysis and will provide technical data for system evaluation reports. Will provide vulnerability reduction recommendations to PMs for those systems supported. For systems analyzed will provide data to AMSAA for support of Army Analyses of Alternatives. Will make the necessary preparations for the start of full-up system-level LFT&E in FY18-20. Will perform damage and crew casualty assessments as well as post-shot analyses during scheduled LFT&E programs. Will collect data incorporated into the DOT&E live-fire report to Congress as well as the System Evaluation Reports prepared by ATEC.			
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 Electronic Warefare (EW) and cybersecurity threat environments and conducts Electronic Attack (EA) and Cybersecurity projects 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 2016 Accomplishments:*** Analyzed data for Joint Tactical Radio System (JTRS) Mid-Tier Networking Vehicular Radios (MNVR) Initial Operational Test & Evaluation (IOTE) (NIE 16.1) and Follow-On Operational Test & Evaluation (FOTE) (NIE 16.2). Analyzed test data for the JTRS airborne radio systems. Conducted experimental and modeling analysis in support of Military Global Positioning System (GPS) User Equipment (MGUE) Increment1/2 [support of advanced component development and prototypes (ACD&P), Technical Risk Reduction, Electro-Motive Division / Production Phases, and Milestone (MS)_B/C]. Conducted experimental and modeling analysis in support of the Distributed Common Ground System - Army (DCGS-A) Development and Test Inc 2 Rel 1 Software, [support of DCGS-A(D07)Increment 2-Development Contract Award Increment 2 and MS_B 2QFY16. Conducted experimental and modeling analysis in support of the Advanced Field Artillery Tactical Data System (AFATDS) Increment 2 V.7.0 Implementation / Deployment. Conducted experimental and modeling analysis in support of Avenger Fire Control Computer (AFCC) software and hardware upgrades for Forward Area Air Defense (FAAD) [support AFCC-Revision (AFCC-R) Development to ensure the system met the latest Information Assurance (IA) requirements. ***FY 2017 Plans:*** Analyze Electronic Protection (EP) and cybersecurity for systems under test and systems under investigation in NIEs 16.1 and 16.2., and for additional highest priority technologies and developmental systems as specified by ATEC so as to reduce costs of	17.038	22.363	20.761

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
downstream development by identifying and fixing vulnerabilities earlier and to assure that formal Army evaluations at Milestone decision points are fully informed on EP and cyber issues. Mature cyber-attack M&S tools so as to more accurately assess the operational impact of such attacks on small unit mission accomplishment. ***FY 2018 Plans:*** Will analyze EP and cybersecurity for systems under test and systems under investigation for FY17 NIEs and for additional highest priority technologies and developmental systems as specified by ATEC so as to reduce costs of downstream development by identifying and fixing vulnerabilities earlier and to assure that formal Army evaluations at Milestone decision points are fully informed on EP and cyber issues. Will apply cyber-attack M&S tools so as to more accurately assess the operational impact of such attacks on small unit mission accomplishment.			
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. These systems include the Ballistic Missile Defense System (BMDS), Terminal High Altitude Air Defense (THAAD), PATRIOT, Surface-Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), and Sentinel. ***FY 2016 Accomplishments:*** Designed, developed, and employed advanced electronic attack countermeasures to assess Army Integrated Air and Missile Defense (AIAMD) system of systems. Provide advanced EA and cybersecurity testing for Patriot Post Deployment Build-08 user operational test events. Provided additional EA and cybersecurity testing on other AMD systems as needed. ***FY 2017 Plans:*** Design, develop, and employ advanced electronic attack countermeasures to assess AIAMD system of systems. Provide advanced EA and cybersecurity testing for Patriot PDB-08 user operational test events. Provide additional EA/EP and cybersecurity analysis for other Air Missile Defense systems as prioritized by ATEC. ***FY 2018 Plans:*** Will design, develop, and employ advanced electronic attack countermeasures to assess A and AMD system of systems. Will provide advanced EA and cybersecurity testing for Air and AMD user operational test events. Will provide additional EA and cybersecurity analysis and experimentation on other Air and AMD systems as needed by ATEC.	1.554	1.554	1.614
Accomplishments/Planned Programs Subtotals	33.069	38.571	41.843

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	4.571	4.665	4.804	-	4.804	3.983	3.501	2.770	2.709	-	-
092: *Aircraft Certification*	-	4.571	4.665	4.804	-	4.804	3.983	3.501	2.770	2.709	-	-

A. Mission Description and Budget Item Justification

The Airworthiness Certification Program Element (PE) ensures 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 provides independent airworthiness qualification for all assigned developmental and in-production Army aircraft, both manned and unmanned, as required by Army Regulation (AR) 70-62, and is essential for ensuring 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 assigned Army aircraft, to include performing safety-of-flight investigations/assessments, evaluating system risks, developing Airworthiness Impact Statements, developing Airworthiness Releases, and evaluating Safety of Flight Messages and Aviation Safety Action Messages for new and upgraded aircraft systems. This PE also provides 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 to the Program Executive Office for Aviation (PEO AVN) and the Technology Applications Program Office (TAPO), the Army's Special Operations Aircraft program office, in developing requirements for major development/modification and for any future systems/subsystems; and management of the test and evaluation process 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. Current ongoing programs requiring airworthiness qualification include: PEO Aviation and TAPO Future Force systems including Longbow Apache E-model; Chinook F-model; Blackhawk M-model; Special Operations MH-47G and MH-60M; Light Utility Helicopter; Gray Eagle unmanned aircraft system (UAS); Enhanced Multi-sensor Airborne Reconnaissance and Sensor System (EMARSS); and modified Shadow UAS. Additionally, the Airworthiness Certification PE supports application of other critical aviation subsystems onto Army aircraft, including Aircraft Survivability Equipment (e.g. Advanced Threat Infrared Countermeasures (ATIRCM), Common Missile Warning System (CMWS), Aviation Mission Equipment (e.g. advanced multiband avionics and Tactical Radio Systems and digital data links), Common Sensor (electro-optical multi-spectrum visual sensor), and Blue Force Tracker). Project 092 also provides: 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, Joint Aeronautical Commanders Group) and international airworthiness related activities mandated by treaty (e.g. Flight Into Non-segregated Airspace (FINAS)); and limited early airworthiness involvement in Technology Transition projects (e.g. Joint Multi Role (JMR) Technology Demonstrator and Future Vertical Lift aircraft) and other Office of the Secretary of Defense (OSD) initiatives.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army					Date: May 2017
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	4.760	4.665	4.661	-	4.661
Current President's Budget	4.571	4.665	4.804	-	4.804
Total Adjustments	-0.189	0.000	0.143	-	0.143
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.189	-			
• Adjustments to Budget Years	0.000	0.000	0.143	-	0.143

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
092: *Aircraft Certification*	-	4.571	4.665	4.804	-	4.804	3.983	3.501	2.770	2.709	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Airworthiness Certification Project ensures safe flight operation of Army aircraft and aviation systems by means of technical design approval and qualification of systems to appropriate airworthiness standards. It provides independent airworthiness qualification for all assigned developmental and in-production Army aircraft, both manned and unmanned, as required by Army Regulation (AR) 70-62, and is essential for ensuring 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 assigned Army aircraft, to include performing safety-of-flight investigations/assessments, evaluating system risks, developing Airworthiness Impact Statements, developing Airworthiness Releases, and evaluating Safety of Flight Messages and Aviation Safety Action Messages for new and upgraded aircraft systems. This Project also provides 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 to the Program Executive Office for Aviation (PEO AVN) and the Technology Applications Program Office (TAPO), the Army's Special Operations Aircraft program office, in developing requirements for major development/modification and for any future systems/ subsystems; and management of the test and evaluation process in support of the airworthiness qualification process. This Project also performs general research and development in support of aircraft qualification and overarching airworthiness projects that involve multiple aircraft models. Current ongoing programs requiring airworthiness qualification include: PEO Aviation and TAPO Future Force systems including Longbow Apache E-model; Chinook F-model; Blackhawk M-model; Special Operations MH-47G and MH-60M; Light Utility Helicopter; Gray Eagle unmanned aircraft system (UAS); Enhanced Multi-sensor Airborne Reconnaissance and Sensor System (EMARSS); and modified Shadow UAS. Additionally, the Airworthiness Certification program supports application of other critical aviation subsystems onto Army aircraft, including Aircraft Survivability Equipment (e.g. Advanced Threat Infrared Countermeasures (ATIRCM), Common Missile Warning System (CMWS), Aviation Mission Equipment (e.g. advanced multiband avionics and Tactical Radio Systems and digital data links), Common Sensor (electro-optical multi-spectrum visual sensor), and Blue Force Tracker). This Project also provides: 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, Joint Aeronautical Commanders Group) and international airworthiness related activities mandated by treaty (e.g. Flight Into Non-segregated Airspace (FINAS); and limited early airworthiness involvement in Technology Transition projects (e.g. Joint Multi Role (JMR) Technology Demonstrator and Future Vertical Lift aircraft) and other Office of the Secretary of Defense (OSD) initiatives.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Certification Assessments and Studies Force Modernization Aircraft	0.044	0.051	0.051
Description: Perform assessments and studies in support of Force Modernization Aircraft Systems			
FY 2016 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Conducted technical and airworthiness qualification assessments and studies to demonstrate airworthiness and system performance for Army force modernization aircraft systems or multi-system programs (e.g. AH-64E, UH-60M, MH-47G, MH-60M, etc). ***FY 2017 Plans:*** Conduct technical and airworthiness qualification assessments and studies to demonstrate airworthiness and system performance for Army force modernization aircraft systems or multi-system programs (e.g. AH-64E, UH-60M, MH-47G, MH-60M, etc). ***FY 2018 Plans:*** Will conduct technical and airworthiness qualification assessments and studies to demonstrate airworthiness and system performance for Army force modernization aircraft systems or multi-system programs (e.g. AH-64E, UH-60M, MH-47G, MH-60M, etc).			
Title: Certification Requirements and Studies for Future Aircraft ***Description:*** Perform studies to support airworthiness certification requirements for Future Aircraft Systems ***FY 2016 Accomplishments:*** Conducted studies of Airworthiness Certification requirements for future aircraft systems and other technology transition programs (e.g. Joint Multi-Role Technology Demonstrator Aircraft, Future Vertical Lift Aircraft, Improved Turbine Engine Program) ***FY 2017 Plans:*** Conduct studies of Airworthiness Certification requirements for future aircraft systems and other technology transition programs (e.g. Joint Multi-Role Technology Demonstrator Aircraft, Future Vertical Lift Aircraft, Improved Turbine Engine Program) ***FY 2018 Plans:*** Will conduct studies of Airworthiness Certification requirements for future aircraft systems and other technology transition programs (e.g. Joint Multi-Role Technology Demonstrator Aircraft, Future Vertical Lift Aircraft, Improved Turbine Engine Program).	0.617	0.617	0.617
Title: Design Standards ***Description:*** Support the development, implementation and maintenance to support Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching Airworthiness qualification documentation. ***FY 2016 Accomplishments:*** Developed, implemented, and maintained Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching airworthiness qualification documentation. ***FY 2017 Plans:***	2.437	2.528	2.667

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Develop, implement, and maintain Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching airworthiness qualification documentation. ***FY 2018 Plans:*** Will develop, implement, and maintain Army Aeronautical Design Standards, airworthiness procedures and tools, and overarching airworthiness qualification documentation.			
Title: Certification Assessments of Technology Upgrades ***Description:*** Perform certification assessments of technology upgrades. ***FY 2016 Accomplishments:*** Conducted technical and airworthiness certification assessments of technology upgrades to Army force modernization aircraft systems or programs (e.g. Advanced Threat Infrared Countermeasures integration, Common Missile Warning System integration, Common Sensor integration). ***FY 2017 Plans:*** Conduct technical and airworthiness certification assessments of technology upgrades to Army force modernization aircraft systems or programs (e.g. Advanced Threat Infrared Countermeasures integration, Common Missile Warning System integration, Common Sensor integration). ***FY 2018 Plans:*** Will conduct technical and airworthiness certification assessments of technology upgrades to Army force modernization aircraft systems or programs (e.g. Advanced Threat Infrared Countermeasures integration, Common Missile Warning System integration, Common Sensor integration).	0.043	0.051	0.051
Title: Commercial Derivative Aircraft ***Description:*** Technical and airworthiness qualification for Commercial Derivative Aircraft ***FY 2016 Accomplishments:*** Provided technical and airworthiness qualification for Commercial Derivative Aircraft through the Federal Aviation Administration. ***FY 2017 Plans:*** Provide technical and airworthiness qualification for Commercial Derivative Aircraft through the Federal Aviation Administration. ***FY 2018 Plans:*** Will provide technical and airworthiness qualification for Commercial Derivative Aircraft through the Federal Aviation Administration.	0.430	0.446	0.446
Title: Technology Advancement	1.000	0.972	0.972

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Support efforts to establish and maintain aircraft safety for a fleet of aircraft. ***FY 2016 Accomplishments:*** Led and participated in national and international airworthiness certification committees, conferences and working groups responsible for establishing and maintaining aircraft safety for a fleet of aircraft (e.g. National Airworthiness Council, Joint Aeronautical Commanders Group, Joint Propulsion Coordinating Committee, North Atlantic Treaty Organization (NATO) Airworthiness working groups, Air and Space Interoperability Council (ASIC) Airworthiness Working Groups, Global Air Traffic Management working groups). ***FY 2017 Plans:*** Lead and participate in national and international airworthiness certification committees, conferences and working groups responsible for establishing and maintaining aircraft safety for a fleet of aircraft (e.g. National Airworthiness Council, Joint Aeronautical Commanders Group, Joint Propulsion Coordinating Committee, North Atlantic Treaty Organization (NATO) Airworthiness working groups, Air and Space Interoperability Council (ASIC) Airworthiness Working Groups, Global Air Traffic Management working groups). ***FY 2018 Plans:*** Will lead and participate in national and international airworthiness certification committees, conferences and working groups responsible for establishing and maintaining aircraft safety for a fleet of aircraft (e.g. National Airworthiness Council, Joint Aeronautical Commanders Group, Joint Propulsion Coordinating Committee, North Atlantic Treaty Organization (NATO) Airworthiness working groups, ASIC Airworthiness Working Groups, Global Air Traffic Management working groups.)			
Accomplishments/Planned Programs Subtotals	4.571	4.665	4.804

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	8.104	6.925	7.238	-	7.238	10.011	8.540	8.763	8.993	-	-
128: *Meteorological Support To RDT&E Activities*	-	8.104	6.925	7.238	-	7.238	10.011	8.540	8.763	8.993	-	-

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) RDT&E test requirements for modern weaponry, e.g., (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. The 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 and 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, October 1999. 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: FY 2018 Army					Date: May 2017
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	8.303	6.925	7.099	-	7.099
Current President's Budget	8.104	6.925	7.238	-	7.238
Total Adjustments	-0.199	0.000	0.139	-	0.139
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.199	-			
• Adjustments to Budget Years	0.000	0.000	0.119	-	0.119
• CivPay Adjustments	0.000	0.000	0.020	-	0.020

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
128: *Meteorological Support To RDT&E Activities*	-	8.104	6.925	7.238	-	7.238	10.011	8.540	8.763	8.993	-	-
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 for test reports to satisfy Army/Department of Defense (DoD) RDTE test requirements for modern weaponry, e.g., (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. Provides technical 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 Project 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 and replacement/upgrade of meteorological instrumentation and support systems. Direct costs for meteorological support services are not funded by this Project, but are borne by the customer (i.e., materiel/weapons developers and project/product managers) in accordance with DoD Directive 7000.14R, October 1999. This Project 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 2016	FY 2017	FY 2018
Title: Civilian Pay and Support Costs	2.095	2.060	2.110
Description: Funding related to Civilian Pay and associated indirect costs for meteorological support.			
FY 2016 Accomplishments: Provided 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. Provides technical meteorological support to the Army research, development, test and evaluation			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
(RDTE) community to include collaboration between Army meteorologists and the National Center for Atmospheric Research (NCAR) toward improvements to the Four-Dimensional Weather (4DWX) System and associated system administration. ***FY 2017 Plans:*** Providing 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 sites/test ranges, and alternate test sites as required. Will provide program management for meteorological support to the Army research, development, test and evaluation community and technical review/assistance to ranges and meteorological support teams. Will include collaboration between Army meteorologists and the National Center for Atmospheric Research (NCAR) toward improvements to the Four-Dimensional Weather (4DWX) System. ***FY 2018 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 technical meteorological support to the Army RDTE community including collaboration between Army meteorologists and the NCAR toward improvements to the 4DWX System and associated system administration.			
Title: Four Dimensional Weather System (4DWX) and Instrumentation ***Description:*** Provides funding for meteorological instrumentation and technology to support RDT&E 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 analyses. The 4DWX analyses and forecasts the 3-dimensional structure of the atmosphere over time (4th dimension) and is used in test planning, conduct, and forensic analyses. ***FY 2016 Accomplishments:*** Provided funding for meteorological instrumentation and technology to support RDT&E activities at Army test sites. Included funding for sustainment and enhancement of the 4DWX system, an advanced meteorological support system that provided high-resolution weather forecasts and analyses. Funded initiation of feasibility study of transferring the 4DWX system to a shared high performance computing system to operate the 4DWX weather model due to current, aging system becoming obsolete. Provided funding for replace/upgrade of obsolete meteorological instrumentation, including upper-air sounding systems, upgrades to weather stations and replacement of radar wind profilers. ***FY 2017 Plans:*** Continuing 4DWX system enhancements and modernization to improve forecast accuracy in support of Army RDT&E mission requirements, including development of stream-flow prediction, 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; and continued 4DWX Verification and Validation efforts. Instrumentation funding	6.009	4.865	5.128

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
will be used to continue a multiyear effort to replace/upgrade obsolete instrumentation, including upper-air sounding systems, upgrades to weather stations and replacement of radar wind profilers ***FY 2018 Plans:*** Will continue 4DWX system sustainment and modernization to improve forecast accuracy in support of Army RDT&E mission requirements, including development of stream-flow prediction, 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; and continued 4DWX Verification and Validation efforts. Instrumentation funding will be used to continue a multiyear effort to replace/upgrade obsolete instrumentation, including upper-air sounding systems, upgrades to weather stations and replacement of radar wind profilers.			
Accomplishments/Planned Programs Subtotals	8.104	6.925	7.238

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	20.203	21.677	21.890	-	21.890	21.754	22.181	22.580	22.599	-	-
541: *Materiel Sys Analysis*	-	20.203	21.677	21.890	-	21.890	21.754	22.181	22.580	22.599	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) funds Department of the Army (DA) civilians at the United States (US) Army Materiel Systems Analysis Activity (AMSAA) to conduct responsive and effective materiel systems analysis in support of senior Army decision making for equipping the U.S. Army. AMSAA conducts systems and engineering analyses to support Army decisions in technology; materiel acquisition; and the design, development, fielding, and sustainment of Army weapon/materiel systems. As part of this mission, AMSAA develops and certifies system level performance data used in Army studies, and develops item-level performance methodology and Models and Simulations (M&S).

AMSAA exercises Headquarters Department of the Army (HQDA) responsibility for developing, maintaining, improving, verifying, validating, and accrediting item-level performance data and M&S for combat effects and logistics. This includes the development and maintenance of common data formats. In support of its materiel systems analysis mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and fielded systems. Unique models and methodologies have been developed to predict critical performance variables, such as weapon accuracy, target acquisition, rate of fire, probability of inflicting catastrophic damage, personnel and vehicle survivability, mobility, and system reliability. AMSAA generates performance and effectiveness measures and ensures their standard use across major Army and Joint studies. AMSAA conducts and supports various systems analysis efforts across the entire materiel system life cycle, such as: Analysis of Alternatives (AoAs); system cost/performance trade-offs and early technology trade-offs to inform system and acquisition program risk assessments; weapons/systems mix analyses; business case analyses; cost benefit analyses; requirements analyses; technology insertion studies; reliability growth studies; Physics of Failure (PoF) analyses; and analytical support for Test and Evaluation. AMSAA also maintains, pursuant to Army Acquisition Executive direction, the Center for Army Acquisition and Materiel Lessons Learned (CAAMLL). These analyses are used by leadership within HQDA (both Army Staff and Assistant Secretaries in the HQDA Secretariat); Army Materiel Command; Army Research, Development and Engineering Command; Training and Doctrine Command; Army Test and Evaluation Command; Program Executive Officers/Project Managers; and the Office of Secretary of Defense (OSD)/Department of Defense (DoD). AMSAA analyses and data are used by these organizations in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldier, along with enhancing readiness for the Current and Future Force.

