

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army										Date: May 2017		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev							
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	-	63.028	39.630	34.684	-	34.684	39.117	46.842	30.492	30.011	Continuing	Continuing
016: Close Combat Capabilities ENG DEV	-	1.565	2.772	10.736	-	10.736	8.500	8.640	4.760	0.000	0.000	36.973
415: Mine Neutral/Detection	-	49.724	36.858	19.848	-	19.848	30.617	38.202	25.732	30.011	Continuing	Continuing
434: Anti-Personnel Landmine Alternatives (NSD)	-	11.739	0.000	4.100	-	4.100	0.000	0.000	0.000	0.000	0.000	15.839

Note

Funding for Man-Transportable Robotic System (MTRS) Inc II was originally on this APE Project 415. Funding has been zeroed out and will be funded on APE 655053FB2 in FY2018.

A. Mission Description and Budget Item Justification

This program element (PE) provides for the Engineering and Manufacturing Development (EMD) and demonstration of networked munitions, countermine systems, and counter improvised explosive device capabilities. This PE also implements the National Landmine Policy to develop alternatives to the non-self-destructing counter mobility anti-personnel landmine systems. The PE contributes to area access and area denial (A2/AD) to support unified land operations and improve soldier survivability.

Project 016, Close Combat Capabilities provides for developing improvements to legacy dismounted lane breaching, specifically the Anti-Personnel Obstacle Breaching System (APOBS), and in so doing, provides a pathway to the next generation of dismounted lane breaching systems such as the Rapid Assault Lane Line Charge (RALLC) and the Dismounted Explosive Breaching System (DEBS). The efforts will address capability gaps identified during combat operations and will focus on weight reduction, improved scalability, collateral damage reduction, metallic content elimination, deployment accuracy improvement, and increased effectiveness against the current threat.

Funding line established in FY16. The objective of this effort is to increase the Warfighter lethality and mobility, by optimizing Soldier protection for Explosive Ordnance Disposal (EOD) personnel while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).

Project 415, Mine Neutralization/Detection provides for development of next generation standoff, detection, and neutralization capability programs such as Husky Mounted Detection System (HMDS), Route Clearance & Interrogation System (RCIS), Vehicle Optics Sensor System (VOSS), Standoff Robotic Explosive Hazard Detection System (SREHD), formerly known as the Autonomous Mine Detection System (AMDS), Route Clearance Vehicles (RCV) and Enablers, Multi-Function Video Display (MVD) and Add on Armor (AoA) kits. It also supports development of Explosive Hazard Pre-Detonation (EHP) capability to neutralize/detonate a broad spectrum of improvised explosive hazards while on the move to support area access route clearance missions. Provides funding to the Tank Automotive Research

UNCLASSIFIED

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

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev
---	--

Development Engineering Center (TARDEC) Software Engineering Center (SEC) to integrate enhancements and test Explosive Hazard Pre-Detonation (EHP) software releases incorporating support for MVD.

Project 434, Spider Increment 1A will build upon the existing M7 Spider system. The M7 Spider system is a hand-emplaced, remotely controlled (Man-In-The-Loop) system that provides highly responsive terrain-shaping and protection capabilities. M7 Spider replaces persistent anti-personnel landmines, is compliant with US National Landmine policy, and has been fielded to US forces in support of Operation Enduring Freedom and currently being fielded to Engineers and Brigade Combat Teams in the Active and Army National Guard components. Additional capabilities will be developed to enhance the Spider Remote Control Station and demonstrate the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal and non-lethal anti-personnel (AP) munitions and counter mobility obstacles. Spider Increment 1A will utilize an open system architecture to facilitate future munition integration.

B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	55.215	39.630	33.464	-	33.464
Current President's Budget	63.028	39.630	34.684	-	34.684
Total Adjustments	7.813	0.000	1.220	-	1.220
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.187	-			
• Adjustments to Budget Years	0.000	0.000	1.220	-	1.220
• Other Adjustments 1	10.000	0.000	0.000	-	0.000

Change Summary Explanation

FY 2016: Budget supports Project 016, Close Combat Capabilities, Project 415, Mine Neutral/Detection, and Project 434, Anti-Personnel Landmine Alternatives (NSD).

FY 2017: Budget supports Project 016, Close Combat Capabilities, and Project 415, Mine Neutral/Detection.

FY 2018: Budget supports Project 016, Close Combat Capabilities, and Project 415, Mine Neutral/Detection, and Project 434, Anti-Personnel Landmine Alternatives (NSD).

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army										Date: May 2017		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 016 / Close Combat Capabilities ENG DEV			
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
016: Close Combat Capabilities ENG DEV	-	1.565	2.772	10.736	-	10.736	8.500	8.640	4.760	0.000	0.000	36.973
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This funding supports the materiel / technology development decision and the engineering and manufacturing development / full rate production decision reviews of Soldier Protection Equipment. Specifically, this funding supports the Next Generation Advanced Bomb Suit (NGABS). It leverages advancements in technology to continue improvements to hard and soft body armor components, helmets and other personal protective equipment for Explosive Ordnance Disposal (EOD) personnel.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Dismounted Lane Breaching System								1.565	2.772	2.000	-	2.000
Description: Develops materiel solutions that address operational issues with APOBS related to its weight, lack of scalability, collateral damage, residual metallic debris, deployment accuracy, and effectiveness.												
FY 2016 Accomplishments: Initiated trade studies/cost-benefit analyses to prioritize user identified capability gaps and the material solutions that address them.												
FY 2017 Plans: Continue trade studies/cost-benefit analyses to prioritize user identified capability gaps and the material solutions that address them; Prepare Preliminary Design.												
FY 2018 Base Plans: Finalize design; Award contract for qualification hardware; Build qualification hardware; Finalize test plans; Begin preparation for qualification testing.												
Title: Next Generation Advanced Bomb Suit (NGABS)								-	-	8.736	-	8.736
Description: Funding line is new to PM SPIE in FY18. The objective of this effort is to increase the Warfighter lethality and mobility, by optimizing Soldier protection for Explosive Ordnance Disposal (EOD) personnel while effectively managing all life cycle aspects of Personal Protective Equipment (PPE).												
FY 2018 Base Plans:												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army				Date: May 2017	
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>		Project (Number/Name) 016 / <i>Close Combat Capabilities ENG DEV</i>	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Enter into the three year Engineering and Manufacturing Development phase of the NGABS with the objective of developing for the EOD Soldiers a full body protective ensemble that incorporates the latest technological advances in ergonomic design and material science to improve survivability from fragmentation, blast overpressure, impact, thermal hazards, and small arms fire based primarily on the modularity and scalability concept of the Soldier Protection System. The objective of this program is to enhance the tactical utility and applicability of this bomb suit concept which was not the case in legacy designs. Initiate the development of the Capability Production Document (CPD) for NGABS NGABS that includes integration of Suit & Helmet (S&H), Sensors and Heads up Display (HUD).					
Accomplishments/Planned Programs Subtotals	1.565	2.772	10.736	-	10.736

C. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• 121017: NGABS OMA	-	-	-	-	-	-	25.440	39.418	22.702	0	87.560
Remarks											
D. Acquisition Strategy											
The DLBS acquisition strategy is for developing product improvements such as making the system lighter and more module to the Antipersonnel and Obstacle Breaching System. These improvements will then be incorporated into the technical data package for future procurements.											
The NGABS Program is a single-step to full capability acquisition program utilizing full and open competition to ensure best value to the Army. Acquisition strategy for this program varies in methods, and range from: 1) Material Change programs that result in engineering changes to existing systems to; 2) traditional development programs that include an Engineering and Manufacturing Development phase ranging in duration from 12 to 48 months, depending on the level of complexity and testing required.											
E. Performance Metrics											
N/A											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army												Date: May 2017			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 016 / Close Combat Capabilities ENG DEV					
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dismounted Lane Breaching System - Program Management	MIPR	PM CCS : Picatinny Arsenal, NJ	0.000	0.100	Dec 2016	0.300	Nov 2016	0.100	Nov 2017	-		0.100	0.000	0.500	0.000
NGABS	Allot	PM SPE : Fort Belvoir	0.000	-		-		0.736		-		0.736	0.000	0.736	0.000
Subtotal			0.000	0.100		0.300		0.836		-		0.836	0.000	1.236	0.000
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dismounted Lane Breaching System - Preliminary Design Efforts	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	0.185	Apr 2016	-		-		-		-	0.000	0.185	Continuing
Dismounted Lane Breaching System - Type Classification Activities	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	-		-		0.687	Jun 2018	-		0.687	0.000	0.687	0.000
Dismounted Lane Breaching System - Qualification Hardware	C/FFP	TBD : TBD	0.000	-		0.900	May 2017	-		-		-	0.000	0.900	0.000
Dismounted Lane Breaching System - Rocket Design	MIPR	NSWC : Indian Head, MD	0.000	0.315	Dec 2016	0.100	Jan 2017	-		-		-	0.000	0.415	0.000
Dismounted Lane Breaching System - Type Classification Activities	MIPR	NSWC : Indian Head, MD	0.000	-		-		0.168	Jun 2018	-		0.168	0.000	0.168	0.000
NGABS - Product Development	C/FFP	TBD : Various	0.000	-		-		5.000		-		5.000	0.000	5.000	0.000
Subtotal			0.000	0.500		1.000		5.855		-		5.855	0.000	7.355	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army													Date: May 2017		
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev					Project (Number/Name) 016 / Close Combat Capabilities ENG DEV				
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dismounted Lane Breaching System - Trade Studies, SOW and Test Plan Prep	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	0.859	Dec 2016	-		-		-		-	Continuing	Continuing	Continuing
Dismounted Lane Breaching System - Logistics, Packaging, System Eng.	MIPR	ARDEC : Picatinny Arsenal, NJ	0.000	-		0.750	Jan 2017	-		-		-	0.000	0.750	0.000
Dismounted Lane Breaching System - Configuration Management	MIPR	NSWC : Dahlgren, VA	0.000	0.106	Dec 2016	0.041	Jan 2017	0.045	Jun 2018	-		0.045	0.000	0.192	0.000
NGABS Support Costs	MIPR	TBD : Various	0.000	-		-		1.000		-		1.000	0.000	1.000	0.000
Subtotal			0.000	0.965		0.791		1.045		-		1.045	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dismounted Lane Breaching System - Qualification Test	MIPR	Yuma Proving Ground : Yuma, AZ	0.000	-		0.681	Jun 2017	1.000	Mar 2018	-		1.000	0.000	1.681	0.000
NGABS Test & Evaluation	MIPR	TBD : Various	0.000	-		-		2.000		-		2.000	0.000	2.000	0.000
Subtotal			0.000	-		0.681		3.000		-		3.000	0.000	3.681	0.000
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	1.565		2.772		10.736		-		10.736	-	-	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army

Date: May 2017

Appropriation/Budget Activity
2040 / 5

R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>

Project (Number/Name)	016 / Close Combat Capabilities ENG DEV
------------------------------	---

[illegible]

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army																Date: May 2017																					
Appropriation/Budget Activity 2040 / 5										R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev										Project (Number/Name) 016 / Close Combat Capabilities ENG DEV																	
Event Name										FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) NGABS MDD																																					
(2) NGABS MS B																																					
NGABS Developmental Testing																																					
(3) NGABS MS C																																					

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) 016 / <i>Close Combat Capabilities ENG DEV</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Dismounted Lane Breaching System	1	2016	1	2020
Trade Studies/ Cost Benefit Analyses	2	2016	4	2016
SOW/ Test Plan Preparation	3	2016	4	2016
Develop Preliminary Design	4	2016	4	2017
Preliminary Design Review	1	2018	1	2018
Detailed Design Effort	1	2018	4	2018
User Assessment	3	2018	3	2018
Critical Design Review (CDR)	4	2018	4	2018
Qualification Hardware Build	4	2018	1	2019
Test Readiness Review	1	2019	1	2019
Qualification Testing	1	2019	2	2019
MS C or ECP	3	2019	3	2019
NGABS EFFORT	1	2017	4	2020
NGABS MDD	4	2017	4	2017
NGABS MS B	1	2018	1	2018
NGABS Developmental Testing	1	2018	4	2019
NGABS MS C	1	2020	1	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army										Date: May 2017		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 415 / Mine Neutral/Detection			
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
415: Mine Neutral/Detection	-	49.724	36.858	19.848	-	19.848	30.617	38.202	25.732	30.011	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2018 funding for the Man Transportable Robotic System (MTRS) Inc II transitions from PE 0604808A Landmine Warfare/Barrier - Eng Dev, Project 415 Mine Neutral/Detection to PE 0605053A Ground Robotics, Project FB2 Man Transportable Robotic System (MTRS) Inc II

A. Mission Description and Budget Item Justification

This Project provides for Engineering Manufacturing and Development (EMD) for the next generation of capabilities to detect, identify and neutralize hybrid threats and explosive hazards such as Improvised Explosive Devices (IEDs) and landmines. These capabilities are a Family of Systems (FOS) encompassing handheld, vehicle mounted, small robotic mounted, aerial platform mounted and area access, and neutralization systems operating in manned, remotely controlled, semi-autonomous or fully autonomous modes. Continued development of this FOS is necessary to support Route Clearance Platoons located within both Engineer Companies and Brigade Engineering Battalion Brigade Combat Teams.

The Husky Mounted Detection System (HMDS) is a counter-explosive device capability that provides standoff detection and marking of metallic encased caches and metallic and low-metallic antitank landmines, unexploded ordnance, trigger mechanisms, and improvised explosive devices (IEDs) in support of route and area-clearance operations. HMDS is a mission equipment package mounted on the Husky route clearance vehicle. The program was restructured in Sep 2016 to align with emerging shallow buried Wire Detection (WD) capabilities integrated onto the HMDS Increment A1 configuration (includes Ground Penetrating Radar (GPR)). These changes are necessary to adapt to changing IED threats. WD Technology will be fully integrated through Engineering Change Proposals (ECPs) beginning in FY18. Prototypes developed under the concluded HMDS Increment A2 effort may be leveraged in development of future capabilities. Future capabilities may include detection of deep buried IEDs and caches, and semi-autonomous control of the Husky vehicle and HMDS from inside a follow-on vehicle.

The Route Clearance & Interrogation System (RCIS) consists of two semi-autonomous vehicles, RCIS Type I and RCIS Type II, and includes designated control vehicles and Operator Control Units (OCUs) which provide a standoff capability to detect and neutralize the full spectrum of explosive hazards. RCIS Type I and Type II are being procured as separate increments. Type I integrates a semi-autonomous kit onto a High Mobility Engineering Excavator (HMEE) for remote control from a Buffalo Mine Protected Clearance Vehicle (MPCV). RCIS Type I semi-autonomous kit will be integrated onto the HMEE and be capable of interrogating and classifying explosive hazards. Type II integrates a semi-autonomous kit on a route clearance lead Medium Mine Protected Vehicle (MMPV) for operation from another MMPV. The RCIS Type II semi-autonomous kit will be able to detect, neutralize and proof explosive hazards. An OCU will be integrated into a Buffalo MPCV for Type I and an MMPV for Type II. RCIS capabilities will be fielded to Route Clearance Squads and Engineer Platoons.