AMSAA's 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. AMSAA maintains a significant number of models and simulations, most of which were developed in-house to address specific analytical requirements. This M&S infrastructure provides a hierarchical modeling process that is unique to AMSAA and allows for a comprehensive performance and effectiveness prediction capability that can be utilized to make trade-off and investment decisions prior to extensive and expensive hardware testing of proposed systems/technologies for the readiness of the Current and Future Force.

AMSAA exercises HQDA responsibility for Army reliability methodology development. In this role, as the Army's Executive Agent for reliability and maintainability standardization improvement, AMSAA develops and implements reliability and maintainability reform initiatives that support acquisition decisions and life cycle

management. AMSAA develops and applies engineering approaches that assess the reliability of Army materiel and also provides recommendations on ways to improve reliability, thereby reducing logistics footprints and life cycle costs, and extending failure-free periods for deployed equipment. AMSAA's electronic and mechanical PoF program pioneered the Army's involvement in utilizing computer-aided engineering tools in the analysis of root-cause failure mechanisms at the component level during the system design process. AMSAA's reliability engineering and PoF tools/analyses have been used extensively to support the design improvement of developmental and fielded systems used in Current Operations, resulting in improved reliability, reduced Operating and Support costs, and reduced logistics expenditures and footprints. AMSAA, in conjunction with the Army Evaluation Center (AEC), has formed the Center for Reliability Growth (CRG), which develops critical tools, methodologies, policies, formal guidance, and educational materials needed to help acquisition programs to achieve their required reliability during the acquisition process. The reliability improvements achieved for major weapon systems will translate into billions of dollars in operating and support cost savings over the life cycle.

AMSAA's unique analytical capabilities are supporting AEC to assess and determine the essential analytical requirements to enhance Army evaluations and reduce extensive testing. AMSAA's support in this area improves evaluation products and results in better materiel solutions to the Warfighter. AMSAA assists in systems evaluations which support various Acquisition Category (ACAT) materiel system decisions, and provides quick response analyses in support of rapid initiatives for Current Operations.

As the Army's center for materiel systems analysis, AMSAA provides the technical capability to support Army and DoD decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. AMSAA's unique in-house, consistent, integrated analytical capability is a critical asset that provides 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 (Long-Range Investment Requirements Analysis (LIRA), Force 2025 and beyond). AMSAA's integrated set of skills and tools are focused on its core mission to be responsive to the breadth and depth of systems analysis requirements critical in supporting Army decisions.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	20.403	21.677	22.087	-	22.087
Current President's Budget	20.203	21.677	21.890	-	21.890
Total Adjustments	-0.200	0.000	-0.197	-	-0.197
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.200	-			
• Adjustments to Budget Years	0.000	0.000	-0.304	-	-0.304
• CivPay Adjustments	0.000	0.000	0.107	-	0.107

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
541: *Materiel Sys Analysis*	-	20.203	21.677	21.890	-	21.890	21.754	22.181	22.580	22.599	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds Department of the Army (DA) civilians at the United States (US) Army Materiel Systems Analysis Activity (AMSAA) to conduct responsive and effective materiel systems analysis in support of senior Army decision making for equipping the U.S. Army. AMSAA conducts systems and engineering analyses to support Army decisions in technology; materiel acquisition; and the design, development, fielding, and sustainment of Army weapon/materiel systems. As part of this mission, AMSAA develops and certifies system level performance data used in Army studies, and develops item-level performance methodology and Models and Simulations (M&S).

AMSAA exercises Headquarters Department of the Army (HQDA) responsibility for developing, maintaining, improving, verifying, validating, and accrediting item-level performance data and M&S for combat effects and logistics. This includes the development and maintenance of common data formats. In support of its materiel systems analysis mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and fielded systems. Unique models and methodologies have been developed to predict critical performance variables, such as weapon accuracy, target acquisition, rate of fire, probability of inflicting catastrophic damage, personnel and vehicle survivability, mobility, and system reliability. AMSAA generates performance and effectiveness measures and ensures their standard use across major Army and Joint studies. AMSAA conducts and supports various systems analysis efforts across the entire materiel system life cycle, such as: Analysis of Alternatives (AoAs); system cost/performance trade-offs and early technology trade-offs to inform system and acquisition program risk assessments; weapons/systems mix analyses; business case analyses; cost benefit analyses; requirements analyses; technology insertion studies; reliability growth studies; Physics of Failure (PoF) analyses; and analytical support for Test and Evaluation. AMSAA also maintains, pursuant to Army Acquisition Executive direction, the Center for Army Acquisition and Materiel Lessons Learned (CAAMLL). These analyses are used by leadership within HQDA (both Army Staff and Assistant Secretaries in the HQDA Secretariat); Army Materiel Command; Army Research, Development and Engineering Command; Training and Doctrine Command; Army Test and Evaluation Command; Program Executive Officers/Project Managers; and the Office of Secretary of Defense (OSD)/Department of Defense (DoD). AMSAA analyses and data are used by these organizations in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldier, along with enhancing readiness for the Current and Future Force.

AMSAA's 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. AMSAA maintains a significant number of models and simulations, most of which were developed in-house to address specific analytical requirements. This M&S infrastructure provides a hierarchical modeling process that is unique to AMSAA and allows for a comprehensive performance and effectiveness prediction capability that can be utilized to make trade-off and investment decisions prior to extensive and expensive hardware testing of proposed systems/technologies for the readiness of the Current and Future Force.

AMSAA exercises HQDA responsibility for Army reliability methodology development. In this role, as the Army's Executive Agent for reliability and maintainability standardization improvement, AMSAA develops and implements reliability and maintainability reform initiatives that support acquisition decisions and life cycle management. AMSAA develops and applies engineering approaches that assess the reliability of Army materiel and also provides recommendations on ways to

improve reliability, thereby reducing logistics footprints and life cycle costs, and extending failure-free periods for deployed equipment. AMSAA's electronic and mechanical PoF program pioneered the Army's involvement in utilizing computer-aided engineering tools in the analysis of root-cause failure mechanisms at the component level during the system design process. AMSAA's reliability engineering and PoF tools/analyses have been used extensively to support the design improvement of developmental and fielded systems used in Current Operations, resulting in improved reliability, reduced Operating and Support costs, and reduced logistics expenditures and footprints. AMSAA, in conjunction with the Army Evaluation Center (AEC), has formed the Center for Reliability Growth (CRG), which develops critical tools, methodologies, policies, formal guidance, and educational materials needed to help acquisition programs to achieve their required reliability during the acquisition process. The reliability improvements achieved for major weapon systems will translate into billions of dollars in operating and support cost savings over the life cycle.

AMSAA's unique analytical capabilities are supporting AEC to assess and determine the essential analytical requirements to enhance Army evaluations and reduce extensive testing. AMSAA's support in this area improves evaluation products and results in better materiel solutions to the Warfighter. AMSAA assists in systems evaluations which support various Acquisition Category (ACAT) materiel system decisions, and provides quick response analyses in support of rapid initiatives for Current Operations.

As the Army's center for materiel systems analysis, AMSAA provides the technical capability to support Army and DoD decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. AMSAA's unique in-house, consistent, integrated analytical capability is a critical asset that provides 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 (Strategic Portfolio Analysis Review (SPAR), Force 2025 and beyond). AMSAA's integrated set of skills and tools are focused on its core mission to be responsive to the breadth and depth of systems analysis requirements critical in supporting Army decisions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Materiel Systems Analysis	20.203	21.677	21.890
Description: These funds are used by AMSAA to conduct various materiel systems analysis efforts in support of senior Army decision makers during fiscal years 2016 through 2022. AMSAA will continue to conduct analyses, materiel systems performance data generation and certification, methodology development, M&S development, and verification, validation, and accreditation. The accomplishments include performance and combat effectiveness analyses of materiel systems and technology base programs for the Department of Army Secretariat/Staff, the Army Materiel Command, the Research, Development and Engineering Command, Program Executive Officers/Program Managers, the Training and Doctrine Command, the Army Service Component Commands, the Army Test and Evaluation Command, and OSD. These analyses form the basis for AMSAA to successfully conduct AoAs, system cost/performance tradeoffs, early technology trade-offs, weapons/systems mix analyses, system risk assessments, business case analyses, cost benefit analyses, requirements analyses, technology insertion studies, reliability growth studies, PoF analyses and analytical support for Test and Evaluation.			
FY 2016 Accomplishments: Critical analyses from AMSAA continued to support key Army acquisition milestone decision reviews. AMSAA supported conceptual and developmental ACAT 1, ACAT 2, ACAT 3, and ACAT 4 programs, including but not limited to Joint Light Tactical			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Vehicle, Biometrics Enabling Capabilities, M113 Replacement at Echelons Above Brigade, Lower Tier Air & Missile Defense Capabilities, H-47 Block II, Dominating Mobility Through Terrain Shaping and Engagement, and Distributed Common Ground System – Army. In addition, AMSAA conducted multiple trade-space efforts in support of the Deputy Under Secretary of the Army for Test and Evaluation (DUSA-TE), provided analytical support to modify Test and Evaluation planning efforts, and reduced testing through the use of modeling and simulation. AMSAA also analyzed the use of software metrics for the DUSA-TE. AMSAA conducted follow-on studies for major Army programs undergoing engineering change proposals and continued to provide essential certified weapons system performance data for all major Army studies. AMSAA's technical work program relating to AoAs (providing analytic input and certified data, as well as leading specified AoAs), Business Case Analyses, Cost Benefit Analyses, and Risk Assessments continued at a high level (similar to fiscal year (FY) 2014 and FY2015). AMSAA continued efforts in support of the Army Center for Reliability Growth (CRG) and the Center for Army Acquisition and Materiel Lessons Learned (CAAMLL). Due to cybersecurity concerns, AMSAA initiated methodology development for cyber risk analyses. AMSAA also focused on tasks, analyses, and model enhancements for current operations by developing system performance data and providing materiel system performance analyses. AMSAA continued to enhance its comprehensive set of essential verified and validated item/system level methodologies, tools, and models and simulations to insure accurate and up-to-date analytical products across the full spectrum of Army capability/commodity areas.			
FY 2017 Plans: Critical analyses from the US Army Materiel Systems Analysis Activity (AMSAA) continue to support Army key milestone decision reviews. AMSAA supports Army conceptual and developmental Acquisition Category ((ACAT) 1, ACAT 2, ACAT 3, and ACAT 4) programs, including but not limited to: Dominate Mobility Through Terrain Shaping and Engagement; Autonomous Convoy Operations; Defense Cyberspace Operations; Army Cyber Situational Awareness; Assured Positioning, Navigation and Timing; Mission Command; Future Vertical Lift; Light Reconnaissance Vehicle; Synthetic Training Environment; and Force 2025. In addition, AMSAA will support multiple trade-space efforts in support of the Army Secretariat and Staff, and provide analytical support to modify Test and Evaluation planning efforts, and reduce testing through the use of modeling and simulation. AMSAA will also provide software analysis capability to support test and evaluation (T&E). AMSAA will 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. AMSAAs technical work program relating to Analyses of Alternative (AoA) (both providing analytic input and certified data as well as leading specified AoAs), Business Case Analyses, Cost Benefit Analyses and Risk Assessments will continue at a high level (similar to FY15 and FY16). AMSAA is anticipating an increase in analytical support to Army ACAT 3, and ACAT 4 systems due to budget restrictions and financial limitations. AMSAA will continue efforts in support of the Army Center for Reliability Growth (CRG), the Center for Army Acquisition and Materiel Lessons Learned (CAAMLL) as well as efforts on current operations related tasks, analyses, and model enhancements, specifically those supporting system performance data development, and materiel system performance analysis. AMSAA will continue to enhance its comprehensive set of essential verified and validated item/system level methodologies, tools, and models and simulations to insure accurate and up-to-date analytical products across the full spectrum of Army capability/commodity areas. Additional			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
funding to support: 1) Cyberspace Operations (CO), Cybersecurity, and Cyber Electromagnetic Activities Modeling, Simulation and Analyses (MS&A); and 2) Software Analysis Capability to Support Test and Evaluation (T&E). ***FY 2018 Plans:*** AMSAA will continue to provide critical analyses and data to support key Army acquisition milestone decisions and reviews. AMSAA will continue to support Army conceptual and developmental ACAT 1, ACAT 2, ACAT 3, and ACAT 4 programs, including but not limited to: Squad-Multipurpose Equipment Transport; Vehicle Protection Suites; Lethal Miniature Aerial Missile System (LMAMs); Big Data initiatives; Mission Command; Cyber Electromagnetic Activities (CEMA); and Force 2025. AMSAA will further develop and enhance Cyber, Air & Missile Defense, and life cycle cost analytic capabilities to ensure more robust analysis of potential capabilities to properly equip the Current and Future Force. Additionally, AMSAA will ensure modeling and simulation readiness by properly updating and sustaining key analytic tools and models. AMSAA will continue to support a variety of trade-space efforts and analyses in support of the Army Secretariat and Staff. This will include directly participating in and providing analytical products for Army Requirements Oversight Councils (AROCs) and Army Systems Acquisition Review Councils (ASARCs) to assist senior leaders in key acquisition strategy and life cycle decisions for a variety of materiel systems/programs. AMSAA will also provide analytical support to modify T&E planning efforts, reduce testing through the use of modeling and simulation, and provide software analysis and reliability capabilities to support T&E. AMSAA will 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. AMSAAs technical work program relating to AoAs (providing analytic input and certified data, as well as leading specified AoAs), Business Case Analyses, and Cost Benefit Analyses and Risk Assessments will continue at a high level (similar to FY2016 and FY2017). AMSAA will continue efforts in support of the Army CRG and the CAAMLL. Moreover, AMSAA will continue to develop and enhance its comprehensive set of system performance data and essential verified and validated item/system level methodologies, tools, and models and simulations to conduct materiel system performance analysis. This will insure accurate and up-to-date analytical products are provided across the full spectrum of Army capability/commodity areas. Overall, AMSAA's analysis capabilities and products will enable Senior Leaders to properly shape and influence acquisition policy, procedures, and materiel solutions and increase readiness for our Current and Future Force.			
Accomplishments/Planned Programs Subtotals	20.203	21.677	21.890

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605706A / *Materiel Systems Analysis*	**Project (Number/Name)** 541 / *Materiel Sys Analysis*

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	10.396	12.415	12.684	-	12.684	13.026	13.246	13.511	13.883	-	-
C28: *Acq/Exploit Threat Items (MIP)*	-	10.396	12.415	12.684	-	12.684	13.026	13.246	13.511	13.883	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides for the acquisition, exploitation, and inventory of foreign ground materiel with potential advanced technology threats to United States (US) 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 US 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	10.396	12.415	12.624	-	12.624
Current President's Budget	10.396	12.415	12.684	-	12.684
Total Adjustments	0.000	0.000	0.060	-	0.060
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	0.000	0.000	0.060	-	0.060

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 (MIP)*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
C28: *Acq/Exploit Threat Items (MIP)*	-	10.396	12.415	12.684	-	12.684	13.026	13.246	13.511	13.883	-	-
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 (US) systems, as well as emerging and destructive threats such as cyber vulnerabilities, biometric systems, and evolving improvised explosive devices. 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 US forces. Acquisition and exploitation are executed according to Army FMP Plan prioritization and with the approval of the G2.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Army Foreign Materiel Program (FMP) Acquisition	3.535	4.097	4.186
Description: This effort provides for the acquisition of foreign ground materiel with potential advanced technology threats to US systems, as well as emerging and destructive threats such as cyber vulnerabilities, biometric systems, and 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 2016 Accomplishments: Continued to focus efforts on the acquisition of threat related foreign materiel systems and state-of-the-art technologies of military significance.			
FY 2017 Plans: Conducting Foreign Materiel Acquisition (FMA) of threat related foreign ground materiel systems and state-of-the-art technologies of military significance.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 (MIP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will conduct Foreign Materiel Acquisition (FMA) of threat related foreign ground materiel systems and state-of-the-art technologies of military significance.			
Title: Army Foreign Materiel Program (FMP) Exploitation	6.861	8.318	8.498
Description: This effort provides for the exploitation and inventory of foreign ground materiel with potential advanced technology threats to US systems, as well as emerging and destructive threats such as cyber vulnerabilities, biometric systems, and 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 2016 Accomplishments:*** Conducted Foreign Materiel Exploitation (FME) of threat related foreign ground materiel systems and state-of-the-art technologies of military significance. ***FY 2017 Plans:*** Conducting Foreign Materiel Exploitation (FME) of threat related foreign ground materiel systems and state-of-the-art technologies of military significance. ***FY 2018 Plans:*** Will conduct Foreign Materiel Acquisition (FMA) of threat related foreign ground materiel systems and state-of-the-art technologies of military significance.			
Accomplishments/Planned Programs Subtotals	10.396	12.415	12.684

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	49.128	49.684	51.040	-	51.040	54.179	55.242	56.713	57.684	-	-
001: *ATEC Joint Tests And Follow-On Test & Eval*	-	0.000	0.077	0.449	-	0.449	0.446	0.443	0.452	0.285	-	-
V02: *ATEC Activities*	-	49.128	49.607	50.591	-	50.591	53.733	54.799	56.261	57.399	-	-

Note

Beginning in Fiscal Year (FY) 2017, Army Joint Test Element (JTE) was realigned from Program Element (PE) 0605898A (Management HQ - R&D) / Project M65 (Army Test and Evaluation Command) to PE 0605712A (Support of Operational Testing) / Project 001 (ATEC Joint Tests And Follow-On Test and Eval).

A. Mission Description and Budget Item Justification

This Program Element (PE) provides resources to the Army Test and Evaluation Command (ATEC) to operate the Army Joint Test Element (JTE) and the Army's Operational Test Command (OTC). 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. 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.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	49.337	49.684	50.745	-	50.745
Current President's Budget	49.128	49.684	51.040	-	51.040
Total Adjustments	-0.209	0.000	0.295	-	0.295
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.209	-			
• Adjustments to Budget Years	0.000	0.000	0.021	-	0.021
• CivPay Adjustments	0.000	0.000	0.274	-	0.274

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
001: *ATEC Joint Tests And Follow-On Test & Eval*	-	0.000	0.077	0.449	-	0.449	0.446	0.443	0.452	0.285	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in Fiscal Year (FY) 2017, Army Joint Test Element (JTE) moved from PE 0605898A (Management HQ - R&D) / Project M65 (Army Test and Evaluation Command) to PE 0605712A (Support of Operational Testing) / Project 001 (ATEC Joint Tests And Follow-On Test and Eval).

A. Mission Description and Budget Item Justification

This Project provides funding for the Army JTE which 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. The JTE coordinates and develops nominations for Quick Reaction Tests (QRTs) and Joint Feasibility Studies (JFS); serves as the Operational Test Agency (OTA) for Army-led QRTs; and coordinates resources to support Joint Feasibility Studies (JFSs) and chartered Joint Tests (JT) under the Joint Test Unit (JTU) assigned to the Army test and Evaluation Command (ATEC) as the joint OTA. Mission support for JTE includes supporting two Joint Tests under the Joint Test program, and assigned special projects. ATEC provides military resource support to Nellis Air Force Base, and Suffolk VA with Officer and Non-Commissioned Officer (NCO) support. JTE supports Joint Tests until these Office of the Secretary of Defense (OSD) chartered projects are completed and transitioned to the respective Sponsoring COCOM.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Army Joint Test Element (JTE) Management Support	-	0.077	0.449
Description: Funds the civilian salaries and related non-labor requirements that support the JTE. ***FY 2017 Plans:*** Will fund civilian labor and non-labor requirements such as supplies and travel in support of JTE initiatives, program support from remote JT stations and COCOM engagements. ***FY 2018 Plans:*** Will fund civilian labor and non-labor requirements such as supplies and travel in support of JTE initiatives, program support from remote JT stations and COCOM engagements.			
Accomplishments/Planned Programs Subtotals	-	0.077	0.449

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
V02: *ATEC Activities*	-	49.128	49.607	50.591	-	50.591	53.733	54.799	56.261	57.399	-	-
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 the Army decision makers on key Army systems and concepts. This program element 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.