The Vehicle Optics Sensor System (VOSS) provides a telescoping, gyro-stabilized, high-resolution, triple sensor (daylight, night-vision, and thermal-imaging) surveillance system to optically detect from standoff distances, explosive hazards (IEDs and landmines) and their trigger sources. VOSS will be mounted on the MMPV

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) 415 / <i>Mine Neutral/Detection</i>
<p>Type I for Explosive Ordnance Disposal (EOD) and MMPV Type II for Engineers. VOSS will integrate and qualify a Geo-location capability, and develop and integrate a new, less costly, more reliable, sustainable and durable Infrared (IR) camera.</p> <p>The Multifunction Video Display (MVD) provides view/control capability of the enablers (Interrogation Arms, VOSS, Man Transportable Robotic System, Drivers Vision Enhancement, Vehicle Situational Awareness Cameras) in the MMPV Type II to all Operators. New capabilities will be added into that display to view and control future Unmanned Ground Vehicle Systems (UGVs) programs Route Clearance & Integration System (RCIS) and Husky Mounted Detection System (HMDS), Explosive Hazard Pre-Detonation (EHP) Roller and view Unmanned Aerial Vehicles video feeds. Additional software will need to be developed to add these capabilities. In addition, a new capability to push the video feeds of all of the enablers (Interrogation Arms, VOSS, Man Transportable Robotic System, Drivers Vision Enhancement and Vehicle Situational Awareness Cameras) from various vehicles within a Route Clearance Patrol will be developed.</p> <p>Route Clearance Vehicle (RCV) & Enabler Improvements: Develop the hardware used to improve POR RCVs and Enablers</p> <ul style="list-style-type: none"> - Develop product upgrades to MMPV Type II Interrogation Arm - Next Generation HMDS A2 to include Deep Buried Detection on the Husky and semi-autonomous control capability on the Husky and MMPV Type II - Explosive Hazard Pre-Detonation (EHP) Equipment upgrades <p>Force Protection Improvements/Add On Armor (AoA) to execute system level design cycle for rocket propelled grenade (RPG) and explosive formed projectiles (EFP) AoA kits for Husky and Buffalo. Explosive Hazard Pre-Detonation (EHP) capability to include a debris blower, Wire Neutralization System (WNS) and Mine Roller to neutralize/detonate a broad spectrum of improvised explosive hazards while on the move, to support route clearance mission.</p> <p>TARDEC Software Center (SEC) provides support for the Explosive hazard Pre-Detonation (EHP) Roller, updating software throughout Test and Evaluation (T&E) and Low Rate Initial Production (LRIP) activities. The SEC will continue development of the EHP Roller software to integrate EHP Roller functionality with Multi-Visual Display (MVD). In addition, the SEC will develop a Software Integration Lab (SIL) to support integration as well as maintenance and troubleshooting improvements.</p> <p>Standoff Robotic Explosive Hazard Detection System (SREHD), formerly known as the Autonomous Mine Detection System (AMDS), provides increased survivability through mine and explosive hazards stand-off detection, marking and neutralization capability for the dismounted soldier. It provides area access and freedom of movement for the Commander. SREHD consists of payload modules to be mounted on man-portable unmanned ground vehicles. The payloads are for surface laid and buried threats to include mines and explosive hazards. SREHD transitioned from Technical Development to Engineering and Manufacturing Development (EMD) in FY 2014. This capability allows a soldier to remain in a protective posture while detecting and neutralizing a wide variety of hybrid and conventional explosive threats.</p> <p>FY2018 Base funding in the amount of \$7.000 million supports the continued development of the Husky Mounted Detection System (HMDS); \$.876 million completes development of the Vehicle Optics Sensor System (VOSS); \$.7931 million supports continued development of RCIS Type I; \$.750 million supports continued MVD development; \$.137 million supports development of prototype Husky EFP AoA kit; \$.100 million supports EHP software development; \$3.054 supports SHEHD DT corrective actions and IOT&E.</p>		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017			
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 415 / Mine Neutral/Detection				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: HMDS System Engineering & Program Management Support Description: HMDS System Engineering & Program Management Support FY 2016 Accomplishments: Engineering Manufacturing Development (EMD); Critical Design Review FY 2017 Plans: System Engineering and Program Management including matrix support. FY 2018 Base Plans: Development of program documentation, acquisition package for ECP, Type Classification/Materiel Release Activities, and development of logistics products.		11.543	5.969	0.534	-	0.534
Title: HMDS Ground Penetrating Radar (GPR) Description: HMDS Ground Penetrating Radar (GPR) FY 2017 Plans: Technical Support to Husky Vehicles		-	0.203	-	-	-
Title: HMDS Ground Penetrating Radar FY 2016 Accomplishments: Critical Design Review (CDR) and Developmental Testing (DT) FY 2017 Plans: HMDS A2 CDR1 for Ground Penetrating Radar (GPR), Deep Buried Detector (DBD), and Installation Kit; Risk Reduction Testing.		7.784	2.286	-	-	-
Title: HMDS Training Aids, Devices, Simulators and Simulations (TADSS) FY 2016 Accomplishments: Virtual Clearance Training Suite (VCTS) and Interactive Multimedia Instruction (IMI)		3.825	-	-	-	-
Title: HMDS GPR: Engineer Change Proposal (ECP) to add Wire Detection and Infrared Illumination Description: HMDS A1 Tactical GPR: Engineer Change Proposal (ECP) to add Wire Detection and Infrared Illumination		-	2.597	5.975	-	5.975