OTC consists of three forward Test Directorates (Airborne and Special Operations Test Directorate, Fort Bragg, North Carolina; Integrated Test and Evaluation 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. These activities support the development and fielding cycle of all Army acquisition programs including rapid fielding initiatives. The primary mission of these test directorates is to perform detailed planning, execution, and reporting of Initial Operational Test and Evaluation (IOTE), Limited User Test (LUT), and Force Development Test and Experimentation (FDTE). OTC conducts operational tests required by public law (Title 10 USC 2399) that provide significant data to the Army decision makers on key Army systems and concepts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Operational Test Command (OTC) Activities	49.128	49.607	50.591
Description: OTC operational costs including: civilian pay, support contracts, temporary duty, supplies and equipment for subordinate elements of the Operational Test Command. ***FY 2016 Accomplishments:*** Operational costs included civilian pay, support contracts, temporary duty, supplies and equipment for the Operational Test Command. ***FY 2017 Plans:*** Operational costs include civilian pay, support contracts, temporary duty, training, supplies and equipment for the Operational Test Command. ***FY 2018 Plans:*** Operational costs will include civilian pay, support contracts, temporary duty, training, supplies and equipment for the Operational Test Command.			
Accomplishments/Planned Programs Subtotals	49.128	49.607	50.591

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605712A / *Support of Operational Testing*	**Project (Number/Name)** V02 / *ATEC Activities*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605716A / *Army Evaluation Center*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	52.265	55.905	56.246	-	56.246	58.463	59.925	61.875	64.108	-	-
302: *Army Evaluation Center*	-	52.265	55.905	56.246	-	56.246	58.463	59.925	61.875	64.108	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) provides the resources to operate the Army Evaluation Center (AEC) which is responsible for all assigned developmental and independent operational evaluation of Army materiel, information and acquisition systems, an inherently government mission. This PE funds direct civilian labor and minimum non-labor requirements to include: Temporary Duty (TDY), personnel training, career development, supplies and equipment, hardware, software, and other external Other Government Agency (OGA) support for the Reliability, Availability, and Maintainability (RAM) Center for Reliability Growth (CRG) and Underbody Blast Modeling and Simulation (UBM) initiatives. CRG improves reliability by providing policy, guidance, standards, methods, tools, and training resulting in increased materiel/operational availability, and initial operational testing success rates while decreasing support costs and logistics footprint. The UBM initiative identifies vehicle improvements directly impacting Soldier survivability.

AEC consists of seven directorates (Aviation-Fires Evaluation Directorate, Ballistic Missile Defense (BMD) Evaluation Directorate (funded by the Missile Defense Agency (MDA)), Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Evaluation Directorate, Integrated Suitability & Methodology Directorate, Mounted Systems Evaluation Directorate, Soldier & Support System Evaluation Directorate and Survivability Evaluation Directorate) and a headquarters element. AEC receives staff services from the Army Test and Evaluation Command Headquarters (ATEC HQ). The primary competencies of these directorates is to: independently evaluate effectiveness, suitability, survivability; determine if Program Management (PM) and user directed requirements are met; direct the test strategy; and verify system safety.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	52.694	55.905	52.317	-	52.317
Current President's Budget	52.265	55.905	56.246	-	56.246
Total Adjustments	-0.429	0.000	3.929	-	3.929
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.429	-			
• Adjustments to Budget Years	0.000	0.000	3.603	-	3.603
• CivPay Adjustments	0.000	0.000	0.326	-	0.326

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
302: *Army Evaluation Center*	-	52.265	55.905	56.246	-	56.246	58.463	59.925	61.875	64.108	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides the resources to operate the Army Evaluation Center (AEC) which is responsible for all assigned developmental and independent operational evaluation of Army materiel, information and acquisition systems, an inherently government mission. This Project funds direct civilian labor and minimum non-labor requirements to include: Temporary Duty (TDY), personnel training, career development, supplies and equipment, hardware, software, and other external Other Government Agency (OGA) support for the RAM Center for Reliability Growth (CRG) and Underbody Blast Modeling and Simulation (UBM) initiatives. CRG improves reliability by providing policy, guidance, standards, methods, tools, and training resulting in increased materiel/operational availability, and initial operational testing success rates while decreasing support costs and logistics footprint. The UBM initiative identifies vehicle improvements directly impacting Soldier survivability.

AEC consists of seven directorates (Aviation-Fires Evaluation Directorate, Ballistic Missile Defense (BMD) Evaluation Directorate (funded by the Missile Defense Agency (MDA)), Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Evaluation Directorate, Integrated Suitability & Methodology Directorate, Mounted Systems Evaluation Directorate, Soldier & Support System Evaluation Directorate and Survivability Evaluation Directorate) and a headquarters element. AEC receives staff services from the Army Test and Evaluation Command Headquarters (ATEC HQ). The primary competencies of these directorates is to: independently evaluate effectiveness, suitability, survivability; determine if Program Management (PM) and user directed requirements are met; direct the test strategy; and verify system safety.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Army Evaluation Center (AEC)	52.265	55.905	56.246
Description: Provide 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. Develop the evaluation strategy, design technical and operational tests, and evaluate the test results to address the combat effectiveness, suitability, and survivability factors pertinent to the decision process, of hundreds of systems/programs across the Army, other services and agencies. Prepare integrated System Evaluation Plans and conduct integrated technical and operational evaluations for all assigned systems. In support of Overseas Contingency Operations (OCO) and other real-world events, AEC continues to provide Capability & Limitation Reports and safety verification documents.			
FY 2016 Accomplishments: Funded operational costs for AEC including civilian pay and non-labor costs (approximately 94% of AEC's total budget is civilian labor). Additionally, provided funding for the Underbody Blast Modeling and Simulation support that provides early identification of vehicle improvements that directly impact Soldier survivability; improves test design; provides additional evaluation data to support			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
acquisition. Also, provided funding for the Center for Reliability and Growth in response to policies mandating Reliability Growth programs and periodic assessments for major systems. ***FY 2017 Plans:*** Fund operational costs for AEC including civilian pay and non-labor costs (approximately 94% of AEC's total budget is civilian labor). Additionally, provide funding for the Underbody Blast Modeling and Simulation support that provides early identification of vehicle improvements that directly impact Soldier survivability; improves test design; provides additional evaluation data to support acquisition. Also, provides funding for the Center for Reliability and Growth in response to policies mandating Reliability Growth programs and periodic assessments for major systems. AEC is projected to support over 50 milestone decisions to include milestone A: Next Generation Chemical Detector (NGCD) Incr 4 (JPEO CBD); milestone B: Maneuver Support Vessel (L) (PEO CSCSS); milestone C: Bradley ECP 2 (PEO GCS), XM784/XM785 (PEO Ammo), JACM (PEO Missiles & Space); full rate production: WIN-T INC 3 (PEO C3T); and materiel release of 155mm-SCAM (PEO Ammo), Enhanced Night Vision Goggle (ENVG) (PEO Soldier) and AN/APR-39 (PEO IEW&S). AEC will continue to provide Capability & Limitation Reports and safety verification documents to support real-world operations. ***FY 2018 Plans:*** Fund operational costs for AEC including civilian pay and non-labor costs (approximately 94% of AEC's total budget is civilian labor). Additionally, provide funding for the Underbody Blast Modeling and Simulation support that provides early identification of vehicle improvements that directly impact Soldier survivability; improves test design; provides additional evaluation data to support acquisition. Also, provide funding for the Center for Reliability and Growth in response to policies mandating Reliability Growth programs and periodic assessments for major systems. AEC is projected to support over 100 acquisition milestone decisions and will continue to provide Capability & Limitation Reports and safety verification documents to support real-world operations.			
Accomplishments/Planned Programs Subtotals	52.265	55.905	56.246

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.901	7.959	1.829	-	1.829	3.336	2.556	2.604	2.699	-	-
S03: *Analysis M&S Tools and Services*	-	0.901	7.959	1.829	-	1.829	3.336	2.556	2.604	2.699	-	-

A. Mission Description and Budget Item Justification

Program Element (PE) 0605718A 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. PE 0605718A 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: FY 2018 Army					Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*			R-1 Program Element (Number/Name) PE 0605718A / *Army Modeling & Sim X-Cmd Collaboration & Integ*		
B. Program Change Summary ($ in Millions)	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	0.938	7.959	1.654	-	1.654
Current President's Budget	0.901	7.959	1.829	-	1.829
Total Adjustments	-0.037	0.000	0.175	-	0.175
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.037	-			
• Adjustments to Budget Years	0.000	0.000	0.175	-	0.175

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
S03: *Analysis M&S Tools and Services*	-	0.901	7.959	1.829	-	1.829	3.336	2.556	2.604	2.699	-	-
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 six M&S communities (Acquisition, Analysis, Experimentation, Intelligence, Test & Evaluation, Training) 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 2016	FY 2017	FY 2018
Title: Develop M&S standards, architectures, networks and environments	0.298	2.625	0.605
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 2016 Accomplishments: Fiscal Year (FY) 2016 funds are distributed among activities that promote the third priority of the Army M&S strategy: develop M&S standards, architectures, networks and environments. Specific FY16 accomplishments include a.) integration of current Army and Joint cyber capabilities into USCYBERCOM's primary test and training environment and b.) development (along with coalition partners United Kingdom and Australia) of a persistent M&S fires environment (e.g. artillery, air-/ground-delivered munitions). These efforts maximize reuse of M&S capabilities across the Army's six M&S communities.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Fiscal Year (FY) 2017 funds are distributed among activities that promote the third priority of the Army M&S Strategy: develop M&S standards, architectures, networks and environments. Specific FY17 plans include a.) establishment of a high fidelity scalable M&S network framework to facilitate cyber and network analyses and b.) development of an M&S cyber capability. The latter entails development of an environment that denies the Global Positioning System (GPS); development of a scalable, standards-based cyber emulation prototype that provides cyber effects in M&S environments; development of improved Army cyber effects for inter-service simulations for use in Army and Joint studies. These efforts maximize reuse across the six Army M&S-enabled communities. ***FY 2018 Plans:*** FY18 funds will be distributed among activities that promote the fourth priority of the Army M&S strategy: develop M&S tools and technology. The specific distribution will be based on requirements and priorities established prior the start of (and during) FY18.			
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 2016 Accomplishments:*** FY16 funds are distributed among activities that promote the fourth priority of the Army M&S strategy: develop M&S tools and technology. Specific FY16 accomplishments include a.) development of operational scenarios and validated network models that improve the Army's network modeling capability and b.) development of an M&S model that represents Chemical, Biological and Nuclear (CBRN) effects on personnel and material. These efforts maximize reuse of M&S capabilities across the Army's six M&S communities. ***FY 2017 Plans:*** FY17 funds are distributed among activities that promote the fourth priority of the Army M&S Strategy: develop M&S tools and technology. Specific FY17 plans include 1.) development of a network traffic model to emulate a wide range of Army communication-system platforms for network analysis, b.) development of an Intelligence, Surveillance and Reconnaissance (ISR) M&S platform dynamic tasking and re-tasking rule-set tool along with an M&S ISR authenticated database and c.) establishment of an unclassified Decisive Action Training Environment (DATE) force structure and performance database for the M&S Enterprise along with a common Mission Command (MC) to M&S linkage from a single data build. These efforts maximize reuse across the six Army M&S enabled communities. ***FY 2018 Plans:***	0.603	5.334	1.224

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
FY18 funds will be distributed among activities that promote the fourth priority of the Army M&S strategy: develop M&S tools and technology. The specific distribution will be based on requirements and priorities established prior the start of (and during) FY18.			
Accomplishments/Planned Programs Subtotals	0.901	7.959	1.829

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	61.060	51.822	55.060	-	55.060	62.044	63.866	64.302	65.070	-	-
EU9: *Army Science Board*	-	1.300	1.561	3.146	-	3.146	3.195	3.247	3.309	3.233	-	-
M02: *Med Cmd Spt (Non-AMHA)*	-	24.645	26.071	26.106	-	26.106	27.120	28.433	29.195	29.764	-	-
M15: *ARI Mgmt/ADM Act*	-	3.437	3.369	1.496	-	1.496	1.531	1.568	1.604	1.648	-	-
M16: *Standardization Groups*	-	3.429	2.832	3.416	-	3.416	3.676	3.720	3.653	3.595	-	-
M42: *ARDEC Cmd/Ctr Support*	-	4.882	3.022	4.095	-	4.095	7.503	7.648	7.680	7.841	-	-
M44: *CECOM Cmd/Ctr Spt*	-	3.287	1.640	2.427	-	2.427	4.691	4.710	4.702	5.065	-	-
M46: *AMCOM Cmd/Ctr Spt*	-	8.984	0.000	0.225	-	0.225	0.229	0.234	0.240	0.247	-	-
M47: *TACOM Cmd/Ctr Spt*	-	2.261	3.239	3.317	-	3.317	3.378	3.444	3.458	3.626	-	-
M55: *Edgewood Chemical Biological Center*	-	4.733	6.835	6.653	-	6.653	6.452	6.537	6.063	6.231	-	-
M58: *SECOM CMD/CTR Spt*	-	2.453	2.105	2.459	-	2.459	2.492	2.526	2.575	2.479	-	-
M76: *Armament Group Support*	-	1.649	1.148	1.720	-	1.720	1.777	1.799	1.823	1.341	-	-

Note

Project EU9 (Army Science Board) created in Fiscal Year (FY) 2016; FY15 and prior Army Science Board funding was included within Program Element 0605803A (Technical Information Activities) / Project 720 (Tech Info Func Actv).

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 Research, Development and Engineering Command (RDECOM) Research Development and Engineering Centers, not identifiable with specific research and development projects. Also supports the management and operation of multiple, globally-located RDECOM 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 Materiel Command (USAMRMC); 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: FY 2018 Army					Date: May 2017
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	60.319	51.822	54.081	-	54.081
Current President's Budget	61.060	51.822	55.060	-	55.060
Total Adjustments	0.741	0.000	0.979	-	0.979
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.699	-			
• SBIR/STTR Transfer	-1.258	-			
• Adjustments to Budget Years	1.300	0.000	0.738	-	0.738
• CivPay Adjustments	0.000	0.000	0.241	-	0.241

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
EU9: *Army Science Board*	-	1.300	1.561	3.146	-	3.146	3.195	3.247	3.309	3.233	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Army Science Board was resourced in Program Element (PE) 0605803A (Technical Information Activities) / Project 720 (Tech Info Func Actv) for Fiscal Year (FY) 2015 and prior.

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Army Science Board (ASB)	1.300	1.561	3.146

Description: The 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.

FY 2016 Accomplishments:

Army Science Board voted on five Studies during its summer plenary in July 2016 and briefed the results to the Secretary of the Army and Chief of Staff of the Army during its fall plenary in September 2016. The board also initiated administrative planning for future plenary sessions.

FY 2017 Plans:

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Conduct four to six studies on behalf of the Secretary of the Army; likely in areas of Basic Science and Disruptive Technology; Weapons Systems; Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); and Systems Engineering, Integrations, and Sustainment or other concerns related to the future of the force.			
FY 2018 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; Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); and Systems Engineering, Integrations, and Sustainment or other concerns related to the future of the force.			
Accomplishments/Planned Programs Subtotals	1.300	1.561	3.146

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M02: *Med Cmd Spt (Non-AMHA)*	-	24.645	26.071	26.106	-	26.106	27.120	28.433	29.195	29.764	-	-
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 Materiel Command (USAMRMC), 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 by the U.S. Army Medical Research Acquisition Activity (USAMRAA) in support of the USAMRMC Medical RDTE Program.

Additionally, this Project provides funding for the special immunization program (SIP). The SIP program provides FDA licensed vaccines and investigational new drug (IND) vaccines under informed consent to laboratory workers at the US Army Medical Research Institute of Infectious Diseases, and to other military, government, or contractor personnel who may be at risk of exposure to highly hazardous pathogenic microorganisms or toxins.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Civilian Authorized Salaries and other operational requirements	24.645	26.071	26.106
Description: Funding was provided to the U.S. Army Medical Research and Materiel Command (USAMRMC) 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 (SIP) that protects individuals engaged in infectious disease research if exposed to pathogens or toxins.			
FY 2016 Accomplishments: Funded authorized civilian salaries and associated expenses (supplies, equipment, travel, etc) USAMRMC and USAMRAA. Also, provided regulatory, clinical monitoring and data support for the Special Immunization Program (SIP). Provided non-licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will fund authorized civilian salaries and associated expenses (supplies, equipment, travel, etc) at USAMRMC and USAMRAA. Also, will provide regulatory, clinical monitoring and data support for the Special Immunization Program (SIP). Provide non-licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases. ***FY 2018 Plans:*** Will fund authorized civilian salaries and associated expenses (supplies, equipment, travel, etc) at USAMRMC and USAMRAA. Also, will provide regulatory, clinical monitoring and data support for the SIP. This program will provide non-licensed vaccines under FDA oversight to personnel at risk of exposure to selected infectious diseases.			
Accomplishments/Planned Programs Subtotals	24.645	26.071	26.106

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M15: *ARI Mgmt/ADM Act*	-	3.437	3.369	1.496	-	1.496	1.531	1.568	1.604	1.648	-	-
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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: ARI Management/Administrative Actions	3.437	3.369	1.496
Description: This effort 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 personnel/manpower execution and oversight. ***FY 2016 Accomplishments:*** Provided personnel for 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 Laboratory conducting the Army's personnel, training, leader development, and organizational performance R&D program. ***FY 2017 Plans:*** 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 Army Laboratory conducting the Army's personnel, training, leader development, and organizational performance R&D program. ***FY 2018 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 Army Laboratory conducting the Army's personnel, training, leader development, and organizational performance R&D program.			
Accomplishments/Planned Programs Subtotals	3.437	3.369	1.496

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M15 / *ARI Mgmt/ADM Act*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M16: *Standardization Groups*	-	3.429	2.832	3.416	-	3.416	3.676	3.720	3.653	3.595	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project M16 supports nine International Technology Centers (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 International Technology Centers 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 “Multinational Force Interoperability” and AR 70-41 “International Cooperative Research, Development and Acquisition (ICRDA)”. ITCs represent the U.S. Army in their geographic areas of responsibility (AOR) with foreign ministries of defense on ICRDA programs. ITCs also facilitate U.S. Army interaction in their AOR with foreign non-governmental entities, such as foreign private industry and academia.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: International Technology Centers Management	3.429	2.832	3.416
Description: Management / administrative support to International Technology Centers. ***FY 2016 Accomplishments:*** Provided management and administrative functions at a level consistent with mission requirements and support needs at the nine International Technology Centers. ***FY 2017 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and will support needs at the nine International Technology Centers. ***FY 2018 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and will support needs at the nine International Technology Centers.			
Accomplishments/Planned Programs Subtotals	3.429	2.832	3.416

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M16 / *Standardization Groups*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M42: *ARDEC Cmd/Ctr Support*	-	4.882	3.022	4.095	-	4.095	7.503	7.648	7.680	7.841	-	-
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 Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, NJ, not identifiable with specific research and development projects financed under other program elements.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Management Support	4.882	3.022	4.095
Description: ARDEC management / administrative efforts. ***FY 2016 Accomplishments:*** Provided management and administrative functions at a level consistent with mission requirements and support needs at ARDEC. ***FY 2017 Plans:*** Provide continued management and administrative functions at a level consistent with mission requirements and support needs at ARDEC. ***FY 2018 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at ARDEC.			
Accomplishments/Planned Programs Subtotals	4.882	3.022	4.095

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M42 / *ARDEC Cmd/Ctr Support*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M44: *CECOM Cmd/Ctr Spt*	-	3.287	1.640	2.427	-	2.427	4.691	4.710	4.702	5.065	-	-
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 Communications-Electronics Research, Development and Engineering Center (CERDEC), 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 CERDEC to accomplish its research, development and engineering mission, to include CERDEC Headquarters staff, resource management, human resources, safety, security, protocol, public affairs, information management, facility management and audit readiness.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Management Support	3.287	1.640	2.427
Description: CERDEC management and administrative efforts. ***FY 2016 Accomplishments:*** Provided management and administrative functions at a level consistent with mission requirements and support needs at CERDEC. ***FY 2017 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and support needs at CERDEC. ***FY 2018 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at CERDEC.			
Accomplishments/Planned Programs Subtotals	3.287	1.640	2.427

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M44 / *CECOM Cmd/Ctr Spt*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M46: *AMCOM Cmd/Ctr Spt*	-	8.984	0.000	0.225	-	0.225	0.229	0.234	0.240	0.247	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in Fiscal Year (FY) 2017, portions of Project M46 (Anti-Tamper effort) were realigned to Program Element (PE) 0602705A (Electronics and Electronic Devices) / Project H94 (Elec & Electronic Dev) and PE 0605024A (Anti-Tamper Technology Support) / Project FB1 (Anti-Tamper Technology Support).