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army				Date: May 2017		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev		Project (Number/Name) 415 / Mine Neutral/Detection		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
FY 2017 Plans: HMDS A1 Tactical GPR: Engineer Change Proposal (ECP) to add Wire Detection and Infrared Illumination						
FY 2018 Base Plans: Engineering Change Proposal (ECP) to add Wire Detection (WD) and Infrared Illumination (IR) to HMDS GPR, conduct post award kick off meeting, requirements review and design review.						
Title: HMDS A1 Trainer: Add Wire Detection and develop logistics materials Description: HMDS A1 Trainer: Add Wire Detection and develop logistics materials		-	0.440	-	-	-
FY 2017 Plans: HMDS A1 Trainer: Add Wire Detection and develop logistics materials						
Title: RCIS Type I & MTRS Inc II Description: RCIS Type I		12.839	16.970	7.931	-	7.931
FY 2016 Accomplishments: RCIS Type I: Engineering and Manufacturing Development (EMD). Draft Performance Work Statement (PWS) released, Pre-Solicitation Industry Conference, Contract Awarded for the High Mobility Engineering Excavator (HMEE) Digital Architecture, Recap Buffalo MPCV, PM support and Interoperability. RCIS FY2016 funding was \$6.408 million. MTRS Inc II: development, RFP approval, Source Selection Evaluation Board, Risk Reduction efforts and PM support. InterOperability Profile (IOP): instantiation and design reviews for IOP. Analytical studies and documentation to support pre-Materiel Development Decision (MDD) activities for emerging programs and Capability Development Documents (CDDs)/Capability Production Documents (CPDs) leading up to Milestone Decision Authority. In FY2016, MTRS Inc II funding was \$5.469 million and IOP \$0.960 million.						
FY 2017 Plans: RCIS Type I: RFP approval, Source Selection Evaluation Board for the EMD contract, RESET/RECAP Buffalos for RCIS EMD, award contract modification for Delta HMEE software regression testing and hardware reliability testing to support design maturation, and prepare and submit milestone B documentation. RCIS funding: \$7.801 million. MTRS Inc II: Source Selection Evaluation Board, contract award and preparation for Preliminary Design Review. MTRS Inc II funding \$9.168 million.						
FY 2018 Base Plans:						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017			
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 415 / Mine Neutral/Detection				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
RCIS Type I: Completion of Delta HMEE design maturation; RCIS EMD contract award for Semi-Autonomous Control (SAC) System development, Preliminary Design Review, Reset/Recap Buffalos MPCV, Award of the Delta HMEE EMD contract. RCIS funding \$7.930 million.						
Title: VOSS Geo-Location Capability & Infrared Camera Replacement Description: VOSS capability to determine location of explosive hazards and IR Camera Replacement FY 2016 Accomplishments: In support of Geo-location, conducted multiple rounds of Market Research and thorough Technology Trade Studies to discern most affordable approach to meet requirement. Completed all technical documentation to proceed to testing and validation. FY 2017 Plans: Geo-location Qualification, Performance Spec, Engineering Data, Integration and Prototypes for Infrared Camera Replacement. FY 2018 Base Plans: Geo-location close-out and finalization of technical data to be furnished to Tobyhanna Army Depot for fabrication of integration kit items and cables. Complete IR Camera specifications, technical information and requirements. Independently validate technical data package.		2.013	2.253	0.876	-	0.876
Title: Multifunction Video Display (MVD) Description: Multifunction Video Display (MVD). Digital display used to control and view RCV enablers FY 2016 Accomplishments: Continuing support for MVD SIL at NVESD for development of additional enablers EHP Roller onto MVD. FY 2017 Plans: Continuing Support for MVD SIL at NVESD for development of additional enabler (Interrogation Arm software development for control functionality). FY 2018 Base Plans: Continuing Support for MVD SIL at NVESD for development of additional enabler (Interrogation Arm software development for control functionality).		0.750	0.750	0.750	-	0.750
Title: RCV & Enabler Improvements		2.412	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017			
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 415 / Mine Neutral/Detection				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Develop the hardware used to improve POR RCVs.						
FY 2016 Accomplishments: Develop system demonstrator of MMPV Type II Interrogation Arm System Improvements and test. Work upgrade to EHP blower camera. EHP roller development						
Title: Add on Armor (AoA) Description: Development AoA efforts for Route Clearance Vehicles (RCV) to include Rocket Propelled Grenade (RPG) and Explosive Formed Projectiles (EFP) for Husky and Buffalo.		0.300	0.091	0.137	-	0.137
FY 2016 Accomplishments: Develop and test Buffalo EFP AoA Kit.						
FY 2017 Plans: Develop Husky EFP AoA Kit.						
FY 2018 Base Plans: Prototype of Husky EFP AoA Kit						
Title: Software Engineering Center (SEC) Description: TARDEC SEC provides support for the Explosive Hazard Pre-Detonation (EHP) Roller, updating software throughout Test and Evaluation (T&E) and Low Rate Initial Production (LRIP) activities.		-	-	0.100	-	0.100
FY 2018 Base Plans: Enhanced Explosive Hazard Pre-Detonation EHP Software for LRIP T&E activities.						
Title: SREHD (Formerly AMDS) Description: SREHD (AMDS)		8.258	5.299	3.054	-	3.054
FY 2016 Accomplishments: Engineering Manufacturing Development (EMD), Critical Design Review (CDR), and Began Development Testing (DT)						
FY 2017 Plans:						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army										Date: May 2017		
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 415 / Mine Neutral/Detection				
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Engineering Manufacturing Development (EMD), Completion of Development Testing (DT), Limited User Test (LUT), Milestone C, and Initial Operational Test and Evaluation (IOT&E)												
FY 2018 Base Plans: Conduct Corrective Action Plans (CAPS) as a result of Developmental Testing (DT) and Conduct Initial Operational Testing and Evaluation (IOT&E)												
Title: HMDS Testing and Test Support activities								-	-	0.491	-	0.491
FY 2018 Base Plans: Risk Reduction and ECP testing												
Accomplishments/Planned Programs Subtotals								49.724	36.858	19.848	-	19.848
C. Other Program Funding Summary (\$ in Millions)												
Line Item	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	
• R64001: Husky Mounted Detection System (HMDS) R64001	13.565	0.274	21.695	-	21.695	41.423	50.646	81.219	46.019	Continuing	Continuing	
• R68102: GSTAMIDS R68102	58.682	39.350	32.442	-	32.442	56.052	42.858	39.164	34.004	Continuing	Continuing	
• DA0924: OPA1 Mods in Services DA0924	204.193	219.456	83.940	140.163	224.103	85.842	80.127	70.372	79.291	Continuing	Continuing	
• R68260: AMDS R68260	-	10.500	10.571	-	10.571	20.137	25.259	10.984	-	Continuing	Continuing	
• 606: Countermines/Barrier Advanced Dev 606	-	3.757	4.149	-	4.149	3.149	3.200	3.264	3.184	Continuing	Continuing	
• M80400: Robotic Combat Support System (RCSS)	2.136	2.951	4.516	-	4.516	5.124	12.467	10.013	18.828	Continuing	Continuing	
• E50510: DEMO KIT, BLASTING: Munition Array Charge, XM335	-	-	1.586	-	1.586	2.366	3.113	6.980	-	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
The Husky Mounted Detection System (HMDS) program is pursuing an acquisition approach that delivers capability increments - Increment A, Configuration 1 (A1) to the Warfighter by leveraging the Quick Reaction Capability (QRC) Ground Penetrating Radar (GPR) currently deployed in support of Operation Enduring Freedom (OEF) and Operation Inherent Resolve (OIR). In FY2018, the program will execute an ECP to add a wire detection capability to address evolving threat, and Infrared												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) 415 / <i>Mine Neutral/Detection</i>
<p>illumination to enable nighttime operation. A second ECP to improve operational availability of the HMDS during inclement weather and address obsolescence and Cyber Security deficiencies will follow. Additionally in FY2018, the program will begin Type Classification and material release activities, and achieve First Unit Equipped (FUE) of the HMDS GPR and will retrofit the fielded GPR with each of the ECPs as they become available.</p> <p>The RCIS program will execute an EMD phase for Type I systems starting with an OEM contract award for Delta HMEE support and a contract award to one EMD contractor for the Semi-Autonomous Control (SAC) Kit in 1st Quarter FY 2018. The SAC Kit award will be based on a source selection from full and open competition. The SAC EMD contract awardee will execute Preliminary Design Review (PDR), design, integration, and build phase of seven Semi-Autonomous Capability (SAC) kits, integrated onto six vehicles, with one kit available for engineering and System Integration Lab (SIL) evaluations. These assets will be used for the Government to execute a full Pre-Production Qualification Test (PPQT) and to be evaluated against Capability Production Document (CPD) and performance specification requirements. Production and Technical Data Package (TDP) procurement options on the EMD contract will take advantage of competition to assist in cost reduction. The RCIS Type I program Lifecycle Cost Estimate (LCCE), and associated budget request, was updated based on costs associated with modifying the base HMEE platform to accept the SAC kit, changes in the acquisition strategy and alignment of development and test activities in support of a production decision. To support EMD, ALUGS is funding Reset/Recap of six Buffalo Mine Protected Clearance Vehicle (MPCV) at Letterkenny Army Depot. These will be provided to the SAC contractor for Operator Control Unit (OCU) integration.</p> <p>The Vehicle Optics Sensor System (VOSS) program is pursuing an acquisition approach which harvests Quick Reaction Capability (QRC) procured systems for refresh and insertion into the Program of Record (POR). In FY 2018 VOSS will transition a qualified Geo-location capability and full technical data package for Government fabrication / manufacture, and complete requirements, interfaces and technical data to enable integration of a less costly, more sustainable and durable IR Camera.