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 Aviation and Missile Research, Development and Engineering Center (AMRDEC), Redstone Arsenal, AL, not identifiable with specific research and development projects financed under other program elements.

Minimally funds select, critical, overarching functions in support of AMRDEC accomplishing its research, development and engineering mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Management Support	8.984	-	0.225
Description: AMRDEC management and administrative efforts. ***FY 2016 Accomplishments:*** Provided management and administrative functions at a level consistent with mission requirements and support needs at AMRDEC ***FY 2018 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at AMRDEC			
Accomplishments/Planned Programs Subtotals	8.984	-	0.225

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M46 / *AMCOM Cmd/Ctr Spt*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
M47: *TACOM Cmd/Ctr Spt*	-	2.261	3.239	3.317	-	3.317	3.378	3.444	3.458	3.626	-	-
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 Tank and Automotive Research, Development and Engineering Center (TARDEC), Warren, MI, not identifiable with specific research and development projects financed under other program elements.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Management Support	2.261	3.239	3.317
Description: TARDEC management and administrative efforts. ***FY 2016 Accomplishments:*** Provided management and administrative functions at a level consistent with mission requirements and support needs at TARDEC. ***FY 2017 Plans:*** Provide management and administrative functions at a level consistent with mission requirements and support needs at TARDEC. ***FY 2018 Plans:*** Will provide management and administrative functions at a level consistent with mission requirements and support needs at TARDEC.			
Accomplishments/Planned Programs Subtotals	2.261	3.239	3.317

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M47 / *TACOM Cmd/Ctr Spt*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M55: *Edgewood Chemical Biological Center*	-	4.733	6.835	6.653	-	6.653	6.452	6.537	6.063	6.231	-	-
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 Edgewood Chemical Biological Center (ECBC), 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 ECBC to accomplish its mission to include the ECBC 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".

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Management Support	4.733	6.835	6.653
Description: ECBC management and administrative efforts. ***FY 2016 Accomplishments:*** Provided continued management and administrative functions at a level consistent with mission requirements and support needs at ECBC. ***FY 2017 Plans:*** Provide continued management and administrative functions at a level consistent with mission requirements and support needs at ECBC. ***FY 2018 Plans:*** Will provide continued management and administrative functions at a level consistent with mission requirements and support needs at ECBC.			
Accomplishments/Planned Programs Subtotals	4.733	6.835	6.653

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M58: *SECOM CMD/CTR Spt*	-	2.453	2.105	2.459	-	2.459	2.492	2.526	2.575	2.479	-	-
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 Natick Soldier Research, Development and Engineering Center (NSRDEC), Natick, MA, not identifiable with specific research and development projects financed under other program elements.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Management Support	2.453	2.105	2.459
Description: NSRDEC management and administrative functions. ***FY 2016 Accomplishments:*** Provided continued management and administrative functions at a level consistent with mission requirements and support needs at NSRDEC. ***FY 2017 Plans:*** Provide continued management and administrative functions at a level consistent with mission requirements and support needs at NSRDEC. ***FY 2018 Plans:*** Will provide continued management and administrative functions at a level consistent with mission requirements and support needs at NSRDEC.			
Accomplishments/Planned Programs Subtotals	2.453	2.105	2.459

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605801A / *Programwide Activities*	**Project (Number/Name)** M58 / *SECOM CMD/CTR Spt*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M76: *Armament Group Support*	-	1.649	1.148	1.720	-	1.720	1.777	1.799	1.823	1.341	-	-
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 (US) Army. This program 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 (US Army is Executive Agent for this NATO bill); 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 2016	FY 2017	FY 2018
Title: Army Scientific Support NATO Army Armaments Group (NAAG)	0.191	0.202	0.207
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 United States and its Allies. ***FY 2016 Accomplishments:*** Funds supported Army Subject Matter Experts' attendance at scientific and technological exchange, meetings, demonstrations, and/or simulations having military application and mutual benefits to the United States and its Allies. Fiscal Year (FY) 2016 funded 16 different working/capability groups that will meet twice a year at NATO Headquarters in Brussels. ***FY 2017 Plans:*** Funds will support NAAG Subject Matter Experts to attend scientific and technological exchange, meetings, demonstrations, and/or simulations having military application and mutual benefits to the United States and its Allies. FY17 funding will continue to fund different working/capability groups. ***FY 2018 Plans:*** Funds will support NAAG Army Subject Matter Experts' attendance at scientific and technological exchange, meetings, demonstrations, and/or simulations having military application and mutual benefits to the United States and its Allies. FY18 funding will continue to fund different working/capability groups.			
Title: Executive Agent	1.458	0.946	1.513

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Funded the United States' share of the Mandatory NATO Civil Budget, Chapter IX (Defense Support Programs). U.S. Army is Executive Agent for this Mandatory NATO bill. ***FY 2016 Accomplishments:*** Funds supported the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U.S. Army is Executive Agent for this NATO bill. ***FY 2017 Plans:*** Fund the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U. S. Army is Executive Agent for this NATO bill. ***FY 2018 Plans:*** Will fund the United States' share of the NATO Civil Budget, Chapter IX (Defense Support Programs). U. S. Army is Executive Agent for this NATO bill.			
Accomplishments/Planned Programs Subtotals	1.649	1.148	1.720

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	25.991	33.323	33.934	-	33.934	31.731	32.640	33.299	34.080	-	-
720: *Tech Info Func Actv*	-	4.442	6.289	5.866	-	5.866	5.352	5.459	5.567	5.731	-	-
727: *Tech Info Activities*	-	8.381	11.134	11.535	-	11.535	10.107	10.406	10.612	10.938	-	-
730: *Pers & Trng Analys Act*	-	1.706	2.025	2.232	-	2.232	2.270	2.315	2.361	2.427	-	-
731: *Army High Performance Computing Centers*	-	3.890	4.544	4.535	-	4.535	4.644	4.739	4.841	4.964	-	-
733: *Acquisition Tech Act*	-	1.624	3.640	3.760	-	3.760	3.395	3.565	3.636	3.569	-	-
C16: *FAST*	-	1.915	1.596	1.644	-	1.644	1.673	1.707	1.742	1.794	-	-
C18: *BAST*	-	1.399	0.997	1.061	-	1.061	1.067	1.088	1.109	1.142	-	-
DW3: *Army Geospatial Enterprise Implementation*	-	2.634	3.098	3.301	-	3.301	3.223	3.361	3.431	3.515	-	-

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 program includes initiatives to improve information derivation, storage, access, display, validation, transmission, distribution, and interpretation; to develop and enhance a single business model for Army S&T knowledge management information technology; to provide for Independent Review Team analysis of technology maturity as part of the Technology Area Readiness Assessment as required by Department of Defense Instruction (DoDI) 5000.2 dated May 12, 2003 as well as the Army Science Board (ASB) (Projects 720 and 727). This program addresses the need to increase the competitiveness and availability of scientific, engineering, and technical skills in the DoD and National workforce through outreach programs aimed at middle school through college students and teachers. By providing direct working experience for these students in Army laboratories, the programs expose these students to the working world of science and engineering (Project 729). The program includes funding for assessments in attitudes and opinions, longitudinal trends in Soldier and leader perceptions, and emerging issues to provide senior Army leaders with information on Soldiers' perceptions to inform personnel policy and program decision-making concerning manpower, personnel, and training issues (Project 730). The program includes funding for support for Army high performance computing centers (Project 731). The program includes funding for improvements to the Army's acquisition process (Project 733). This program supports combatant commanders and major Army commands by providing science advisors to address scientific and technical issues and by providing engineering teams to solve field Army technical problems (Project C16). Finally, this program funds studies by the Board on Army Science and Technology (BAST) (Project C18). Coordination of this program with the other Services is achieved through inter-service working groups.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605803A *I Technical Information Activities*

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

Work in this PE is performed by the Research, Development, and Engineering Command (RDECOM), Aberdeen Proving Ground, MD, the Army Research Institute for the Behavioral and Social Sciences (ARI), Ft. Belvoir, VA, the Army Corps of Engineers' Engineer Research and Development Center (ERDC), Vicksburg, MS, Medical Research and Materiel Command (MRMC), Ft. Detrick, MD, Space and Missile Defense Command (SMDC), Huntsville, AL, and the Information Management Office, Arlington, VA.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	28.478	33.323	32.701	-	32.701
Current President's Budget	25.991	33.323	33.934	-	33.934
Total Adjustments	-2.487	0.000	1.233	-	1.233
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.984	-			
• Adjustments to Budget Years	-1.503	0.000	1.192	-	1.192
• CivPay Adjustments	0.000	0.000	0.041	-	0.041

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) 720 / *Tech Info Func Actv*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
720: *Tech Info Func Actv*	-	4.442	6.289	5.866	-	5.866	5.352	5.459	5.567	5.731	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for technology transfer activities to support acquisition, storage, and utilization of technical information for both military and domestic applications. Effective exploitation of science and technology (S&T) information is critical to achieving the goals established by senior Army leadership. Activities include Army support for Federal Laboratory Consortium (FLC) as required by Public Law; the Army Science Board; the Army Science Conference; S&T database management efforts; and administration of the Army's Small Business Innovation Research (SBIR) and Small Business Technology Transfer Program (STTR) in accordance with the Small Business Innovation Development Act of 1982, the Small Business Research and Development Enhancement Act of 1992 and subsequent reauthorizing legislation. Technology transfer activities make technical information available to both the public and private sectors to reduce duplication in Research and Development programs and to increase competitiveness in the United States (US) business community. Database management efforts support development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test and Evaluation (RDTE) appropriation. In addition, this Project provides funding for patent legal expenses and fees for all US Army Research, Development, and Engineering Command (RDECOM) subordinate commands and laboratories, as required by the Omnibus Budget Reconciliation Act.

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

Work is performed by RDECOM, Aberdeen Proving Ground, MD and the US Army Research Laboratory (ARL), Adelphi, MD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Provide Army Funding Support for Federal Laboratory Consortium as Required by Public Law 104-113	0.250	0.256	0.260
Description: Public Law 104-113 requires the Army to provide funding for the federal laboratory consortium which is a network of federal agencies that provide a platform where technologies can be strengthened and promoted to return dividends to our economy.			
FY 2016 Accomplishments: Provided Army Funding Support for Federal Laboratory Consortium as Required by Public Law 104-113https://pandr.altess.army.mil/v7/#/items			
FY 2017 Plans: Will provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 720 / *Tech Info Func Actv*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will provide Army funding support for Federal Laboratory Consortium as required by Public Law 104-113.			
Title: Administrative Support for the Army's SBIR and STTR Programs	0.857	1.283	1.266

Description: Army SBIR and Army STTR programs. In 1982, Congress, through the Small Business Innovation Development Act (P.L. 97-219) established the SBIR program to foster the involvement of US based small businesses in federal research and development (R&D). The SBIR program is designed to increase the participation of small, high-technology firms in the federal R&D endeavor and give driven businesses the opportunity to provide innovative R&D solutions in response to critical Army needs. The STTR program expands the public/private sector partnership to include the joint venture opportunities for small business and the nation's premier nonprofit research institutions. The most important role of the STTR program is to foster the innovation necessary to meet the nation's scientific and technological challenges in the 21st century. The SBIR/STTR support services include program and technical advisory support services on a broad level. The Army SBIR/STTR Program Management Office mission requires synergized, integrated business solutions that concentrates on small business technological advances, and eliminates redundancy in a codified and consistent method that reduces confusion and ambiguity for the thousands of small businesses that participate in the SBIR and STTR programs.

FY 2016 Accomplishments:
Provided the Army SBIR/STTR Program Offices with the resources necessary to execute these Congressionally mandated Programs. The Army SBIR/STTR Program Offices procured program management and technical services required to support the programs. The support services included a broad range of program and technical assistance services such as programming; database support; drafting of letter reports, newsletters, briefings, presentation materials and correspondence; analyses; documentation for record keeping and reporting; and portal virtual machines development and support. The services assisted the Program Offices in planning, coordinating, implementing, and orchestrating SBIR/STTR functions to include current and new approaches, processes and procedures as required by United States Code, Title 15, Section 638, Fiscal Year 2012 National Defense Authorization Act, Public Laws 112-81, and in Public Laws 97-219, 99-443, 102-564 and 106-554.

FY 2017 Plans:
Will provide the Army SBIR/STTR Program Offices with the resources necessary to execute Congressionally mandated programs. The Army SBIR/STTR Program Offices procure program management and technical services required to support the programs. The support services include a broad range of program and technical assistance services such as programming; database support; drafting of letter reports, newsletters, briefings, presentation materials and correspondence; analyses; documentation for record keeping and reporting; and portal virtual machines (VM) development and support. The services assist the Program Offices in planning, coordinating, implementing, and orchestrating SBIR/STTR functions to include current and new approaches,

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 720 / *Tech Info Func Actv*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
processes and procedures as required by United States Code, Title 15, Section 638, Fiscal Year 2012 National Defense Authorization Act, Public Laws 112-81, and in Public Laws 97-219, 99-443, 102-564 and 106-554. ***FY 2018 Plans:*** Will provide the Army SBIR/STTR Program Offices with the resources necessary to execute Congressionally-mandated programs. The Army SBIR/STTR Program Offices procure program management and technical services required to support the programs. The support services include a broad range of program and technical assistance services such as programming; database support; drafting of letters, reports, newsletters, briefings, presentation materials and correspondence; analyses; documentation for record keeping and reporting; helpdesk; and web portal development and support. The services assist the Program Offices in planning, coordinating, implementing, and orchestrating SBIR/STTR functions to include current and new approaches, processes and procedures as required by United States Code, Title 15, Section 638, Fiscal Year 2012 National Defense Authorization Act, Public Laws 112-81, and in Public Laws 97-219, 99-443, 102-564 and 106-554.			
Title: Provide Funding for Patent Fees and Patent Legal Expenses for U.S. Army Materiel Command (AMC) Commands and Laboratories ***Description:*** The Army Research Laboratory turns high-value Army investments in science and technology into patented technologies in an effort to convert research into jobs and innovations for the Warfighter. The funded efforts are used for patent fees and legal expenses required for the patent application process. ***FY 2016 Accomplishments:*** Provided funding for patent fees and patent legal expenses for AMC commands and laboratories. ***FY 2017 Plans:*** Will provide funding for patent fees and patent legal expenses for AMC commands and laboratories. ***FY 2018 Plans:*** Will provide funding for patent fees and patent legal expenses for AMC commands and laboratories.	1.164	1.069	1.069
Title: Provide Funding for S&T Strategic Planning and Support ***Description:*** Science and technology strategic planning and support is a critical component to the overall Army mission as it reaffirms Army leadership guidance, reinforces commitment to basic research, and leverages a landscape of game-changing technologies that can provide future innovations and capabilities to the Warfighter. ***FY 2016 Accomplishments:*** Provided funding for S&T Strategic Planning and Support. ***FY 2017 Plans:***	1.186	0.326	0.332

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will provide funding for S&T Strategic Planning and Support. ***FY 2018 Plans:*** Will provide funding for S&T Strategic Planning and Support.			
Title: Administer S&T Database Computer Engineering Support Contract and Support RDECOM Databases S&T Management Support ***Description:*** The science and technology database computer engineering support contract provides management support of RDECOM's databases as well as supports the development of the Army Research Laboratory science and technology information activities to include campaign plans envisioned to lead to enhanced land power capabilities. ***FY 2016 Accomplishments:*** Administered S&T database computer engineering support contract and support RDECOM databases S&T management support. ***FY 2017 Plans:*** Will administer S&T database computer engineering support contract and support RDECOM databases S&T management support. ***FY 2018 Plans:*** Will administer S&T database computer engineering support contract and support RDECOM databases S&T management support.	0.985	3.355	2.939
Accomplishments/Planned Programs Subtotals	4.442	6.289	5.866

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
727: *Tech Info Activities*	-	8.381	11.134	11.535	-	11.535	10.107	10.406	10.612	10.938	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the development of decision aids, databases, and automation support for the management and execution of the Army Research, Development, Test, and Evaluation (RDTE) Appropriation. It includes the hardware, software, and contractor support required to develop and implement a set of management decision aids, databases, and hardware/software tools to support technical and budgetary decisions at the Office of the Secretary of Defense (OSD) and Department of the Army (DA). 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 Readiness Assessments as required by Department of Defense Instruction (DoDI) 5000.2.

The cited work is consistent with the Assistant Secreatary of Defense for Research and Engineering science and technology priority focus areas 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, The Pentagon, Washington, DC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Conduct and support S&T program portfolio assessments and analysis.	1.257	1.720	1.770
Description: Support 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, Ground Maneuver and Lethality Portfolio Directors, responding to scientific, technical and programmatic challenges. Support Independent Review Team analysis of technology maturity as part of Technology Readiness Assessments as required by DoDI 5000.2. Serve as Office of the Deputy Assistant Secretary of the Army, Research and Technology (DASA(R&T)) central point of contact for Systems Red Teaming and Technology Vulnerability Assessments.			
FY 2016 Accomplishments: Attended Army Red Teaming working groups that identified and select high-priority threats for investigation that will demonstrate technology vulnerabilities and identify mitigation. Supported the Systems Adaptive Red Teaming/Technical Support Operational Analysis Program Review ground vehicle/unmanned aerial vehicle technologies; positioning, navigation and timing (PNT) technologies, Command, Control, Communications, Computers and Intelligence (C3I). Provided information papers to senior			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
leaders, articles for publication in the Army Acquisition, Logistics, Technology (ALT) Magazine, and technical studies and assessments related to programs under S&T purview. ***FY 2017 Plans:*** Will conduct and support S&T program portfolio assessments and analysis. ***FY 2018 Plans:*** Track, manage and provide programmatic support for applied research and advanced technology development efforts in vulnerability assessments. Act as the S&T Subject Matter Experts (SMEs) provide Portfolio leads what is forecasted for science and technology 'outputs' to align with Programs of Record (PoR). ODASA (R&T) provide summary briefing in the SPAR, ensuring tight alignment and coupling to existing PoRs and identifying where misalignment between Portfolio technology projections/ timelines and/or emerging technology options are not yet reflected at the PoR level. Identify technology for effective and affordable capabilities in the S&T portfolios; Basic Research, Innovation Enablers, Medical, Soldier/Squad, Command, Communications and Command, Control, Communications, Computers and Intelligence (C3I), Air, Lethality and Ground Maneuver.			
Title: Support Army S&T strategic planning, analysis, and prioritization. ***Description:*** Coordinate 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 DMIs. Provide technical support and database administration of the Army Science and Technology Management Information System (ASTMIS) database. 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 2016 Accomplishments:*** Supported the plan and execution for Army Science and Technology Advisory Group (ASTAG), Working Group (ASTWG) and Warfighter Technical Council (WTC) Meetings. Provided senior-level technical and analytical support to the office of the ODASA(R&T), and the Systems Special Programs Directorate (SAAL-SSP) in support of the Army's S&T Special Access Programs (SAPs). Acted as the S&T Liaison for the Technology Information Exchange and Technology Update Focus Forum with Training and Doctrine Command (TRADOC) Army. Developed feedback for the Army Capability Enablers (ACEs) and Science and Technology Objectives (STOs). Provided industry conference participation support (Association of the United States Army (AUSA), National Defense Industry Association (NDIA)) and supported international S&T programs. ***FY 2017 Plans:***	4.630	6.432	6.689

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will support Army S&T strategic planning, analysis, and prioritization. ***FY 2018 Plans:*** Develop strategic analyses to look across the S&T portfolios and provide recommendations to the Director of Integration for S&T efficiencies and collaborative opportunities. Support ODASA(R&T) lead for future force. Continue to coordinate efforts with and across the Army S&T portfolios. Support the Program Decision Memorandum (PDM) process, tasks and guidance for EE Program Evaluation Group (PEG). Develop prioritized decrement lists and recommend alternatives for a balanced portfolio. Support the plan and execution for the ASTAG, the ASTWG and the WTC.			
Title: Provide funding and support for Army Acquisition Program Technology Readiness Assessments for Program Milestone Decisions. ***Description:*** Coordination and alignment with Programs of Record (PoR). Demonstrate technical feasibility at system and subsystem level. As path for technology spirals to acquisition, ensure a rapid insertion of new technology. ***FY 2016 Accomplishments:*** Conducted Science and Technology Objective (STO) Review of Portfolio resulting informed the in the proper priorities for future science and technology efforts. Prepared tasking to Commands for fall rollup of Transition Characteristics Index (TCI). Coordinated Technology Readiness Assessment (TRA) for CH-47. TRA establishes the Technology Readiness Level (TRL) for programs of record entering Milestone (MS) B. Helped prepare for International Technology Transfer (T2) and for technical and management support for all Army T2 functions. ***FY 2017 Plans:*** Will provide funding and support for Army Acquisition Program Technology Readiness Assessments for Program Milestone Decisions. ***FY 2018 Plans:*** Support the S&T investment strategy for the entire Army. Provide options for the future across to sustain overmatch against adversaries and create opportunities to meet new challenges and fight in new ways. Continue Independent Review Team (IPT) analysis of technology maturity as part of Technology Readiness Assessments as required by DoDI 5000.2. Act as the central point of contact for Systems Red Teaming and Technology Vulnerability Assessments.	1.668	1.912	1.967
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:*** Support for Army engagement in Department of Defense (DoD)/Assistant Secretary of Defense (Research & Engineering) (ASD(R&E)) and cross agency Science Technology Engineering and Mathematics (STEM) and diversity initiatives, including support for historically black colleges and universities/ minority-serving institutions (HBCU/MSI) actions. provide subject	0.826	1.070	1.109

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
matter expert support for educational and diversity outreach activities, to include targeted research, analysis, and studies in support of strategic planning, prioritizing, investment strategy and review criteria for the Army Educational Outreach Program (AEOP). ***FY 2016 Accomplishments:*** Supported for Army engagement in DoD/Assistant Secretary of Defense (Research & Engineering) (ASD(R&E)) and cross agency Science Technology Engineering and Mathematics (STEM) and other diversity initiatives. Fulfilled DoD 5000 policy and Weapon System Acquisition Reform Act requirements. Assisted with the Manufacturing Technology (ManTech) Program and Defense Manufacturing Institutes (DMI). ***FY 2017 Plans:*** Will provide Army support to Assistant Secretary of Defense for Research and Engineering Executive Staff for DoD-wide Science and Technology oversight. ***FY 2018 Plans:*** Participate in Defense Advanced Research Projects Agency (DARPA) engagements and awareness of DARPA Programs with links to Army S&T, and support Army S&T Engagements with DARPA Program Managers and Leadership. Support execution of ongoing programs, events and functional responsibilities, effectively communicating with all Army stakeholders and partners including other services, OSD, industry and academia.			
Accomplishments/Planned Programs Subtotals	8.381	11.134	11.535

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) 730 / *Pers & Trng Analys Act*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
730: *Pers & Trng Analys Act*	-	1.706	2.025	2.232	-	2.232	2.270	2.315	2.361	2.427	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the Army's behavioral and social science research in attitudes and opinions assessment, longitudinal trends in Soldier and leader perceptions, and emerging issues. The research provides a unique capability to address a number of issues that directly or indirectly affect Soldier and unit performance and readiness, such as identifying the impact of personnel policies on Soldier outcomes and identifying emerging and potential personnel challenges. Requirements for this research is solicited on a recurring basis from the Secretary of the Army (SA), Chief of Staff of the Army (CSA), Army Deputy Chief of Staff (DCS G-1), and the Assistant Secretary of the Army for Manpower and Reserve Affairs (ASA(M&RA)).

Work in this project is managed by the United States Army Research Institute for the Behavioral and Social Sciences (ARI), Ft. Belvoir, VA.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: PERS & TRNG ANALYS ACT	1.706	2.025	2.232
Description: This effort conducts attitude and opinion research to identify longitudinal trends and emerging issues to inform senior Army leader decision making and shape ARI's long-range science and technology program. ***FY 2016 Accomplishments:*** Research conducted based on critical issues identified by the SA, CSA, DCS G-1, and ASA(M&RA). ***FY 2017 Plans:*** Will conduct reserach based on critical issues identified by SA, CSA, DCS G-1, and ASA(M&RA). ***FY 2018 Plans:*** Will conduct reserach based on critical issues identified by SA, CSA, DCS G-1, and ASA(M&RA).			
Accomplishments/Planned Programs Subtotals	1.706	2.025	2.232

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** 730 / *Pers & Trng Analys Act*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
731: *Army High Performance Computing Centers*	-	3.890	4.544	4.535	-	4.535	4.644	4.739	4.841	4.964	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides funding for the high performance computing (HPC) research environment, research, education, outreach, and sustainment infrastructure sustainment, and outreach support associated with the Army High Performance Computing Centers at the United States (US) Army Research Laboratory (ARL) and the US Army Tank and Automotive Research, Development, and Engineering Center (TARDEC). 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 research, development, and engineering centers to explore new HPC computing environments, algorithms in the computational sciences to address critical technology issues in computational research areas.

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Sustain the High Performance Computing Environment and Infrastructure in Support of the US Army Research Laboratory (ARL)	3.484	4.264	4.535
Description: The HPC center provides levels of computational capacity to Army's tactical operational realms and provide 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 2016 Accomplishments: Sustained HPC environment and infrastructure for armor/anti-armor, low observable technologies, large Army network data analytics for Army test and evaluation; validate and maintain software for emerging central processing unit graphics processing unit (CPU-GPU) based heterogeneous computing architectures; maintained software and hardware for ARL-specific applications, develop software engineering methods for maintaining scalable software tools for Army user; developed and provided software defined networking for HPC networking, classified Special Access Program (SAP) scientific visualization, and			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
software maintenance for Army-specific SAP and related HPC projects; and research computer systems to support fundamental and applied HPC research for the Army. This effort supported (a) sustainment of SAP systems, software, visualization, (b) infrastructure support to emerging/future HPC systems (for example tactical cloudlet, heterogeneous computers), and (c) infrastructure for emerging networking (software defined networking). ***FY 2017 Plans:*** Sustain computing infrastructure for ARL-specific special access facilities and Open Campus HPC systems; support advanced computing research architectures; maintain scalable software repository for the software developed under various Army funded research programs (e.g., Army High Performance Computing Research Center program, Army Research Office funded programs, University Affiliated Research Centers, Collaborative Technology and Research Alliances – specifically armor/anti-armor, low observable technologies, data intensive sciences software); support training and outreach activities (to facilitate training workforce in using new HPC technologies and parallel software); and support innovative hardware and software for next generation HPC networking, memory, and hierarchical storage pertaining to Supercomputers. ***FY 2018 Plans:*** Will sustain HPC environment and infrastructure for advanced heterogeneous computing architecture including data sciences computing architectures, special access systems infrastructure, programmable HPC Networking infrastructure, and ARL computational sciences Open Campus systems. Sustain software so that the software can take advantage of advanced computing architectures, HPC networking, and visualization that are mission critical for Army S&E and T&E applications.			
Title: Sustain the High Performance Computing Environment and Infrastructure in Support of the US Army Tank and Automotive Research Development and Engineering Center ***Description:*** The HPC center provides levels of computational capacity to Army's tactical operational realms and provide innovative HPC capabilities to increase the effectiveness of Army Soldiers around the world. Tactical HPC will be possible only through a combined effort of advanced computing architectures research, mathematical models and techniques to network and manage deployed friendly computing devices. ***FY 2016 Accomplishments:*** Sustained at reduced levels the HPC environment and infrastructure, classified and unclassified, at the US Army Research, Development, and Engineering Command (RDECOM) Tank and Automotive Research, Development, and Engineering Center (TARDEC) in support of the execution of physics-based analyses performed on Army ground vehicles and platforms. ***FY 2017 Plans:***	0.406	0.280	-

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Transition from the HPC environment and infrastructure to utilizing the Department of Defense (DoD) Supercomputer Resource Center (DSRC) in support of the execution of physics-based analyses performed on Army ground vehicles and platforms.			
Accomplishments/Planned Programs Subtotals	3.890	4.544	4.535

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
733: *Acquisition Tech Act*	-	1.624	3.640	3.760	-	3.760	3.395	3.565	3.636	3.569	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds improvements to the Army's acquisition process by applying decision support and expert information systems, and by supporting analysis and evaluation of alternative acquisition strategies using techniques such as value-added analysis and analysis-of-alternatives. This Project provides the environment for the analysis and evaluation of new information technologies, concepts, and applications for integrated management activities and support dynamic Army acquisition technology requirements. This program supports analysis efforts to conduct critical analyses for Army leadership in support of Army Transformation. These analyses are used by leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldiers.

The cited work is consistent with the Assistant Secreatary of Defense for Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy.

Work in this project is performed by the Army Acquisition Support Center, Ft. Belvoir, VA.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: ACQUISITION TECH ACT	1.624	3.640	3.760
Description: Distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language services to Army Acquisition Corps corporate and global databases. Analyze acquisition program financial programming and budgeting requirements. Continue development of Weapon Systems Handbook, long-range planning and policy analysis, resource allocation analysis, cost tracking, and analysis.			
FY 2016 Accomplishments: Distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language services to Army Acquisition Corps corporate and global databases. Analyze acquisition program financial programming and budgeting requirements. Continue development of long-range planning and policy analysis, resource allocation analysis, cost tracking, and analysis.			
FY 2017 Plans: Will distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language services to Army Acquisition Corps corporate and global databases; will analyze acquisition program			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
financial programming and budgeting requirements; will continue development of long-range planning and policy analysis, resource allocation analysis, cost tracking, and analysis. ***FY 2018 Plans:*** Will distribute and beta test application programs and user interface utilities for executive level information systems that offer Standard Query Language services to Army Acquisition Corps corporate and global databases; will analyze acquisition program financial programming and budgeting requirements; will continue development of long-range planning and policy analysis, resource allocation analysis, cost tracking, and analysis.			
Accomplishments/Planned Programs Subtotals	1.624	3.640	3.760

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) C16 / *FAST*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
C16: *FAST*	-	1.915	1.596	1.644	-	1.644	1.673	1.707	1.742	1.794	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides support for the Field Assistance in Science and Technology (FAST) program. The FAST program provides Science Advisors, recruited from Army Materiel Command (AMC) headquarters and all AMC Major Subordinate Commands (MSC) to serve combatant commands and major commands worldwide. FAST tours of duty provide significant professional growth opportunities for the Army's scientists and engineers and enable them to focus AMC resources on rapidly identifying and solving field technical problems that enable the improvement of readiness, safety, training, and reduce operations and support (O&S) costs. The FAST activity is supported by Quick Reaction Coordinators within the engineering centers. The FAST program recoups many times its cost in O&S savings. FAST also provides emerging technology demonstration opportunities to the engineering centers an Annual Program Review to facilitate sharing of lessons learned between science advisors at combatant commands, assists Combatant Commanders (COCOMS) with their annual Science and Technology Conferences. FAST also maintains close coordination with the Navy Science Advisor Program (Naval Fleet Forces Technology Integration Office).FAST supports warfighters in contingency operations with embedded Science and Technology Assistance Teams (STATs) as well as Science and Technology Acquisition Corps Advisors (STACAs).

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

Work in this project is performed by AMC, Redstone Arsenal, AL Research, Development and Engineering Command (RDECOM), Aberdeen Proving Ground, MD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Respond to combatant commanders worldwide with technological solutions.	1.915	1.596	1.644
Description: Funding is provided for the following effort.			
FY 2016 Accomplishments: Respond to combatant commanders worldwide with technological solutions to urgent materiel problems they identify; deploy science advisors with United States (US) Task Forces in support of combatant commanders; execute annual Program Review. Provide additional support needed to participate in combatant commander exercises; respond to corresponding Warfighter Requests for Information (RFI's) project support to offset capability gaps identified by the Warfighter.			
FY 2017 Plans: Will respond to combatant commanders worldwide with technological solutions to urgent materiel problems they identify; will deploy science advisors with US Task Forces in support of combatant commanders; will execute annual Program Review. Will			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** C16 / *FAST*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
provide additional support needed to participate in combatant commander exercises; will respond to corresponding Warfighter RFI's will provide project support to offset capability gaps identified by the Warfighter. ***FY 2018 Plans:*** Will respond to combatant commanders worldwide with technological solutions to urgent materiel problems they identify; will deploy science advisors with US Task Forces in support of combatant commanders; will execute annual Program Review. Will provide additional support needed to participate in combatant commander exercises; will respond to corresponding Warfighter RFI's will provide project support to offset capability gaps identified by the Warfighter.			
Accomplishments/Planned Programs Subtotals	1.915	1.596	1.644

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605803A / *Technical Information Activities*	Project (Number/Name) C18 / *BAST*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
C18: *BAST*	-	1.399	0.997	1.061	-	1.061	1.067	1.088	1.109	1.142	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds the Board on Army Science and Technology (BAST). The BAST functions under the auspices of the National Research Council (NRC) an organization within the National Academies of Sciences and provides an external, independent, and objective source of advice to the Army. The BAST serves as a convening authority for the discussion of science and technology issues of importance to the Army and oversees independent Army-related studies conducted by the National Academies. Working in close coordination with the Army, the BAST helps define problems, brings together experts to study these problems, and provides recommendations. Committees are assembled in accordance with established NRC procedures and BAST studies often take 12 months or more to conclude.

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

Work in this project is executed extramurally by the United States (US) Army Research Laboratory, Army Research Office (ARO), Research Triangle Park, NC.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Provide Studies and Conduct Periodic Meetings to Help Identify, Assess, and Recommend Emerging Opportunities in Science and Technology (S&T) Fields Applicable to the United States (U.S.) Army.	1.399	0.997	1.061
Description: To acquire a greater understanding of emerging technology opportunities that support a plethora of Army-relevant capability gaps, technologies are continuously assessed both nationally and internationally. In addition, periodic meetings are conducted to discuss and recommend strategic research areas critical to advancing the Warfighter's capabilities.			
FY 2016 Accomplishments: Studied emerging topics based on Army S&T strategy and senior leader initiatives.			
FY 2017 Plans: Will study emerging topics based on Army S&T strategy and senior leader initiatives. Planning to initiate a new National Academies study.			
FY 2018 Plans: Will study emerging topics based on Army S&T strategy and senior leader initiatives. Planning to initiate a new National Academies study.			
Accomplishments/Planned Programs Subtotals	1.399	0.997	1.061

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605803A / *Technical Information Activities*	**Project (Number/Name)** C18 / *BAST*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
DW3: *Army Geospatial Enterprise Implementation*	-	2.634	3.098	3.301	-	3.301	3.223	3.361	3.431	3.515	-	-
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; 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; Sustains core mission of operations. Provides 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) and the warfighter.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Geospatial Acquisition Support Office	2.634	3.098	3.301

Description: This effort supports the systems engineering, architecture, and test and certification of Army Acquisition Systems to support Program Executive Office (PEO)/Program Manager (PM) Computing Environment geospatial requirements to ensure that system's acquisition processes address geospatial concepts, technology and standards early in their development processes and provide an interoperable geospatial baseline system of systems in theater, which is a near-term requirement that cannot be deferred.

FY 2016 Accomplishments:

Develop geospatial end state for the AGE implementation within the COE version 3.0; Update geospatial data model ensuring integration between United States (US) Marine Corp and Army and alignment with updated NSG standards; Define National to tactical geospatial architecture for MC, Develop AGE certification processes (aligned with current and planned Army and NGA certification processes) to ensure MC systems align with AGE standards and architectures and therefore can exchange geospatial data. Develop profile for geopackage within the COE to ensure standard implementation within Mission Command. Will identify implementation recommendations (standards profiles, architectures and data model improvements) for AGE for COE version 3.0. Will continue improving geospatial data exchange with users in a disconnected, intermittent, and limited network environment environment.

FY 2017 Plans:

Will extend the AGE implementation within the Command Post Computing Environment (CP CE), Mounted and Mobile Hand-Held CE's; will develop alternatives for providing Standard, Sharable Geospatial Foundation ((SSGF) a Mission Command

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Essential Capability) to Mission Command Systems in a disconnected, Intermittent or Limited (DIL) environment; Will develop and recommend standards to distribute SSGF from National to Tactical; will develop "to be" AGE roadmap for Mission Command ensuring interoperability between Mission Command systems, the NSG, and our Joint, Inter-Agency, Inter-Governmental and Multi-National (JIIM) partners; will provide geospatial domain expertise for Cross-Cutting Capabilities for the Common Operating Environment. ***FY 2018 Plans:*** Will extend the AGE implementation within the Command Post Computing Environment (CP CE), Mounted and Mobile Hand-Held CE's; will develop alternatives for providing Standard, Sharable Geospatial Foundation ((SSGF) a Mission Command Essential Capability) to Mission Command Systems in a disconnected, Intermittent or Limited (DIL) environment; Will develop and recommend standards to distribute SSGF from National to Tactical; will develop "to be" AGE roadmap for Mission Command ensuring interoperability between Mission Command systems, the NSG, and our Joint, Inter-Agency, Inter-Governmental and Multi-National (JIIM) partners; will provide geospatial domain expertise for Cross-Cutting Capabilities for the Common Operating Environment.			
Accomplishments/Planned Programs Subtotals	2.634	3.098	3.301

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	48.335	40.545	43.444	-	43.444	41.589	44.739	41.671	47.614	-	-
297: *Mun Survivability & Log*	-	8.451	15.149	16.650	-	16.650	16.472	16.496	16.598	16.114	-	-
857: *DoD Explosives Safety Standards*	-	1.754	1.607	1.968	-	1.968	1.862	1.880	1.914	1.953	-	-
858: *Army Explosives Safety Management Program*	-	0.150	0.633	1.085	-	1.085	0.000	0.000	0.000	0.000	-	-
859: *Life Cycle Pilot Process*	-	21.899	4.863	5.568	-	5.568	5.647	5.724	5.855	5.840	-	-
F21: *NATO Ammo Evaluation*	-	0.000	0.650	0.589	-	0.589	0.772	0.767	0.782	6.607	-	-
F24: *Conventional Munitions Demil*	-	16.081	17.643	17.584	-	17.584	16.836	19.872	16.522	17.100	-	-

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 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.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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*

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: The North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding assures interchangeability of direct fire ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. The 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, 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 (U.S.) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/compatibility under the auspices of the international Joint Ballistics Memorandum Of Understanding (JBMOU). Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of U.S. indirect fire Weapon and Munition products to maintain critical mass domestic production and affordable taxpayer costs through increased economies of scale. Fiscal Year (FY) 2018 funding supports NATO small arms ammunition interchangeability group meetings, documentation, and test operations. FY 2018 funding also supports JBMOU ballistic testing including firing tables, safety, reliability, and performance.