</p> <p>EHP Debris Blower was procured as a COTS item from a commercial vendor in FY 2016. EHP Roller and EHP Wire Neutralization System (WNS) will be procured starting in FY 2017. MVD will be procured through a sole source contract FY 2017. Spiral development of software upgrades to MVD will be procured in FY 2018. MMPV Type II Interrogation Arm Engineer Change Proposals/upgrades would be procured in the out years once the user identifies the upgrades needed.</p> <p>SREHD (formerly known as AMDS) is currently in the Engineering Manufacturing Development (EMD) phase and is being developed to provide standoff detection, marking, and neutralization of explosive hazards (e.g., landmines, improvised explosive devices (IED), booby-traps (explosive), and unexploded ordnance (UXO)) in complex and urban terrain, including confined areas and subterranean environments (e.g., buildings, bunkers, tunnels, etc.). The EMD phase consists of a preliminary design phase, which culminates with the Preliminary Design Review (PDR), a Risk Reduction Test (RRT) to evaluate the preliminary design, a critical design phase, which culminates with the Critical Design Review (CDR), integration with the Talon IV chassis and the Remote Activation Munition System (RAMS), a prototype build of 11 systems, which will be used for integration activities and to conduct the Government Development Test (DT), and a Logistics Demonstration (LogDemo). Transition to Low Rate Initial Production (LRIP) is scheduled to occur in the 4th Quarter of FY 2017. Initial Operational Test and Evaluation (IOT&E) will occur with LRIP assets in 3rd Quarter of FY 2018. Award of the Full Rate Production (FRP) contract is scheduled to occur in the 4th Quarter of FY 2018 under PAA E50510 / DEMO KIT, BLASTING: Munition Array Charge, XM335, for the neutralization capability, as well under OPA R68260 / AREA MINE DETECTION SYSTEM (AMDS) for the detection and marking capabilities.</p>		
E. Performance Metrics		
N/A		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army												Date: May 2017			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 415 / Mine Neutral/Detection					
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management - HMDS	MIPR	PM CCS : Picatinny Arsenal, NJ	29.566	2.941	Mar 2016	-		-		-		-	0.000	32.507	0.000
HMDS System Engineering & Program Management	MIPR	PM Terrestrial Systems : Fort Belvoir, VA	0.000	-		1.280		0.470	Mar 2018	-		0.470	Continuing	Continuing	Continuing
HMDS PMO SETA	SS/CPFF	TBD : TBD	0.000	-		0.400		0.064	Feb 2018	-		0.064	Continuing	Continuing	0.000
Program Management - RCIS Type I	MIPR	PM FP : Warren, MI	1.358	1.471	Mar 2016	1.790	Mar 2017	1.810	Mar 2018	-		1.810	Continuing	Continuing	0.000
Program Management - MTRS Inc II	MIPR	PM FP : Warren, MI	0.000	1.604	Mar 2016	-		-		-		-	0.000	1.604	0.000
VOSS Geo-location and new Infrared Camera	MIPR	PM Ground Sensors : Ft. Belvoir, VA	0.200	0.161		0.130		0.143	Mar 2018	-		0.143	0.000	0.634	0.000
Program Management - SREHD (Formerly AMDS)	Allot	PM CCS : Picatinny Arsenal, NJ	2.864	0.640	Mar 2016	0.530	Mar 2017	0.440	Mar 2018	-		0.440	Continuing	Continuing	0.000
Subtotal			33.988	6.817		4.130		2.927		-		2.927	-	-	-
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HMDS Inc A2 – Integration of Deep Buried Detection and Wire Detection	SS/CPFF	NIITEK Dulles : VA	33.136	5.600	Jan 2016	2.286		-		-		-	0.000	41.022	0.000
HMDS A1 Dev of Engineering Change Proposal w/ Wire Detect and InfraRed	SS/CPFF	NITEK : Dulles, VA	0.000	-		2.597		5.975	Feb 2018	-		5.975	Continuing	Continuing	0.000
HMDS A1 Dev of Trainer WD, Test Kit Fabrication	SS/CPFF	NITEK : Dulles, VA	0.000	-		0.440		-		-		-	0.000	0.440	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army												Date: May 2017			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 415 / Mine Neutral/Detection					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HMDS - TADSS	C/FFP	TBD - executed through PEO STRI : TBD	0.000	4.849	Nov 2015	-		-		-		-	0.000	4.849	0.000
RCIS Type I	SS/FFP	PM FP, PdM ALUGS : Warren, MI	6.528	2.705	Mar 2016	-		1.571	Jan 2018	-		1.571	0.000	10.804	Continuing
RCIS Type I test assets	MIPR	Letterkenny Army Depot : Letterkenny, PA	0.000	0.961	Mar 2017	-		-		-		-	0.000	0.961	0.000
RCIS Type I	C/CPIF	PM FP, ALUGS : WARREN MI	0.000	-		4.133	Jul 2017	3.350	Dec 2017	-		3.350	Continuing	Continuing	0.000
MTRS Inc II	C/FFP	PM FP, PdM UGV : Warren, MI	0.000	-		8.418	Mar 2017	-		-		-	0.000	8.418	0.000
VOSS Geo-location and Infrared Camera	C/CPFF	Various : Ft. Belvoir, VA	1.393	0.827	Mar 2016	1.127		0.295	Mar 2018	-		0.295	0.000	3.642	0.000
Multi-Function Video Display	C/CPFF	NVESD : Fort Belvoir, VA	3.222	0.250		0.250		0.250		-		0.250	3.047	7.019	3.047
RCV & Enablers Improvements - MMPV Type II Interrogation Arm	C/CPFF	KRC : Houghton, MI	0.733	0.500		-		-		-		-	0.000	1.233	0.000
SREHD (Formerly AMDS) Engineering and Manufacturing Development (EMD)	C/CPIF	Carnegie Robotics LLC : Pittsburgh, PA	24.251	3.136	Aug 2016	1.500	Jan 2017	1.150	Jan 2018	-		1.150	Continuing	Continuing	0.000
SREHD (Formerly AMDS) Trainer Development	MIPR	ARDEC : , Picatinny Arsenal, NJ	0.460	-		-		-		-		-	0.000	0.460	0.000
Subtotal			69.723	18.828		20.751		12.591		-		12.591	-	-	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army												Date: May 2017			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 415 / Mine Neutral/Detection					
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HMDS - Test Support	C/FFP	USI : Newport News, VA	0.820	0.601	Dec 2015	-		-		-		-	0.000	1.421	0.000
HMDS - Tech Support	C/FFP	MANTECH : Fairfax, VA	0.942	0.531	Nov 2015	0.203		0.175	Nov 2017	-		0.175	Continuing	Continuing	0.000
HMDS	MIPR	NVESD/CERDEC : Fort Belvoir, VA	10.213	2.220	Jan 2016	1.000		-		-		-	Continuing	Continuing	0.000
HMDS - Information Assurance	FFRDC	MITRE : McLean, VA	0.570	0.150	May 2016	0.150		-		-		-	0.000	0.870	0.000
HMDS - LOG DEMO	C/CPFF	FIBERTEK : TBD	0.381	-		-		-		-		-	0.000	0.381	0.000
HMDS	MIPR	PM FP, PdM ALUGS : Warren, MI	3.269	1.160	Jan 2016	-		-		-		-	0.000	4.429	0.000
HMDS - Cost Analysis	C/CPFF	CACI : va	0.048	-		-		-		-		-	0.000	0.048	0.000
HMDS	MIPR	PEO STRI : Orlando, FL	1.701	0.628	Jan 2016	0.490		-		-		-	0.000	2.819	0.000
HMDS	MIPR	CECOM : Aberdeen, MD	2.549	1.515	Jan 2016	1.000		-		-		-	Continuing	Continuing	0.000
HMDS - Test Data Plan Analysis	SS/CPFF	IDA : Alexandria, VA	0.560	0.350	May 2016	0.360		-		-		-	0.000	1.270	0.000
HMDS	MIPR	MSCoE : Ft. Leonard Wood, MO	0.000	0.119	Jan 2016	0.115		-		-		-	Continuing	Continuing	0.000
HMDS	MIPR	Various : Various locations	2.873	-		-		-		-		-	0.000	2.873	0.000
HMDS	MIPR	Product Realization Directorate (PRD)/CERDEC : Aberdeen, MD	1.096	0.447	Jan 2016	0.460		-		-		-	Continuing	Continuing	0.000
HMDS	MIPR	ARDEC : Picatinny Arsenal, NJ	1.901	0.524	Jan 2016	0.714		-		-		-	0.000	3.139	0.000
HMDS	MIPR	ADM : Edgewater, MD	1.206	-		-		-		-		-	0.000	1.206	0.000
HMDS	MIPR	AMRDEC : Redstone Arsenal, AL	0.549	0.472	Jan 2016	-		-		-		-	0.000	1.021	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army												Date: May 2017			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev						Project (Number/Name) 415 / Mine Neutral/Detection			
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HMDS	MIPR	TARDEC : Warren, MI	0.545	-		-		-		-		-	0.000	0.545	0.000
RCIS Type I	MIPR	PM FP, PdM ALUGS : Warren, MI	5.599	1.037	Mar 2016	1.379	Mar 2017	1.150	Mar 2018	-		1.150	Continuing	Continuing	0.000
Robotics Interoperability	MIPR	PM FP, PdM ALUGS : Warren, MI	3.000	0.960	Mar 2016	-		-		-		-	0.000	3.960	0.000
MTRS Inc II	Various	PM FP, PdM UGV : Warren, MI	4.840	3.865	Mar 2016	-		-		-		-	0.000	8.705	0.000
VOSS Geo-location and Infrared Camera	MIPR	Various : Various	2.376	0.344		-		0.379	Jan 2018	-		0.379	0.000	3.099	0.000
Multi-function Video Display	C/CPFF	NVESD/CERDEC : Fort Belvoir, VA	2.297	0.500		0.500		0.500		-		0.500	0.000	3.797	0.000
Add on Armor (AoA) Husky RPG Kit	MIPR	TARDEC : Warren, MI	0.283	-		-		-		-		-	0.000	0.283	0.000
AoA Husky AoA Kit	MIPR	TARDEC : Warren, MI	0.000	-		0.091		0.137		-		0.137	0.000	0.228	0.000
EHP Roller Development	MIPR	TARDEC : Warren, MI	0.000	0.400	Nov 2015	-		-		-		-	0.000	0.400	0.000
EHP Blower Camera Upgrade	MIPR	TARDEC : Warren, MI	0.000	0.050	Apr 2016	-		-		-		-	0.000	0.050	0.000
SREHD (Formerly AMDS)	MIPR	Various : Various	5.580	3.512	Jan 2016	1.769	Jan 2017	0.890	Jan 2018	-		0.890	Continuing	Continuing	0.000
Subtotal			53.198	19.385		8.231		3.231		-		3.231	-	-	0.000
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HMDS	MIPR	ATEC : Alexandria, VA	2.302	2.184	Jan 2016	-		0.316	Mar 2018	-		0.316	Continuing	Continuing	Continuing
RCIS Type I	MIPR	ATEC : Aberdeen, MD	1.505	0.234	Sep 2016	0.500	Feb 2017	0.050	Jan 2018	-		0.050	0.000	2.289	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army												Date: May 2017			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev						Project (Number/Name) 415 / Mine Neutral/Detection			
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VOSS Geo-location and new Infrared Camera	MIPR	ATEC : Alexandria, VA	3.154	0.739		0.996		0.059	Jan 2018	-		0.059	Continuing	Continuing	Continuing
MTRS Inc II	MIPR	TARDEC, Various : Warren, MI	1.000	-		0.750	Jan 2017	-		-		-	0.000	1.750	0.000
Multi-Function Video Display	WR	KRC : Houghton, MI	1.100	-		-		-		-		-	0.000	1.100	0.000
RCV & Enabler Improvements –MMPV Type II Interrogation Arm.	MIPR	TARDEC : Warren, MI	0.100	0.267		-		-		-		-	0.000	0.367	0.000
Add on Armor (AoA) Husky RPG	MIPR	ATEC : Aberdeen, MD	0.100	-		-		-		-		-	0.000	0.100	0.000
Add on Armor Buffalo EFP	MIPR	ATEC : Aberdeen, MD	0.000	0.300	Jun 2016	-		-		-		-	0.000	0.300	0.000
Add-on Armor	MIPR	ARL : Adelphi, MD	0.100	-		-		-		-		-	0.000	0.100	0.000
SREHD (Formerly AMDS)	MIPR	ATEC : Various	0.898	0.970	Jul 2016	1.500	Aug 2017	0.574	Jun 2018	-		0.574	Continuing	Continuing	0.000
Software Engineering Center (SEC)	MIPR	TARDEC : Warren, MI	0.000	-		-		0.100		-		0.100	0.000	0.100	0.000
Subtotal			10.259	4.694		3.746		1.099		-		1.099	-	-	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			167.168	49.724		36.858		19.848		-		19.848	-	-	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army

Date: May 2017

Appropriation/Budget Activity

2040 / 5

R-1 Program Element (Number/Name)

PE 0604808A / Landmine Warfare/Barrier - Eng Dev

Project (Number/Name)

415 / Mine Neutral/Detection

Event Name	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
HMDS																												
(1) HMDS Increment A1 - MS C Review								1 A1 MS C																				
(2) HMDS Increment A1-TC/MR								2 A1 TC/MR																				
(3) HMDS Increment A1-FUE									3 A1 FUE																			
(4) HMDS Increment A1-IOC													4 A1 IOC															
(5) HMDS Increment A1 Award ECP for WD								5 A1 ECP WD																				
HMDS Risk Reduction/ECP																												
(6) HMDS Increment A1 w/WD FUE																	6 HMDS ECP w/WD FUE											
HMDS Testing																												
RCIS Type I and Type II																												
(7) RCIS Type I MS B												7 MS B																
(8) RCIS Type I EMD Contract Award												8 EMD Contract Award																
(9) RCIS Type I PDR													9 PDR															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army

Date: May 2017

Appropriation/Budget Activity

2040 / 5

R-1 Program Element (Number/Name)

PE 0604808A / Landmine Warfare/Barrier -
Eng Dev

Project (Number/Name)

415 / Mine Neutral/Detection

Event Name	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) RCIS Type I CDR																1 CDR												
(2) RCIS Type I TRR																2 TRR												
(3) RCIS Type I MS C																			3 MS C									
(4) RCIS Type I Low Rate Initial Production (LRIP)																			4 LRIP									
(5) RCIS Type I Full Rate Production (FRP) Decision Review																											5 FRP DR	
(6) RCIS Type II initiation																			6 RCIS Type II Initiation									
MTRS																												
(7) MTRS Inc II RFP								7 RFP																				
(8) MTRS PDR																											8 PDR	
(9) MTRS Inc II MS B/C																											9 MS B/C	
(10) MTRS Inc II Contract Award																											10 Contract Award	
VOSS																												
Geo-location Integration																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army																				Date: May 2017																	
Appropriation/Budget Activity										R-1 Program Element (Number/Name)										Project (Number/Name)																	
2040 / 5										PE 0604808A / Landmine Warfare/Barrier - Eng Dev										415 / Mine Neutral/Detection																	
Event Name										FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Geo-location Qualification																																					
(1) Geo-location Operation Test														1																							
Infrared Camera Integration																																					
Infrared Camera Qualification																																					
MVD																																					
MVD Operational Testing																																					
MVD Production Cut-In																																					
MVD to Incorporate EHP/ Spiral Software Development																																					
MVD Future Incremental Capability Upgrades/ Spiral Software Development																																					
RCV & Enablers																																					
Husky Semi-autonomous Control Demo																																					
RCV Weight Reduction Study																																					
RCV Transportability Study																																					