F24 - Conventional Munitions Demilitarization (Demil): 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 (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 demil 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 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.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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*

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	64.604	40.545	40.204	-	40.204
Current President's Budget	48.335	40.545	43.444	-	43.444
Total Adjustments	-16.269	0.000	3.240	-	3.240
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-15.000	-			
• SBIR/STTR Transfer	-1.292	-			
• Adjustments to Budget Years	0.023	0.000	3.240	-	3.240

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2016	FY 2017
Project: 859: *Life Cycle Pilot Process*		
Congressional Add: *Fiscal Year (FY) 2016 Congressional Add*	17.000	-
Congressional Add Subtotals for Project: 859	17.000	-
Congressional Add Totals for all Projects	17.000	-

Change Summary Explanation

Fiscal Year 2016 Congressional Add of $15,000,000 for Hybrid Projectile Technology into Project 862 (Indirect Fire and Fuze Technology) reprogrammed into Program Element 0603004A (Weapons and Munitions Advanced Technology) / Project 43A (Adv Weaponry Tech Demo).

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
297: *Mun Survivability & Log*	-	8.451	15.149	16.650	-	16.650	16.472	16.496	16.598	16.114	-	-
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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Munitions Predictive Life	1.099	1.916	1.718

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.

FY 2016 Accomplishments:

Completed validation of temperature exposure algorithmic models of munitions for evaluation in a surrogate Munitions History Program software tool. Developed reliability and risk evaluation algorithms and conducted validation testing for 5.56mm and 7.62mm caliber ammunition families. Integrated chemical based propellant reliability sensor into ammunition packaging and conducted demonstration. Conducted engineering and long term propellant validation testing for a resistance based reliability sensor. Completed prototype design of next generation ammunition container based temperature/humidity exposure reliability sensor.

FY 2017 Plans:

Complete integration of temperature exposure algorithmic models of munitions into the surrogate Munitions History Program. Develop ammunition database analysis based reliability and risk evaluation algorithms and conduct validation testing for grenade ammunition families. Conduct a trade-off analysis between brilliant green and resistance based propellant sensors to identify specific use cases for each. Conduct long term operational evaluation of next generation ammunition container based

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
temperature/humidity exposure reliability sensor. Conduct market survey of passive Radio Frequency Identification and low cost active environmental sensors for munitions, select viable candidates, and test. Conduct correlation testing on the passive time/ temperature exposure sensor with legacy ammunition items and integrate. ***FY 2018 Plans:*** Conduct qualification safety testing of a next generation ammunition container based temperature/humidity exposure reliability sensor and complete data integration into Munitions History Program (MHP) and Stockpile reliability program Quality Assurance Specialist Ammunition Surveillance User Inspection Device (SQUID). Conduct prototype engineering testing of a Multi Frequency Sensor Suite (MFSS) that will monitor munitions exposure to ambient radiation over their lifecycle for improved reliability knowledge. Conduct correlation testing on the passive time/temperature exposure sensor with legacy ammunition items and integrate. Conduct market survey of passive Radio Frequency Identification and low cost active environmental sensors for legacy munitions, select viable candidates, and test. Integrate passive propellant temperature sensor with fire control systems and processes.			
Title: Insensitive Munitions (IM) Integration Program ***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 2016 Accomplishments:*** Finalized pallet barrier design and performed rough handling for the IM enhanced 105mm M1. Transitioned all 105mm IM Technologies to the Project Manager Combat Ammunition Systems (PM-CAS) to include pallet barriers, vented cylindrical containers and cartridge case spacer to produce an IM compliant 105mm M1 round. Finalized propellant lab scale methodologies and testing hardware. Transitioned processing methodologies and IM propellants to medium and large caliber ammo programs. Matured methodologies to produce affordable eutectic components for munition or container venting in fires. Matured a reduced shock sensitivity high explosive material, MDNT (Methyl Dinitro Triazole), for small critical diameter munitions such as the M-67 grenade. Scaled-up in-house operations to produce 20lbs of non-energetic DAMT (Diamino Methyl Triazole), a precursor material for making MDNT. Demonstrated the performance of MDNT in small diameter munitions. Demonstrated the reduced shock response of propellants manufactured with high shear mixing. Transitioned a reduced-sensitivity flexible explosive to Project	4.101	5.666	6.288

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Manager Close Combat Systems (PM-CCS) for demolition munitions. Developed sub-scale Slow Cook Off (SCO) test for the evaluation of propellants. ***FY 2017 Plans:*** Conduct integration testing of all 30mm M788/M789 IM technologies and transition to the PM. Select candidate materials for thermal mitigation and conduct 40mm M430A1 integration testing and transition to Project Manager Maneuver Ammunition Systems (PM-MAS). Continue development of IM propellants for medium and large caliber munitions. Finalize in-house evaluation tools for sub-scale Slow Cook Off (SCO) and Fast Cook Off (FCO) for propellants. Develop venting technologies and propellants for base bleed projectiles. Continue development of high energy aluminized energetics for use in multipurpose warheads. Leverage technologies from the M430A1 grenade to develop liner release and warhead venting solutions to mitigate cook off. ***FY 2018 Plans:*** Conduct final integration testing of all 30mm M788/M789 IM technologies and transition to Project Manager Maneuver Ammunition Systems (PM-MAS). Validate reduced-sensitivity and high performance explosives in small and medium caliber munitions systems. Optimize the use of nano-energetic materials as reduced-sensitivity but high-output main fill explosives or boosters in small and medium caliber munition systems. Validate the use of high-energy output and reduced-sensitivity 3,4-dinitropyrazole (DNP) explosive in hand grenades and optimize booster configuration to accommodate enhanced fuze. Optimize the use of new packaging and dunnage materials that actively attract or pull heat away from vulnerable munition components in case of fire.			
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 producibility. ***FY 2016 Accomplishments:*** Conducted sequential rough handling testing of redesigned advanced lightweight cylindrical ammunition container packaging. Completed prototype design of a plastic polymer container for 5.56mm ammunition containers to reduce packaging weight and production costs. Designed and performed engineering and environmental testing of plastic sealed ammunition pouch for 5.56mm clipped ammunition. Coordinated the review and approval of updates to military and commercial standards and specifications for alternative Environmental Protection Agency registered preservatives for wood ammunition packaging materials. Implemented ammunition packaging test requirement changes that eliminate redundancies while continuing to research the feasibility of changing more technically complex physical characteristic requirements. Performed a phase II study of Eco-Friendly packaging solutions that included a characterization study as well as performance testing on candidate products that may be incorporated into ammunition end item container component designs. Completed prototype design and conducted engineering testing on	1.711	2.947	3.575

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
an enhanced fiber tube innerpack that improves protection and handling for 120mm mortar munitions. Performed unit load and transportation testing of enhanced ammunition pallet retention system that is lighter and provides easier access, completed design drawings and transitioned. ***FY 2017 Plans:*** Complete prototype verification testing (Unit Load, Insensitive Munitions, Electromagnetic Environmental Effects) for HDPE cylindrical containers. Optimize design and perform verification testing of plastic polymer rectangular container for legacy 5.56mm ammunition. Optimize design for plastic sealed ammunition pouches and perform validation testing with 5.56mm ammunition items. Fabricate packaging components using selected eco-friendly materials and conduct performance testing. Complete design modifications for an enhanced fiber tube innerpack for 120mm mortar munitions and conduct verification testing. Complete modeling and simulation of a small caliber ammunition bulk packaging container for improved distribution and retrograde efficiency. ***FY 2018 Plans:*** Develop prototypes and conduct sequential rough handling and environmental testing for the injection molded cylindrical container that integrates it for use with the M829A4 120mm tank and 120mm mortar munitions. Develop prototypes and conduct sequential rough handling and environmental testing for the plastic rectangular container to integrate it for use with legacy 5.56 small caliber ammunition. Develop several concepts geared to “lighten the load” and down select concepts thru modeling and simulation and analysis. Complete qualification testing of plastic sealed ammunition pouches for use with 5.56mm ammunition. Perform final hazard classification testing on M6 and M7 blasting cap container design with Mycofoam. Fully implement Mycofoam as replacement dunnage design option for M6 and M7 blasting cap packaging design as part of the eco-friendly program. Conduct engineering and prototype testing of a small caliber ammunition bulk packaging container for improved distribution efficiency.			
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). ***FY 2016 Accomplishments:*** Completed rope cutter design, integrated into centrifugal clutch mechanism, and conducted engineering testing of the helicopter delivered emergency resupply speedbag that will expand its use for heavier payloads, higher drop heights, and variable impact velocities. Conducted fragment impact testing on containerized small caliber ammunition to determine the feasibility of using these	1.540	4.620	5.069

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
containers as an outer barrier to make tactical ammunition delivery loads more survivable. Developed design and conducted modeling and simulation of a unitization solution for tactical partial pallet ammunition loads to improve handling and transportation efficiency. Completed market survey and preliminary evaluation of technologies for manufacturing ammunition inner packing material at the field level. Completed user needs evaluation for an Ammunition Quality Decision Tool (AQDT) that will improve stockpile management and reliability. Assessed interface concepts and off the shelf solutions that provide similar capabilities to the Joint Modular Intermodal Container (JMIC) at lower cost. Conducted system analysis of the existing Configured Load Building Tool (CLBT) prototype that permits the rapid design of optimum load configurations for any transportation conveyance in accordance with applicable transportation regulations and doctrine.			
FY 2017 Plans: Complete design of a partial/mixed pallet tactical ammunition load unitization solution and fabricate prototypes. Complete evaluation of technologies for manufacturing ammunition inner packing material at the field level and develop recommendations. Continue integration of automated Material Handling Equipment (MHE) into Automated Supply Point-Scalable (ASP-S) and conduct Phase 1 demonstration. Build a graphical user interface for ammunition risk & reliability and thermal pallet algorithms, incorporate into the Ammunition Quality Decision Tool and evaluate tool effectiveness. Complete Joint Modular Intermodal Container (JMIC) Cost Benefit Analysis and alternative prototype design. Complete design of an applique interface kit for manually operated MHE that links the MHE to the ASP-S planning and control system for seamless operations during the transition period from fully manual operations to fully autonomous operations. Evaluate requirements and modify design as needed of munitions health monitoring systems to provide stockpile management capability for and ensure interoperability with ASP-S hardware and software. Develop the design concept for an automated pallet scanning and weighing capability to enable rapid accountability and autonomous load building in the ASP-S. Complete design of a web based version of the Munitions Survivability Software (MSS) prototype that will permit the quick design and layout of safe ammunition storage areas and integrate into the Virtual Forward Operating Base (VFOB) site planning tool. Complete design of an Unmanned Aerial System (UAS)--Resupply Pod and unpowered descent system that will improve supply delivery accuracy and survivability and UAS maneuverability. Develop requirements and design architecture for an intelligent, anticipatory, real-time ammunition management software tool.			
FY 2018 Plans: Conduct phase 1 demonstration of the enhanced speedbag with the Tactical Resupply Unmanned Aerial System – Competitive (TRUC). Complete the design of a graphical user interface for the Ammunition Quality Decision Tool and conduct user evaluation of tool effectiveness. Complete Joint Modular Intermodal Container (JMIC)/container Analysis of Alternatives and transition alternative prototype. Implement software requirements for operating Expeditionary Munitions Survivability Software (EMSS) in a disconnected state. Add basic site surveying capability with a mobile hardware device. Expand Configured Load Building Tool (CLBT) prototype capabilities to determine and visualize loads at the sub-pallet level on set of defined standard transportation conveyances. Mature 5K forklift and Rough Terrain Container Handler (RTCH) automation kit prototypes to include integration			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
of maintenance and troubleshooting aids and conduct validation testing. Integrate applique interface kit for manually operated Material Handling Equipment (MHE) into the 5K forklift and RTCH, implement software control subsystems, and perform subsystem testing. Conduct engineering and user testing of the automated pallet scanning and weighing system. Develop software links to Automated Supply Point-Scalable (ASP-S) for data transmission. Complete design for an integrated round counting sensor device that enables automatic capturing of fired ammunition data from weapon systems to facilitate anticipatory resupply. Complete requirements analysis and update design architecture of the Class V Adaptive Demand Estimation System (CADES) that will permit intelligent, anticipatory ammunition management on the battlefield with the ability to monitor consumption and supply node stock levels for forward warfighting units. Modify as necessary and conduct demonstration of the CADES prototype to provide theater level stockage objective to meet anticipated demand. Support continued use of the Distribution & Retrograde APEX Management (DRAM) prototype in operational demonstrations. Complete the design of a multi-modal supply pallet that minimizes the requirement for handling and reconfiguration of cargo in transit.			
Accomplishments/Planned Programs Subtotals	8.451	15.149	16.650

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
857: *DoD Explosives Safety Standards*	-	1.754	1.607	1.968	-	1.968	1.862	1.880	1.914	1.953	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Explosive and Munitions Tests	-	0.500	0.574
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. ***FY 2017 Plans:*** Explsoion effects testing to provide data for increasingly accurate predictions of real world effects. ***FY 2018 Plans:*** Continue testing of laboratory quantities, potential partnering effort for testing of underwater shock effects, further maturation of HD 1.3 testing and scaled testing of earth-covered magazines to determine blast pressures at intermagazine distance. Laboratory quantity testing: Explosives safety criteria are generally geared towards larger quantities of explosives where the specifics of the donor structure have less of an effect on the hazards generated. This is particularly problematic for lab quantities of explosives (e.g., 500 grams and lower), where the specifics of the construction type, room geometry, standoff, etc., can have a profound effect on the associated hazards. Current criteria is admittedly conservative in this regime, but testing and analysis are needed to justify reduced safety standoff distances. This work will leverage previous ATF lab quantities testing by increasing the explosive weight until breach of a sheetrock wall; determine the secondary breach debris hazards from a nominal laboratory room design; and assess overpressurization failure hazards of a nominal laboratory room design. This will result in reduced safety standoff distances for the conditions tested.			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Hazard Division 1.3 testing: As a result of a study of historical accidents approximately 75% of accidents are initiated by fire versus by detonation via an initiation chain. Also, the Insensitive Munitions Program has as a primary goal to develop more "insensitive" munitions and their end state is systems that react by burn only. These two conditions combine to make the potential for a non-detonation reaction more likely in the event of an explosives accident. This testing effort is designed to address the gaps in knowledge of HD 1.3/thermal hazards from a non-detonation reaction by performing testing to characterize the debris hazards from breakup of a confining structure, characterize the directional jetting effects from such structures, and assess the thermal hazard of burning in the open.			
Title: Safety Guidelines	1.754	0.450	0.545
Description: The DDESB is charged with developing DoD explosives safety standards. These standards are captured in several DoD issuances, but the primary one is DoDM 6055.09, DoD Ammunition and Explosives Safety Standards. Changes to DoDM 6055.09 must be approved by the DoD Explosives Safety Board. The Board Members have identified their priorities for update of DoDM 6055.09, and these priorities are reflected in the formation of DDESB working groups and test programs to develop new and revised explosives safety standards. This effort continually improves safety policy and guidance. ***FY 2016 Accomplishments:*** Developed revised criteria for intentional burns and detonations required for essential personnel safety during military training operations. Additionally, initial phases of work completed to develop more accurate hazard classification guidelines and policy. Continued work leading to eventual development of underwater blast criteria, essential for unexploded ordnance remediation efforts. Developed revised criteria for design of blast-resistant windows and glazing. ***FY 2017 Plans:*** Develop improved DoD and NATO explosives safety guidelines for munitions storage, explosives and field operation facilities. Prepare revised Dod 6055.9-STD and 4145.26M. ***FY 2018 Plans:*** Continuation of work on hazard classification criteria. Initial development of major rewrite of DoD explosives safety standards, to include addressing revised Hazard Division 1.2 criteria in both NATO and DoD policy. Development of example design procedures for design of blast-resistant windows and glazing. Near complete rewrite of DoD explosives safety standards. Continue effort on harmonization with NATO and UN policy resulting in seamless NATO and multi-national operations. Initial phase of work to develop more refined secondary debris hazards from explosives storage buildings.			
Title: Analysis Tools	-	0.657	0.849

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Develop tools & models required to calculate, estimate and predict explosives safety hazards, associated standoff distances, fragmentation distribution, personnel risks and other parameters. Additionally tools are required to develop and maintain explosives safety site plans. ***FY 2017 Plans:*** Develop more accurate models based on results of small scale testing and tools to implement revised standards. Improve usability. ***FY 2018 Plans:*** Leverage master planning partnerships to develop initial web-based site planning capability. Develop a tool to predict fragment distances from piping partially contaminated with explosives residue. model which will utilize the pipe size (diameter and thickness), the length of pipe, and the maximum credible event to account for only a percentage of the total available volume in the pipe being filled to better predict fragmentation hazards in building remediation. Develop a model to predict coupled effects of over-pressurization of a structure from a thermal event and the mass distribution of the resulting debris. Development of modeling to predict burn characterization of propellants			
Accomplishments/Planned Programs Subtotals	1.754	1.607	1.968

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
858: *Army Explosives Safety Management Program*	-	0.150	0.633	1.085	-	1.085	0.000	0.000	0.000	0.000	-	-
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 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).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Risk based explosives safety criteria	0.075	0.150	0.150
Description: Development of risk based explosives safety criteria that will aid commanders and safety personnel in the transition from regulation to risk management. ***FY 2016 Accomplishments:*** Continued explosives testing and support of hazard research and exposure consequences. ***FY 2017 Plans:*** Continue explosives testing and support of hazard research and exposure consequences. ***FY 2018 Plans:*** Will continue explosives testing and support of hazard research and exposure consequences.			
Title: Development of enhanced protective structure designs	0.075	0.260	0.425
Description: Develop enhanced protective structure designs that improve the survivability of Army personnel, facilities and equipment. ***FY 2016 Accomplishments:*** Continued explosives testing and support for improving protective construction designs. ***FY 2017 Plans:*** Continue explosives testing and support for improving protective construction designs. ***FY 2018 Plans:***			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will continue explosives testing and support for improving protective construction designs.			
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 2017 Plans:*** Continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions. ***FY 2018 Plans:*** Will continue development of new methods and tools for risk assessment to improve explosive safety risk management decisions.	-	0.223	0.510
Accomplishments/Planned Programs Subtotals	0.150	0.633	1.085

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
859: *Life Cycle Pilot Process*	-	21.899	4.863	5.568	-	5.568	5.647	5.724	5.855	5.840	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Product Cost Thrust Area	0.644	1.424	1.086
Description: This thrust area seeks out new opportunities to reduce overall manufacturing costs of ammunition and ammunition components. Efforts will review and analyze legacy manufacturing processing for opportunities to integrate new technology and lean manufacturing processes to reduce cost. ***FY 2016 Accomplishments:*** Completed shape charge jet disrupter. Evaluated new technologies for legacy processes to reduce overall production costs for the Army. ***FY 2017 Plans:*** Will evaluate, assess and transition new technology for legacy processes to reduce overall production costs for the Army. Technology transitions to affected Industrial Base via the Production Base Support Modernization program. ***FY 2018 Plans:*** Complete evaluation of the mortar fin inspection process. Continue to evaluate, assess and transition new technology for legacy processes to reduce overall production costs for the Army.			
Title: Single Point Failures	0.323	1.076	1.903

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Description: Project thrust area efforts will employ manufacturing technologies to address SPFs. These activities are part of the overall strategy to reduce the number of SPFs in the NTIB. Additionally, thrust area efforts address ammunition manufacturing capability shortfalls. This area leverages RDTE accomplishments and product knowledge to satisfy manufacturing requirements. ***FY 2016 Accomplishments:*** Completed list of alternative sources for antimony sulfide. Clamp prototypes for smoke pot lid delivered for testing. Continued development of manufacturing technology and processes for SPFs. Efforts addressed source of supply problems within the NTIB. ***FY 2017 Plans:*** Continue development of manufacturing technology and processes for SPFs. Efforts will address source of supply problems within the NTIB. Technology transitions and risk mitigation strategies are transferred to Product Managers (PMs)/Product Directors (PDs) for their use in assessing procurement strategies for affected SPF end items. ***FY 2018 Plans:*** Will continue to evaluate fuze battery material alternatives and complete evaluation of tank ammunition primer sealant alternatives. Efforts will address source of supply problems within the NTIB. Efforts will address source of supply problems within the NTIB. Technology transitions and risk mitigation strategies are transferred to PMs/PDs for their use in assessing procurement strategies for affected SPF end items.			
Title: Manufacturing Technology for Industrial Base Transformation ***Description:*** Project thrust area identifies and develops technologies that can be utilized at multiple Government and private ammunition manufacturing locations to transform the NTIB. ***FY 2016 Accomplishments:*** Concluded live energetics testing on the multi-axis platform. Completed testing to determine solvent content in propellant for ultrasound inspection. Continued Metastable Intermolecular Composites (MIC)/green primer pilot scale manufacturing. Investigated, developed and documented manufacturing technology for transition to the NTIB. ***FY 2017 Plans:*** Continue MIC/green primer pilot scale manufacturing. Continue investigations, develop and document manufacturing technology for transition to the NTIB. Technology transitions to affected Industrial Base via the Production Base Support Modernization program. ***FY 2018 Plans:***	3.932	2.363	2.579

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Complete MIC/green primer pilot scale manufacturing and prototype manufacturing of pre-cursor materials for foamed celluloid sheets. Continue investigations, develop and document manufacturing technology for transition to the NTIB. Technology transitions to affected Industrial Base via the Industrial Facilities modernization program.			
Accomplishments/Planned Programs Subtotals	4.899	4.863	5.568

	FY 2016	FY 2017
Congressional Add: Fiscal Year (FY) 2016 Congressional Add	17.000	-
FY 2016 Accomplishments: FY 2016 Congressional titled program increase of $17M.		
Congressional Adds Subtotals	17.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
F21: *NATO Ammo Evaluation*	-	0.000	0.650	0.589	-	0.589	0.772	0.767	0.782	6.607	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The North Atlantic Treaty Organization (NATO) Ammunition Evaluation program funding ensures interchangeability of direct fire ammunition and weapons among all the NATO countries with all of the associated logistic, strategic and tactical advantages of the alliance. The 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, 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 (U.S.) weapons and ammunition with Allied Nations to maximize battlefield interchangeability/compatibility under the auspices of the international Joint Ballistics Memorandum Of Understanding (JBMOU). Maximizing standardization, interchangeability, and exportability will also potentially increase Foreign Military Sales (FMS) of U.S. indirect fire Weapon and Munition products to maintain critical mass domestic production and affordable taxpayer costs through increased economies of scale. Fiscal Year (FY) 2018 funding supports NATO small arms ammunition interchangeability group meetings, documentation and test operations. FY 2018 funding also supports JBMOU ballistic testing including firing tables, safety, reliability, and performance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: New Ammo Design Qualification & NATO Mission Support	-	0.455	0.109
Description: This activity ensures complete interchangeability of small caliber, automated cannon-caliber, 40mm grenade ammunition and weapons among NATO countries to achieve the associated logistic, strategic and tactical advantages.			
FY 2017 Plans: FY 2017 work supports NATO small arms ammunition interchangeability group meetings, documentation and test operations.			
FY 2018 Plans: FY 2018 continues work to support NATO small arms ammunition interchangeability group meetings, documentation and test operations.			
Title: Support improvements in Direct Fire Propulsion Systems	-	0.195	0.030
Description: Improve Direct Fire Propulsion Systems to increase user survivability.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
FY 2017 work will explore additional sources of supply in the National Technology and Industrial Base (NTIB) to reduce the dependence on foreign suppliers and pursue improvements to address temperature sensitivities of energetics. ***FY 2018 Plans:*** FY 2018 continues work to explore additional sources of supply in NTIB to reduce the dependence on foreign suppliers and pursue improvements to address temperature sensitivities of energetics.			
Title: Joint Ballistics Memorandum Of Understanding (JBMOU) ***Description:*** The activity supports the maturation, validation, and risk reduction of battlefield interchangeability/compatibility and associated enabling technologies between domestic U.S. and NATO/Allied Nations Indirect Fires Weapons and Munitions. ***FY 2018 Plans:*** FY 2018 activities include ballistic testing including firing tables, safety, reliability, and performance.	-	-	0.450
Accomplishments/Planned Programs Subtotals	-	0.650	0.589

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
F24: *Conventional Munitions Demil*	-	16.081	17.643	17.584	-	17.584	16.836	19.872	16.522	17.100	-	-
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 (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 demil 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 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. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Advanced Destruction	6.460	7.967	7.209
Description: This effort focuses on developing capabilities and capacities for the destruction of munitions. ***FY 2016 Accomplishments:*** Continued fabrication of the Thermal Treatment Chamber for the Letterkenny Munitions Center (LEMC) Ammonium Perchlorate Rocket Motor Destruction (ARMD) project; conducted inert motor tests on Rocket Motor Segmenting (RMS) at Redstone Arsenal. Planned and executed the production transition of the Area Denial Artillery Munition (ADAM) projectile download line at McAlester Army Ammunition Plant (MCAAP). Continued testing in support of the capability assessment for the Static Detonation Chamber (SDC) project at Anniston Munitions Center (ANMC). Awarded a contract for the Castalia Demil Demonstration and initiated project work in Greece; began testing the Castalia Demil system. Initiated the cluster bomb unit (CBU) 100 (also called MK 20 Rockeye) download capability project at Crane Army Ammunition Activity (CAAA). Initiated the engine starter cartridge project at MCAAP. Completed the Limited Rate Initial Production LRIP II test on the Munitions Cryofracture Destruction Facility (MCDF) located at MCAAP. ***FY 2017 Plans:***			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Conduct the ARMD TTC LRIP and transition operations to LEMC. Execute transition of MCDF capability to MCAAP. Analyze the results of the SDC capability assessment and conduct an analysis of alternatives; plan and initiate Phase II SDC project. Analyze the results of the Castalia Demil assessment and conduct an analysis of alternatives; plan and initiate Phase II Castalia Demil project. Begin fabrication of Rockeye download equipment. ***FY 2018 Plans:*** Will conduct the final transition of LEMC ARMD resulting in Initial Operational Capability (IOC). Will complete the Final Design for the Multiple Rocket Motor (MRM) Upgrade to the LEMC ARMD. Initiate Equipment Installation on the Multiple Rocket Motor (MRM) to the LEMC ARMD. Will conduct the Operational Demonstration for the MCDF. Will complete the MCDF transition to IOC. Complete fabrication and begin install of Rockeye download equipment at CAAA. Conduct an operational demonstration of the Rockeye Download Equipment. Will complete Phase I operational testing of the Engine Starter Cartridge at MCAAP and initiate design of Phase II Engine Starter Cartridge equipment.			
Title: Resource Recovery and Recycling (R3) ***Description:*** This effort focuses on enhancing existing methods of munitions R3. ***FY 2016 Accomplishments:*** Awarded a contract and began the design of segmenting and washout equipment for 16-inch Navy gun projectiles at CAAA to make the projectile shells available for recycle. ***FY 2017 Plans:*** Design, fabricate and install equipment for the 16-inch Navy Gun projectile washout line at CAAA. ***FY 2018 Plans:*** Will conduct the factory acceptance testing for washout equipment for 16-inch Navy Gun projectiles.	1.250	0.940	1.620
Title: Advanced Removal ***Description:*** This effort develops technology to remove propellant and energetics from munitions. ***FY 2016 Accomplishments:*** Initiated the operational demonstration of the Red Phosphorus (RP) demil line at CAAA. Planned and initiated a closed disposal project for 155mm Copperhead Munitions at MCAAP. ***FY 2017 Plans:*** Will prove out a closed disposal capability for 155mm Copperhead Munitions at MCAAP. ***FY 2018 Plans:***	0.741	1.875	2.175

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will initiate design modifications and build fixturing for the RP Demil line at CAAA. Will develop a Design for a capability to demil infrared (IR) munitions at CAAA. Transition the Copperhead Munitions Closed Disposal process at MCAAP.			
Title: Advanced Waste Stream Treatment ***Description:*** This effort focuses on handling waste streams from munitions items. ***FY 2016 Accomplishments:*** Initiated an analysis of alternatives (AoA) for organic incineration of CS gas (or tear gas). Initiated a project to develop an upgraded feed system on a rotary kiln. ***FY 2017 Plans:*** Install the upgraded feed system on a rotary kiln incinerator at an organic location to be determined as per RKPI planning. Plan and initiate a closed disposal project for CS gas. ***FY 2018 Plans:*** Will assemble major components and conduct operational demonstration of the upgraded feed system on a rotary kiln incinerator at an organic location. Will conduct testing on CS Gas munitions to verify analytical estimates to thermally treat CS gas and provide a final report.	3.206	2.850	3.976
Title: Advanced Munitions Disassembly ***Description:*** This effort focuses on developing innovative and efficient processes to disassemble munitions. ***FY 2016 Accomplishments:*** Continued planning for Rockeye Munitions demil capability project; developed an AoA to integrate the preprocessing Cryofracture capability of Rockeye Munitions with thermal processing in the rotary kiln at CAAA. Finalized installation of CBU-87 download hardware, conducted demonstration/ validation (dem/val) and completed the IOC of CBU-87 demil capability to include open detonation of submunitions at Hawthorne Army Depot (HWAD). Planned transition of production demil process for Liquid Rocket-62 (LR-62) Bullpup motors at ANMC. Conducted dem/val of the Demilitarization by Induction Heating Meltout (DIHMES) capability on 60mm mortar bodies loaded with Composition B at HWAD. Planned and initiated a size reduction project for reactive armor tiles to facilitate thermal treatment feeds. ***FY 2017 Plans:*** Finalize design for FASCAM capability, and begin fabrication and installation at CAAA. Design, fabricate and install size reduction hardware and conduct dem/val of size reduction hardware for Reactive Armor Tiles. ***FY 2018 Plans:***	4.424	4.011	2.604

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will complete the Design for a capability to Cryofracture Rockeye Munitions with thermal processing in the rotary kiln at CAAA. Will initiate equipment installation for a Rockeye Demil Capability at CAAA. Planned transition of production demil process for Liquid Rocket-62 (LR-62) Bullpup motors at ANMC. Will install equipment to conduct Reactive Armor Tile Thermal Treatment and disposal. Will conduct an Operational Demonstration of size reduction of reactive armor tiles to facilitate thermal treatment/ disposal. Will transition an Initial Capability for Size Reduction of Reactive Armor Tiles. Develop a Design for D561/D562 155mm ICM Project Demil. Fabricate and Install equipment for D561/D562 ICM Demil at a Depot location. Will develop a Design for disassembly of MK46 Torpedoes at HWAD.			
Accomplishments/Planned Programs Subtotals	16.081	17.643	17.584

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	3.673	2.130	5.087	-	5.087	3.480	3.153	3.176	2.918	-	-
031: *Environmentally Sustainable Acquisition/Logistics*	-	3.411	2.020	4.377	-	4.377	2.425	2.472	2.524	2.422	-	-
06I: *POLLUTION PREVENTION TECH SUPPORT*	-	0.262	0.110	0.710	-	0.710	1.055	0.681	0.652	0.496	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) resources 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 required to support the management of technology transfer associated with technology demonstrated and validated as part of Army EQT projects are included in this PE. In addition, support to the Army weapon system acquisition community to address environmental quality requirements are included under the Environmentally Sustainable Acquisition/Logistics Program.

The Environmentally Sustainable Acquisition/Logistics Project includes program management for developing acquisition strategies that both achieve system key performance parameters and sustain the environment without permanent and unacceptable change in the natural environment or human health from system concept refinement through disposal. It includes systematic consideration of environmental impacts, energy use, natural resources, installation impacts, economics, and quality of life. It provides support to the system acquisition community, e.g., program and project managers, to integrate environmental quality analyses into the system acquisition process. The goal 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 and includes efforts to eliminate the use of hazardous and ozone-depleting materials from weapon systems and facilities and to ensure the availability of Halon 1301 to support weapon system fire suppression requirements.

The Pollution Prevention Tech Support Project funds the management support costs to execute the Toxic Metals Reduction and Airborne Lead Reduction environmental quality technology programs.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army					Date: May 2017
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 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	3.186	2.130	4.542	-	4.542
Current President's Budget	3.673	2.130	5.087	-	5.087
Total Adjustments	0.487	0.000	0.545	-	0.545
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.612	-			
• SBIR/STTR Transfer	-0.125	-			
• Adjustments to Budget Years	0.000	0.000	0.545	-	0.545

Change Summary Explanation

Fiscal Year (FY) 2016 funding increase to support Environmentally Sustainable Acquisition/Logistics.
FY 2018 increase of $0.545M supports pollution prevention technology support efforts.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
031: *Environmentally Sustainable Acquisition/Logistics*	-	3.411	2.020	4.377	-	4.377	2.425	2.472	2.524	2.422	-	-
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. To a much lesser extent, safety, occupational health and energy efficiency are also addressed. The focus of ESAL is on improving readiness, 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 the Army achieve 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 2016	FY 2017	FY 2018
Title: Environmental Quality (EQ) Support	1.096	0.963	1.095
Description: Provide EQ Support to Acquisition Programs.			
FY 2016 Accomplishments: Provided support to Program Executive Officers and Program Managers (PEOs/PMs) to integrate EQ considerations into systems engineering activities. This included 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. Analyzed impending legal statutes impacting production, operation and support of weapon systems. Assessed weapon system readiness impacts (e.g. production levels, training, operational tempo and maintenance activities) resulting from EQ issues affecting industrial base and garrisons. Provided Army acquisition community representation in select Office of the Secretary of Defense (OSD) and Department of Army (DA) committees addressing environmental legislation and rulemaking.			
FY 2017 Plans: Provide support to PEOs/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			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
and revision of contractual and operational requirements for successful technology integration, operation and support. Analyze impending legal statutes 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 OSD and DA committees addressing environmental legislation and rulemaking. ***FY 2018 Plans:*** Will provide support to PEOs/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, 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 legal statutes 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 OSD and DA committees addressing environmental legislation and rulemaking.			
Title: Environmental Quality Technology Management ***Description:*** Provide management support for Army EQ technology efforts. ***FY 2016 Accomplishments:*** Provided system acquisition support to the Army's EQ technology program and coordination of EQ-related systems' needs for expanded Research, Development, Test and Evaluation (RDTE) efforts. Managed and oversaw technology integration efforts by Army Life Cycle Management Commands for weapon systems in all stages of design, procurement and operations/support. Coordinated RDTE requirements among members of the Army EQ Technology Teams; coordinated technology evaluations and operational requirements in support of weapon system platform integration; managed oversaw test plan development; oversaw testing activities, and analyzed test results to support weapon systems engineering decision making. ***FY 2017 Plans:*** Provide system acquisition support to the Army's EQ technology program and coordination of EQ-related systems' needs for expanded RDT&E efforts. 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 RDT&E requirements among members of the Army EQ Technology 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 2018 Plans:***	0.825	0.659	0.749

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Will provide system acquisition support to the Army's EQ technology program and coordination of EQ-related systems' needs for expanded RDTE efforts. 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 RDTE requirements among members of the Army EQ Technology 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.			
Title: Ozone Depleting Substance Management ***Description:*** Oversee Army efforts to manage the use/elimination of ozone depleting substances on Army weapon systems. ***FY 2016 Accomplishments:*** Oversaw Army efforts to manage the use/elimination of ozone-depleting substances on Army weapon systems. Monitored the Army's reserve of ozone-depleting substances that contains the Army's strategic supplies of Halon used for explosion and fire suppression systems and R-22 used in fielded environmental control units. Coordinated with PEOs/PMs to affect system replacement and retrofit to eliminate ozone depleting substances while minimizing greenhouse gases and to obtain approval to require use of Halon in new contracts. ***FY 2017 Plans:*** Oversee Army efforts to manage the use/elimination of ozone-depleting substances on Army weapon systems. Monitor the Army's reserve of ozone-depleting substances that contains the Army's strategic supplies of Halon used for explosion and fire suppression systems and R-22 used in fielded environmental control units. Coordinate with PEOs/PMs to affect system replacement and retrofit to eliminate ozone depleting substances while minimizing greenhouse gases and to obtain approval to require use of Halon in new contracts. ***FY 2018 Plans:*** Will oversee Army efforts to manage the use/elimination of ozone-depleting substances on Army weapon systems. Will monitor the Army's reserve of ozone-depleting substances that contains the Army's strategic supplies of Halon used for explosion and fire suppression systems and R-22 used in fielded environmental control units. Will coordinate with PEOs/PMs to affect system replacement and retrofit to eliminate ozone depleting substances while minimizing greenhouse gases and to obtain approval to require use of Halon in new contracts.	0.391	0.398	0.453
Title: Headquarters Army Environmental System (HQAES) ***Description:*** Headquarters Army Environmental System support. ***FY 2016 Accomplishments:***	1.099	-	2.080

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018
Supported HQAES modifications recommended by Configuration Control Management Board in order to support network security worthiness. ***FY 2018 Plans:*** Will support HQAES modifications recommended by Configuration Control Management Board in order to support network security worthiness.			
Accomplishments/Planned Programs Subtotals	3.411	2.020	4.377

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605857A / *Environmental Quality Technology Mgmt Support*	Project (Number/Name) 06I / *POLLUTION PREVENTION TECH SUPPORT*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
06I: *POLLUTION PREVENTION TECH SUPPORT*	-	0.262	0.110	0.710	-	0.710	1.055	0.681	0.652	0.496	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides Research, Development, Test and Evaluation (RDTE) Management Support for the demonstration and validation of weapon system pollution prevention technologies within the Army's Environmental Quality Technology program. The Project increases operational sustainment and warfighter training capabilities by reducing soldier and worker health risks and environmental impacts that would otherwise result in restoration needs and compliance enforcement actions against installations while simultaneously increasing performance and standardization across the Army. This Project provides for management of RDTE activities conducted under project 0603779A, Environmental Quality Technology Dem/Val (E21). The Project expedites technology transition from the laboratory to operational use by establishing toxicology assessments to support the demonstration of new materials and processes fulfilling 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 2016	FY 2017	FY 2018
Title: Management of Army Environmental Quality Technology Programs	0.262	0.110	0.710
Description: Manage and oversee the demonstration/validation of weapon system pollution prevention technologies within the Army's Environmental Quality Technology Program. ***FY 2016 Accomplishments:*** Managed and oversaw the demonstration/validation of two pollution prevention technology efforts: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems, and Airborne Lead Reduction from Army Weapon Systems. ***FY 2017 Plans:*** Manage and oversee the demonstration/validation of two pollution prevention technology efforts: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems, and Airborne Lead Reduction from Army Weapon Systems. ***FY 2018 Plans:*** Will manage and oversee the demonstration/validation of two pollution prevention technology efforts: Toxic Metal Reduction in Surface Finishing of Army Weapon Systems, and Airborne Lead Reduction from Army Weapon Systems.			
Accomplishments/Planned Programs Subtotals	0.262	0.110	0.710

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605857A / *Environmental Quality Technology Mgmt Support*	**Project (Number/Name)** 06I / *POLLUTION PREVENTION TECH SUPPORT*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605898A / *Management HQ - R&D*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	48.312	49.885	54.679	-	54.679	54.197	55.312	56.321	56.834	-	-
M65: *Army Test and Evaluation Command*	-	48.312	49.885	50.802	-	50.802	50.243	51.282	52.207	52.636	-	-
XW7: *Command HQ - ARI*	-	0.000	0.000	3.877	-	3.877	3.954	4.030	4.114	4.198	-	-

Note

Planned Program Army Joint Test Element (JTE) moved from Project M65 to Program Element (PE) 0605712 / Project 001 in Fiscal Year (FY) 2017.