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army **Date:** May 2017

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 415 / Mine Neutral/Detection
--	--	--

Event Name	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interrogation Arm Upgrade Demonstrator MMPV Type II																												
(1) Interrogation Arm Upgrade Demonstrator MMPV Type II Cut-In																												
EHP Debris Blower Camera Upgrade																												
Buffalo RPG Kit reverse engineer																												
(2) RPG Defeat Add on Armor Husky LRIP																												
(3) RPG Defeat Add on Armor Husky LRIP Testing																												
(4) RPG Defeat Add on Armor Husky FRP																												
EHP Roller Development																												
EFP Defeat Add on Armor Research continuation w/ ARL																												
(5) EFP Defeat Add on Armor Prototype Development (Buffalo)																												
(6) EFP Defeat Add on Armor LRIP (Buffalo)																												
(7) EFP Defeat Add on Armor LRIP Testing (Buffalo)																												
(8) EFP Defeat Add on Armor FRP (Buffalo)																												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army

Date: May 2017

Appropriation/Budget Activity

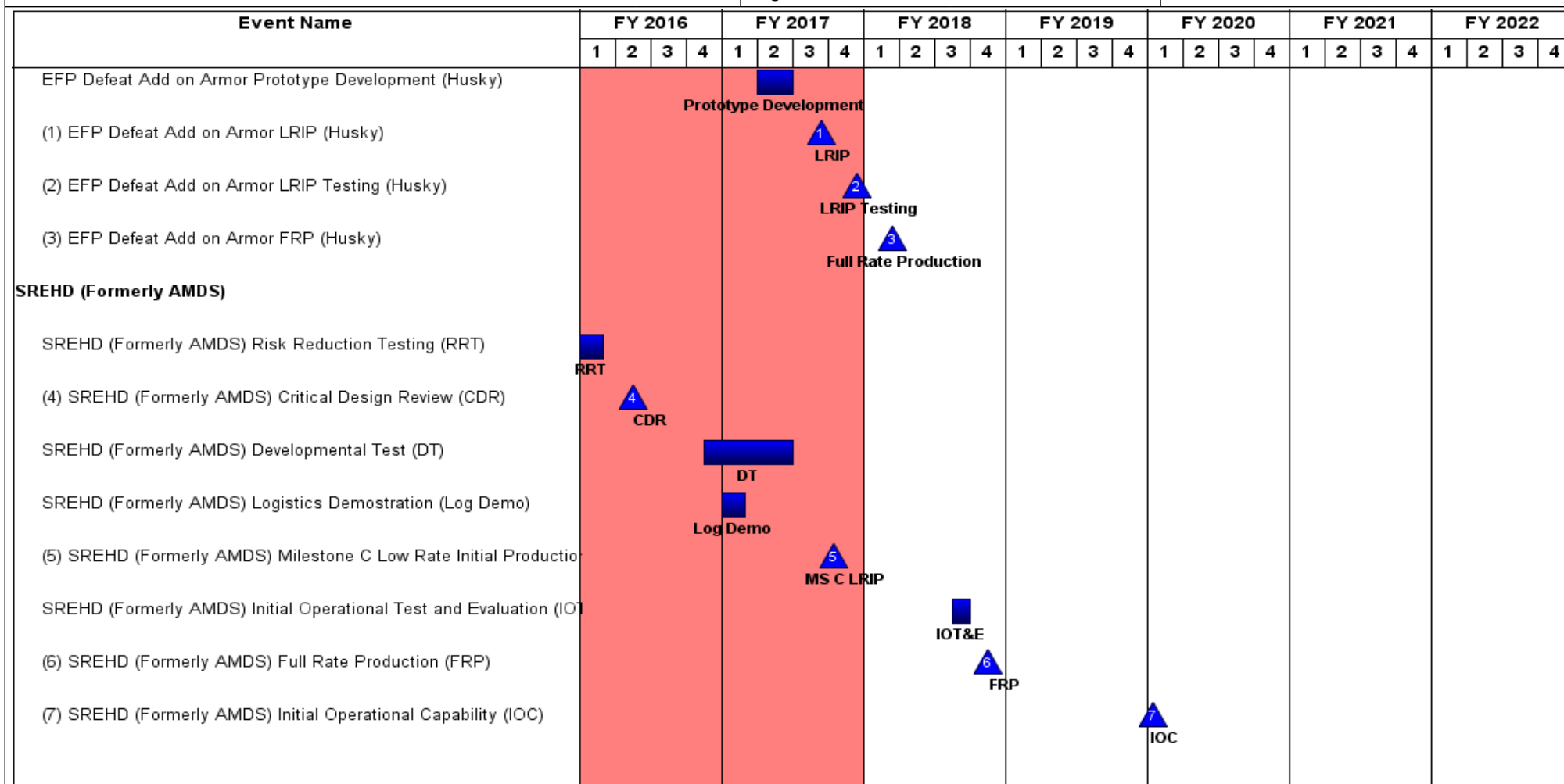
2040 / 5

R-1 Program Element (Number/Name)

PE 0604808A / Landmine Warfare/Barrier -
Eng Dev

Project (Number/Name)

415 / Mine Neutral/Detection



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army																Date: May 2017																					
Appropriation/Budget Activity 2040 / 5										R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev								Project (Number/Name) 415 / Mine Neutral/Detection																			
Event Name										FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) SREHD (Formerly AMDS) Full Operational Capability (FOC)																														<div><div></div><div>FOC</div></div>							


 FOC

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) 415 / <i>Mine Neutral/Detection</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
HMDS	1	2016	1	2023
HMDS Increment A1 - MS C Review	3	2017	3	2017
HMDS Increment A1-TC/MR	4	2017	4	2017
HMDS Increment A1-FUE	2	2018	2	2018
HMDS Increment A1-IOC	3	2019	3	2019
HMDS Increment A1 Award ECP for WD	2	2017	2	2017
HMDS Risk Reduction/ECP	2	2017	1	2023
HMDS Increment A1 w/WD FUE	3	2020	3	2020
HMDS Testing	2	2018	1	2023
RCIS Type I and Type II	1	2015	4	2022
RCIS Type I MS B	1	2018	1	2018
RCIS Type I EMD Contract Award	1	2018	1	2018
RCIS Type I PDR	3	2018	3	2018
RCIS Type I CDR	3	2019	3	2019
RCIS Type I TRR	4	2019	4	2019
RCIS Type I MS C	3	2020	3	2020
RCIS Type I Low Rate Initial Production (LRIP)	3	2020	3	2020
RCIS Type I Full Rate Production (FRP) Decision Review	3	2022	3	2022
RCIS Type II initiation	3	2020	3	2020
MTRS	1	2016	3	2017
MTRS Inc II RFP	4	2016	4	2016
MTRS PDR	1	2018	1	2018