A. Mission Description and Budget Item Justification

This Program Element (PE) 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 (US) Army Test and Evaluation Command (ATEC) mission located at Aberdeen Proving Ground, Maryland. 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.

This Program Element 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), Aberdeen Proving Ground, 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; Integrated Test and Evaluation 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), Aberdeen Proving Ground, Maryland; West Desert Test Center (WDTC), at Dugway Proving Ground (DPG), Utah; Electronic Proving Ground (EPG), 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), Fort Greely, Alaska; and Tropic Regions Test Center (TRTC) at various locations, as well as for Redstone Test Center (RTC) Redstone Arsenal, Alabama. This is the operating budget for ATEC Headquarters, which provides technical direction for the annual execution of ~ 2,700 developmental tests; approximately ~70 operational events; and more than ~700 Evaluation and Safety documents supporting acquisition programs. ATEC's FY15 total authorized workforce is 8,282 with a $1.8 billion program.

The Army 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. The JTE coordinates and develops nominations for Quick Reaction Tests (QRTs), Joint Feasibility Studies (JFS); serves as the Operational Test Agency (OTA) for Army-led QRTs; and coordinates resources to support Joint Feasibility Studies (JFSs) and chartered Joint Tests (JT) under the Joint Test Unit (JTU) assigned to ATEC as the joint OTA. The ATEC Commanding General serves as the Executive Steering Committee (ESG) member, while the Executive Director serves as the Technical Advisory Board (TAB) member. Department of Defense Directive (DoDD) 5010.41

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605898A / *Management HQ - R&D*

provides policies and responsibilities for the JTE. The Department of Army (DA) G-8 is the agent for JTE for operations and DoD level Senior Advisory Council (SAC) responsibly. Mission support also includes the support to two JTUs under the re-engineered Joint Test program. ATEC provides military resource support to Nellis Air Force Base, and Suffolk VA with Officer and Non-Commissioned Officer (NCO) support. Additional support to Joint Tests remains a requirement until the Office of the Secretary of Defense (OSD) Chartered projects are completed and transitioned to the respective Sponsoring COCOM.

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

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	48.955	49.885	49.742	-	49.742
Current President's Budget	48.312	49.885	54.679	-	54.679
Total Adjustments	-0.643	0.000	4.937	-	4.937
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.643	-			
• Adjustments to Budget Years	0.000	0.000	4.118	-	4.118
• Other Adjustments	0.000	0.000	0.811	-	0.811
• CivPay Adjustments	0.000	0.000	0.008	-	0.008

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605898A / *Management HQ - R&D*	Project (Number/Name) M65 / *Army Test and Evaluation Command*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
M65: *Army Test and Evaluation Command*	-	48.312	49.885	50.802	-	50.802	50.243	51.282	52.207	52.636	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Army Joint Test Element (JTE) will be moved to Program Element (PE) 0605712A, Project 001 in Fiscal Year (FY) 2017.

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 (US) Army Test and Evaluation Command (ATEC) mission located at Aberdeen Proving Ground, Maryland. 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.

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), Aberdeen Proving Ground, 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; Integrated Test and Evaluation 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), Aberdeen Proving Ground, Maryland; West Desert Test Center (WSTC) at Dugway Proving Ground (DPG), Utah; Electronic Proving Ground (EPG), 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), Fort Greely, Alaska; and Tropic Regions Test Center (TRTC) at various locations, as well as for Redstone Test Center (RTC) Redstone Arsenal, Alabama. This is the operating budget for ATEC Headquarters, which provides technical direction for the annual execution of ~ 2,700 developmental tests; approximately ~70 operational events; and more than ~700 Evaluation and Safety documents supporting acquisition programs. ATEC's Fiscal Year (FY) 2015 total authorized workforce is 8,282 with a $1.8 billion program.

The Army Joint Test Element (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. The JTE coordinates and develops nominations for Quick Reaction Tests (QRTs), Joint Feasibility Studies (JFS); serves as the Operational Test Agency (OTA) for Army-led QRTs; and coordinates resources to support Joint Feasibility Studies (JFSs) and chartered Joint Tests (JT) under the Joint Test Unit (JTU) assigned to ATEC as the joint OTA. The ATEC Commanding General serves as the Executive Steering Committee (ESG) member, while the Executive Director serves as the Technical Advisory Board (TAB) member. Department of Defense Directive (DoDD) 5010.41 provides policies and responsibilities for the JTE. The Department of Army (DA) G-8 is the agent for JTE for operations and DoD level Senior Advisory Council (SAC) responsibly. Mission support also includes the support to two Joint Test Units (JTU) under the re-engineered Joint Test program. ATEC provides military

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605898A / *Management HQ - R&D*	**Project (Number/Name)** M65 / *Army Test and Evaluation Command*

resource support to Nellis Air Force Base, and Suffolk VA with Officer and Non-Commissioned Officer (NCO) support. Additional support to Joint Tests remains a requirement until the Office of the Secretary of Defense (OSD) Chartered projects are completed and transitioned to the respective Sponsoring COCOM.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Army Test and Evaluation Command	48.049	49.885	50.802
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. ***FY 2016 Accomplishments:*** Funded 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 2017 Plans:*** Will 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 2018 Plans:*** Will 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.			
Title: Army Joint Test Element	0.263	-	-
Description: This Project also funds Army's JTE which is comprised of civilian and military personnel. The JTE is required to research COCOM Integrated Priorities, Generate/Develop/Support efforts through rigorous COCOM engagements, and provide support during QRT/JT support through the transition phase at the end of each directed project. As the OTA, the JTE is responsible to maintain oversight status for the OSD for all directed test efforts. In addition, JTE provides for handbook development for the Warfighter throughout the world in hard copy and in electronic book form. ***FY 2016 Accomplishments:*** Funded civilian labor and COCOM engagements, e-book development and exploring transition efforts to US Army Training and Doctrine Command (TRADOC) /Army Capabilities Integration Center (ARCIC).			
Accomplishments/Planned Programs Subtotals	48.312	49.885	50.802

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605898A / *Management HQ - R&D*	**Project (Number/Name)** M65 / *Army Test and Evaluation Command*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605898A / *Management HQ - R&D*	Project (Number/Name) XW7 / *Command HQ - ARI*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
XW7: *Command HQ - ARI*	-	0.000	0.000	3.877	-	3.877	3.954	4.030	4.114	4.198	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funding for Project XW7 funding was a realignment from Program Element (PE) 0601102A (Defense Research Sciences), Project 74F (Pers Perf & Training); PE 0602785A (Manpower, Personnel and Training Technology), Project 790 (Personnel Performance & Training Technology); and PE 0603007A (Manpower, Personnel and Training Advanced Technology), Project 792 (Personnel Performance & Training).

A. Mission Description and Budget Item Justification

The 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, RDT&E 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 2016	FY 2017	FY 2018
Title: Civilian Pay	-	-	3.877
Description: This effort will provide personnel for 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 Laboratory conducting the Army's personnel, training, leader development, and organizational performance Research and Development (R&D) program. ***FY 2018 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 Army Laboratory conducting the Army's personnel, training, leader development, and organizational performance R&D program.			
Accomplishments/Planned Programs Subtotals	-	-	3.877

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0605898A / *Management HQ - R&D*	**Project (Number/Name)** XW7 / *Command HQ - ARI*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606001A / *Military Ground-Based CREW Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	0.000	7.916	-	7.916	4.949	4.948	4.947	5.000	-	-
FD4: *Military Ground-Based CREW Technology*	-	0.000	0.000	7.916	-	7.916	4.949	4.948	4.947	5.000	-	-

Note

This Program Element (PE), along with Project FD4, is a new start in Fiscal Year FY 2018.

A. Mission Description and Budget Item Justification

The Secretary of the Army was designated the Department of Defense (DoD) Executive Agent for Military Ground-Based Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Technology 1 December 2013, pursuant to 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, CREW technologies to ensure synergy between the technologies. The DoD Single Manager chairs the Joint Program Board and represents the DoD at the Force Protection Electronic Countermeasures (ECM) Working Group, Five Eyes (FVEYS) and Chairs the North Atlantic Treaty Organization (NATO) Team of Experts (ToE) on ECM for CREW.

FY2018 Base dollars in the amount of $8 million will support the execution of DOD SM responsibilities. Funding will used to support cellular test infrastructure to support the evaluation of Joint CREW technologies against the evolving RCIED threat.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	7.916	-	7.916
Total Adjustments	0.000	0.000	7.916	-	7.916
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	0.000	0.000	7.916	-	7.916

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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*

Change Summary Explanation

Adjustment 1: This is a new start effort. $7.916 Million in Fiscal Year (FY) 18 dollars will fund Military Ground-Based Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Technology.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606001A / *Military Ground-Based CREW Technology*	Project (Number/Name) FD4 / *Military Ground-Based CREW Technology*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
FD4: *Military Ground-Based CREW Technology*	-	0.000	0.000	7.916	-	7.916	4.949	4.948	4.947	5.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in Fiscal Year (FY) 2018.

A. Mission Description and Budget Item Justification

The Secretary of the Army was designated the Department of Defense (DoD) Executive Agent for Military Ground-Based Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Technology 1 December 2013, pursuant to 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, CREW technologies to ensure synergy between the technologies. The DoD Single Manager chairs the Joint Program Board and represents the DoD at the Force Protection Electronic Countermeasures (ECM) Working Group, Five Eyes (FVEYS) and Chairs the North Atlantic Treaty Organization (NATO) Team of Experts (ToE) on ECM for CREW.

FY2018 Base dollars in the amount of $7.916 million will support the execution of DOD SM responsibilities. Funding will used to support cellular test infrastructure to support the evaluation of Joint CREW technologies against the evolving RCIED threat.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Test Technologies	-	-	7.916
FY 2018 Plans: Funding will be used to provide cellular test infrastructure at two locations (Yuma Proving Ground and Aberdeen Proving Ground).			
Accomplishments/Planned Programs Subtotals	-	-	7.916

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606001A / *Military Ground-Based CREW Technology*	**Project (Number/Name)** FD4 / *Military Ground-Based CREW Technology*

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606002A / *Ronald Reagon Ballstic Missile Defense Test Site*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	0.000	61.254	-	61.254	62.205	62.295	66.658	62.244	-	-
XW9: *Reagan Test Site*	-	0.000	0.000	61.254	-	61.254	62.205	62.295	66.658	62.244	-	-

Note

Beginning in Fiscal Year (FY) 2018, this Program Element (PE) realigns operational and mission support funding from PE 0605301A (Army Kwajalein Atoll) / Project DX2 (Army Kwajalein Test Ranges and Mission Support). Installation management functions for the Reagan Test Site remain in Project DX2.

A. Mission Description and Budget Item Justification

Space and Missile Defense Command-Army Forces Strategic Command (USASMDC-ARSTRAT) funding is for management and contracting personnel support (salaries and travel) to enable the management of the test and evaluation of major Army and Department of Defense (DoD) missile systems for the Ronald Reagan Ballistic Missile Defense Test Site (RTS). RTS began its funding under Program Element (PE)0605301A, Project DX2 in Fiscal Year (FY) 2014. Beginning in FY 2018, operational and mission support functions at RTS are realigned to PE 0606002A. RTS is a tenant on the United States (US) Army Garrison - Kwajalein Atoll (USAG-KA), located within the Kwajalein Atoll in the Republic of the Marshall Islands, which is a remote, secure activity of the Major Range and Test Facility Base (MRTFB). Its function is to support test and evaluation of major Army and DoD acquisition programs and to provide space operations (Space Situational Awareness; object tracking & identification) in support of U.S. Strategic Command (USSTRATCOM) and National Aeronautics and Space Administration (NASA) scientific and unique space programs. Programs supported include Army Missile Defense, Air Force, and Navy Intercontinental Ballistic Missile (ICBM) developmental and operational tests; Army, Air Force, Navy, and Defense Advanced Research Projects Agency (DARPA) hypersonic Boost-Glide developmental tests; Missile Defense Agency (MDA) operational/demonstration/validation tests; USSTRATCOM space situational awareness requirements (including contributions to the U.S. Space Surveillance Network); and National Aeronautics and Space Administration (NASA), ionospheric studies, space debris tracking, and data collection in support of space experiments. RTS is a government-managed/contractor-operated (GMCO) site and is dependent upon its associated support contractors for operations and maintenance (O&M). Program funds contracting support for end item procurement, life cycle acquisition planning, and solicitation, negotiation, award, execution and management for weapon systems contracts. Program funds contractors to accomplish O&M for RTS instrumentation suites and provides mission essential bandwidth via a fiber optics cable system. The instrumentation suite consists of a number of sophisticated, 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 (KREMS); Super Recording Automatic Digital Optical Tracker (SRADOT) 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 (ARPA) Long-Range Tracking and Instrumentation Radar (ALTAIR), and the Target Resolution Discrimination Experiment (TRADEX) radars located at RTS, are the only radars in this area of operation that have deep-space tracking capability. The Millimeter Wave Radar (MMW) is one of the highest resolution imaging radars in the world providing critical intelligence data. Funding 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 (THAAD), and AEGIS weapon systems), and NASA's space experiments.

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagon Ballstic Missile Defense Test Site*

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	61.254	-	61.254
Total Adjustments	0.000	0.000	61.254	-	61.254
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	0.000	0.000	61.254	-	61.254

Change Summary Explanation

$61.254 Million in operational and mission support functions for the Ronald Reagan Ballistic Missile Defense Test Site are realigned from PE 0605301A (Army Kwajalein Atoll) / Project DX2 (Army Kwajaelin Test Ranges and Mission Support) to PE 0606002A / Project XW9. Funding for installation management functions at the Reagan Test Site continues through Project DX2.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0606002A / *Ronald Reagon Ballstic Missile Defense Test Site*	Project (Number/Name) XW9 / *Reagan Test Site*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
XW9: *Reagan Test Site*	-	0.000	0.000	61.254	-	61.254	62.205	62.295	66.658	62.244	-	-
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 Program Executive Office Missiles & Space.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Civilian Pay (RTS) ***Description:*** Funding covers civilians to perform management oversight of Army and DOD Missile Test programs. ***FY 2018 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.	-	-	5.605
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 2018 Plans:*** Will continue to provide government personnel support (training, and travel, GPC) to enable the management of the test and evaluation of major Army and DoD missile systems.	-	-	0.639
Title: Outside Obligations/Other Government Agencies ***Description:*** Funding provided to other Government Agencies for reimbursable-type work efforts. ***FY 2018 Plans:*** Will continue to provide support to test and evaluation of major Army and DoD missile systems.	-	-	5.316
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 2018 Plans:***	-	-	11.373

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagon Ballstic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will continue to provide funding for lease of the KCS fiber optic cable between Kwajalein Island and Guam, and for backup satellite.			
Title: RTS Contractor Prime Pay (KRS) ***Description:*** Provide funding for Prime contractor to perform technical Operation and Maintenance support to support test and space missions. ***FY 2018 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.	-	-	21.125
Title: Contractor Material ***Description:*** Provide for materials to maintain range capabilities and support test operations. ***FY 2018 Plans:*** Will continue to provide critical non-labor materials to maintain critical range capabilities and prevent obsolescence in support of test operations.	-	-	1.834
Title: Federally Funded Research and Development Centers (FFRDC) Contractor Pay (MIT/LL) ***Description:*** Provide for technical expertise to RTS leadership for the overall performance of Range Operations. ***FY 2018 Plans:*** Will continue to provide technical advice to RTS leadership in support of Range operations, strategic planning, and technical execution of critical technology.	-	-	4.741
Title: Contractor Pay Meteorological ***Description:*** Provide capability for weather sensing capability which allows for test planning and execution of the program. ***FY 2018 Plans:*** 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.	-	-	1.954
Title: Ground Transportation ***Description:*** Provide transportation of material and passenger between Kwajalein and CONUS. ***FY 2018 Plans:***	-	-	1.490

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0606002A / *Ronald Reagon Ballstic Missile Defense Test Site*	**Project (Number/Name)** XW9 / *Reagan Test Site*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Will continue to provide mission specific material and passenger transportation via air (Air Mobility Command) and sea (SDDC) between Kwajalein Atoll and CONUS.			
Title: Mission Specific Environmental ***Description:*** Ensures Range Readiness and all regulatory environmental requirements are compliant with range and test requirements. ***FY 2018 Plans:*** Will continue to provide the capability to assess and maintain the Range readiness and compliance with environmental requirements.	-	-	0.542
Title: USNS Worthy - Shipyard ***Description:*** Provide for maintenance to keep all parts of the ship operational for testing. ***FY 2018 Plans:*** Will provide for required triennial overhaul of marine vessel - Kwajalein Mobile Range Safety System (Worthy). Annual O&M for the Worthy is included in RTS Contractor line above.	-	-	6.000
Title: Army Contracting Command (ACC) Support ***Description:*** Contracting support to administrator the contract vehicle for the program. ***FY 2018 Plans:*** Will provide contracting support (salaries, training, travel, etc) to test and evaluation of major Army and DoD Missile System.	-	-	0.635
Accomplishments/Planned Programs Subtotals	-	-	61.254

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0303260A *I DEFENSE MILITARY DECEPTION INITIATIVE*

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	0.000	2.000	1.779	-	1.779	0.000	0.000	0.000	0.000	-	-
FA9: *Security Initiatives*	-	0.000	2.000	1.779	-	1.779	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

The Military Deception Initiative (DMDI) is response to the Secretariat and Global Security Initiatives to support identified Army Research, Development, Test and Evaluation (RDTE) requirements to support capability, capacity and readiness of Army Military Deception (MILDEC) capabilities. DMDI executes RDTE on MILDEC capabilities, next generation devices, and technologies to support Army's ability to meet current and emerging requirements. DMDI integrates RDTE prototypes with Component programs for acquisition, sustainment and maintenance.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	2.000	2.000	-	2.000
Current President's Budget	0.000	2.000	1.779	-	1.779
Total Adjustments	0.000	0.000	-0.221	-	-0.221
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	0.000	0.000	-0.221	-	-0.221

Change Summary Explanation

Fiscal Year (FY) 2018 decrease of $0.221M - General Officer Steering Committee/Program Evaluation Group (GOSC/PEG) adjustment to improve readiness.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0303260A / *DEFENSE MILITARY DECEPTION INITIATIVE*	Project (Number/Name) FA9 / *Security Initiatives*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
FA9: *Security Initiatives*	-	0.000	2.000	1.779	-	1.779	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Military Deception Initiative (DMDI) is in response to Secretariat and Global Security Initiatives to support identified Army Research, Development, Test and Evaluation (RDTE) requirements to support capability, capacity and readiness of Army Military Deception (MILDEC) capabilities. DMDI executes RDTE on MILDEC capabilities, next generation devices, and technologies to support Army's ability to meet current and emerging requirements. DMDI integrates RDTE prototypes with Component programs for acquisition, sustainment and maintenance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Security Initiatives	-	2.000	1.779
Description: The DMDI is response to Secretariat and Global Security Initiatives to support identified Army RDTE requirements to support capability, capacity and readiness of Army MILDEC capabilities. DMDI RDTE on MILDEC capabilities, next generation devices, and technologies to support Army's ability to meet current and emerging requirements. DMDI integrates RDTE prototypes with Component programs for acquisition, sustainment and maintenance. ***FY 2017 Plans:*** Research and develop high-fidelity next generation decoys and capabilities to meet identified Security Initiatives related to Secretary guidance. ***FY 2018 Plans:*** Will research and develop high-fidelity next generation decoys and capabilities to meet identified Security initiatives related to Secretary guidance.			
Accomplishments/Planned Programs Subtotals	-	2.000	1.779

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0303260A / *DEFENSE MILITARY DECEPTION INITIATIVE*	**Project (Number/Name)** FA9 / *Security Initiatives*

E. Performance Metrics

N/A