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army			Date: May 2017	
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev		Project (Number/Name) 415 / Mine Neutral/Detection	
	Start		End	
Events	Quarter	Year	Quarter	Year
MTRS Inc II MS B/C	3	2017	3	2017
MTRS Inc II Contract Award	3	2017	3	2017
VOSS	1	2016	1	2016
Geo-location Integration	1	2016	4	2016
Geo-location Qualification	1	2017	4	2017
Geo-location Operation Test	4	2017	4	2017
Infrared Camera Integration	1	2017	4	2017
Infrared Camera Qualification	1	2018	4	2018
MVD	1	2016	4	2022
MVD Operational Testing	4	2017	1	2018
MVD Production Cut-In	1	2018	1	2023
MVD to Incorporate EHP/ Spiral Software Development	1	2017	4	2018
MVD Future Incremental Capability Upgrades/ Spiral Software Development	1	2017	4	2020
RCV & Enablers	1	2016	4	2022
Husky Semi-autonomous Control Demo	1	2018	3	2018
RCV Weight Reduction Study	1	2018	4	2018
RCV Transportability Study	2	2018	4	2019
Interrogation Arm Upgrade Demonstrator MMPV Type II	2	2017	2	2018
Interrogation Arm Upgrade Demonstrator MMPV Type II Cut-In	4	2022	4	2022
EHP Debris Blower Camera Upgrade	2	2016	3	2016
Buffalo RPG Kit reverse engineer	2	2017	4	2017
RPG Defeat Add on Armor Husky LRIP	1	2016	1	2016
RPG Defeat Add on Armor Husky LRIP Testing	3	2017	3	2017
RPG Defeat Add on Armor Husky FRP	4	2017	4	2017
EHP Roller Development	1	2016	2	2017

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army			Date: May 2017	
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev		Project (Number/Name) 415 / Mine Neutral/Detection	
	Start		End	
Events	Quarter	Year	Quarter	Year
EFP Defeat Add on Armor Research continuation w/ ARL	1	2020	2	2020
EFP Defeat Add on Armor Prototype Development (Buffalo)	2	2017	2	2017
EFP Defeat Add on Armor LRIP (Buffalo)	3	2017	3	2017
EFP Defeat Add on Armor LRIP Testing (Buffalo)	4	2017	4	2017
EFP Defeat Add on Armor FRP (Buffalo)	1	2018	1	2018
EFP Defeat Add on Armor Prototype Development (Husky)	2	2017	2	2017
EFP Defeat Add on Armor LRIP (Husky)	3	2017	3	2017
EFP Defeat Add on Armor LRIP Testing (Husky)	4	2017	4	2017
EFP Defeat Add on Armor FRP (Husky)	1	2018	1	2018
SREHD (Formerly AMDS)	1	2016	3	2018
SREHD (Formerly AMDS) Risk Reduction Testing (RRT)	1	2016	1	2016
SREHD (Formerly AMDS) Critical Design Review (CDR)	2	2016	2	2016
SREHD (Formerly AMDS) Developmental Test (DT)	4	2016	2	2017
SREHD (Formerly AMDS) Logistics Demonstration (Log Demo)	1	2017	1	2017
SREHD (Formerly AMDS) Milestone C Low Rate Initial Production (LRIP)	4	2017	4	2017
SREHD (Formerly AMDS) Initial Operational Test and Evaluation (IOT&E)	3	2018	3	2018
SREHD (Formerly AMDS) Full Rate Production (FRP)	4	2018	4	2018
SREHD (Formerly AMDS) Initial Operational Capability (IOC)	1	2020	1	2020
SREHD (Formerly AMDS) Full Operational Capability (FOC)	3	2021	3	2021

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army										Date: May 2017		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 434 / Anti-Personnel Landmine Alternatives (NSD)			
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
434: Anti-Personnel Landmine Alternatives (NSD)	-	11.739	0.000	4.100	-	4.100	0.000	0.000	0.000	0.000	0.000	15.839
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Spider Increment 1A will build upon the existing M7 Spider system. The M7 Spider system is a hand-emplaced, remotely controlled (Man-In-The-Loop) system that provides highly responsive terrain-shaping and protection capabilities. M7 Spider replaces persistent anti-personnel landmines, is compliant with US National Landmine policy, and has been fielded to US forces in support of Operation Enduring Freedom and currently being fielded to Engineers within Brigade Combat Teams in the Active and Army National Guard components. Additional capabilities will be developed to enhance the Spider Remote Control Station and demonstrate the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal and non-lethal anti-personnel (AP) munitions and counter mobility obstacles. Spider Increment 1A will utilize an open system architecture to facilitate future munition integration.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Spider Increment 1A Contract								6.621	-	-	-	-
Description: Develop Spider Increment 1A Controller with the ability to employ/control and initiate AP & counter mobility obstacle munitions. Supported development efforts of the Spider NLL for use with the Spider Inc 1A system.												
FY 2016 Accomplishments: Extend the period of performance for the Engineering and Manufacturing Development (EMD) Phase to provide enhancement of software changes. Achieved successful Limited User Test (LUT).												
Title: Engineering Support								2.138	-	0.713	-	0.713
Description: Perform engineering support.												
FY 2016 Accomplishments: Continue to support development of Spider Increment 1A system. Support Critical Design Review (CDR) and Post CDR assessment. Support Milestone C and government qualification testing.												
FY 2018 Base Plans: Continue to support development of Spider Increment 1A system. Monitor Initial Operation Test (IOT).												
Title: Test and Evaluation								2.566	-	2.898	-	2.898

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army				Date: May 2017		
Appropriation/Budget Activity 2040 / 5		R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev		Project (Number/Name) 434 / Anti-Personnel Landmine Alternatives (NSD)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Provide support to Contractor/Government test activities.						
FY 2016 Accomplishments: DIACAP/Cooperative Vulnerability and Penetration Assessment (CVPA) Information Assurance (IA)/ Cybersecurity, Electromagnetic Environmental Effects (E3), Environmental, Live Munition Firing Test (LMFT), Interactive Electronic Training Manual (IETM), Validation/Logistics Demo, Force Development Test (FDT), Limited User Test (LUT), and Army Interoperability Certification (AIC).						
FY 2018 Base Plans: Execute Initial Operational Test (IOT).						
Title: Program Management and Oversight		0.244	-	0.328	-	0.328
Description: Program Management and support of Spider Increment 1A.						
FY 2016 Accomplishments: Perform overall program management support for the execution of the Spider Inc 1A development effort and oversee Government Qualification Testing. Conduct all major Program Reviews to include Critical Design Design Review (CDR), oversee Government Qualification Testing. Prepare the Milestone C package to include the Capability Production Document (CPD) and other Acquisition Documents.						
FY 2018 Base Plans: Perform overall program management support for the execution of the Spider Inc 1A development effort and oversee Government Qualification Testing. Manage the Initial Operational Test (IOT).						
Title: FY 2014-2016 Reductions		0.170	-	0.161	-	0.161
Description: Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) and Federally Funded Research & Development Centers (FFRDC) Reductions.						
FY 2016 Accomplishments: Small Business Innovative Research (SBIR) final costs were \$148,000. Small Business Technology Transfer Program (STTR) final costs were \$22,000.						
FY 2018 Base Plans: Estimated Small Business Innovative Research (SBIR) costs are \$140,000.						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army							Date: May 2017				
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>			Project (Number/Name) 434 / <i>Anti-Personnel Landmine Alternatives (NSD)</i>				
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Estimated Small Business Technology Transfer Program (STTR) costs are \$21,000.											
Accomplishments/Planned Programs Subtotals							11.739	-	4.100	-	4.100
C. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• Spider - APLA Remote Control Unit: <i>OPA2 Spider Increment 1 Program B55501</i>	1.683	1.985	0.996	-	0.996	-	-	-	-	0.000	4.664
• Spider Family Of Networked Munition: <i>OPA2 Spider Increment 1A Program B54020</i>	9.199	10.796	4.500	-	4.500	10.635	9.245	8.936	8.728	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The Engineering Manufacturing Development (EMD) contract was a competitively awarded Cost Plus Incentive Fee EMD contract with a one year Firm-Fixed Price (FFP) Low Rate Initial Production (LRIP) option. A Government Level 3 Technical Data Package (TDP) will be delivered as part of the EMD contract. The modified TDP at the end of LRIP will be the basis of a Full Rate Production (FFP) contract.											
E. Performance Metrics											
N/A											