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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604808A: Landmine Warfare/Barrier - Eng Dev							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	73.955	104.971	92.285	-	92.285	50.603	16.400	4.000	4.000	Continuing	Continuing
415: Mine Neutral/Detection	-	65.228	90.861	65.085	-	65.085	33.218	12.000	4.000	4.000	Continuing	Continuing
434: Anti-Personnel Landmine Alternatives (NSD)	-	8.727	14.110	27.200	-	27.200	17.385	4.400	0.000	0.000	Continuing	Continuing
[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
^{##} The FY 2014 OCO Request will be submitted at a later date												
Note												
FY12: Difference from previous President's Budget (FY 2013) to Current BES/President's Budget (FY 2014) are the adjustments for the Small Business Innovation Research (SBIR), SBIR Technology Transfer Research (STTR), and Federal Funded Research and Development Centers (FFRDC).												
FY 2014: Budget supports Project 415, Mine Neutral/Detection and Project 434, Anti-Personnel Landmine Alternatives (NSD).												
A. Mission Description and Budget Item Justification												
This program element (PE) provides for the technology development and demonstration of networked munitions, countermine systems, and counter improvised explosive devices. This PE implements the National Landmine Policy to develop alternatives to the non-self-destructing anti-vehicle and anti-personnel landmine systems.												
Project 016, Close Combat Capabilities Engineering Development, provided for the development of the anti-vehicle mine replacement, in accordance with landmine policy. A more cost effective anti-vehicular capability will be developed under a Spider Increment IA program starting in FY 2012.												
Project 415, Mine Neutralization/Detection provides for development of next generation standoff detection capability programs such as Husky Mounted Detection System (HMDS), Route Clearance & Interrogation System (RCIS), Vehicle Optics Sensor System (VOSS), Route Clearance Vehicles (RCV), Multi-Function Display (MFD), development of interface kits and the Autonomous Mine Detection System (AMDS). It also supports development of training devices for Military Working Dogs involved in mine/Improvised Explosive Device (IED) detection and Explosive Hazard Pre-Detonation (EHP) capability to neutralize/detonate a broad spectrum of improvised explosive hazards while on the move, to support the route clearance mission.												
Project 434, Spider Networked Munitions (NM) is an integrated system of effects (lethal and non-lethal Anti Personnel (AP), existing anti-vehicle (AV) munition), software, and communications. The Spider system is a hand emplaced, remotely controlled (Man-In-The Loop) system that provides highly responsive terrain-shaping and protection capabilities. Spider Inc 1 replaces persistent anti-personnel landmines, is compliant with US National Landmine policy, and has been fielded to Afghanistan. Spider Inc 1A will build upon the existing Spider system, develop additional capabilities to enhance the Spider Remote Control Station and demonstrate the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal and non-lethal AP, lethal AV munitions, and the Spider Non-Lethal Launcher (NLL).												

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE				
2040: Research, Development, Test & Evaluation, Army		PE 0604808A: Landmine Warfare/Barrier - Eng Dev				
BA 5: System Development & Demonstration (SDD)						
B. Program Change Summary (\$ in Millions)		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget		76.248	104.983	67.977	-	67.977
Current President's Budget		73.955	104.971	92.285	-	92.285
Total Adjustments		-2.293	-0.012	24.308	-	24.308
• Congressional General Reductions		-	-			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-	-			
• Adjustments to Budget Years		-2.293	-	24.308	-	24.308

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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
415: Mine Neutral/Detection	-	65.228	90.861	65.085	-	65.085	33.218	12.000	4.000	4.000	Continuing	Continuing
Quantity of RDT&E Articles												

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

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 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 clearance 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 Combat Teams.

The Husky Mounted Detection System (HMDS) is a mission equipment package mounted on Husky route clearance vehicles in support of Route Clearance Platoons. The HMDS provides a Ground Penetrating Radar (GPR) to detect surface-laid and shallow-buried explosive hazards, including landmines and improvised explosive devices (IEDs); a large-loop metal detector for deep-buried detection (DBD) of metallic explosive hazards and caches; a semi-autonomous control payload for the Husky vehicle and its detection payloads; and associated training devices.

The Route Clearance & Interrogation System (RCIS) is a two vehicle system plus designated control vehicles which provides a standoff capability to detect and neutralize the full spectrum of explosive hazards using semi-autonomous, teleoperated controls on the existing base vehicles of the High Mobility Engineering Excavator (HMEE) and the RG31. RCIS Type 1 will be based on the HMEE and be capable of interrogating and classifying explosive hazards. RCIS Type 2 will be based on the RG-31 and be able to detect, neutralize and proof explosive hazards. RCIS capabilities will be employed on Route Clearance Squads and Engineer Platoons. Beginning in FY 2013, funding will also be used for interoperability and comparative testing to support a letter of sufficiency for the MTRS Inc II program.

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 is mounted on Medium Mine Protected Vehicles (MMPV) and the Joint EOD Rapid Response Vehicle (JERRV) located within Route Clearance Platoons and Explosive Ordinance Disposal (EOD) Companies.

The Multi-Function Display (MFD) provides view/control capability of the enablers (Interrogation Arms, VOSS, Man Transportable Robotic System, Drivers Vision Enhancement, Vehicle Situational Awareness Cameras) in the Medium Mine Protected Vehicle (MMPV) 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) and view Unmanned Aerial Vehicles video feeds. Additional software will need to be developed to add these capabilities. In addition, a new capability

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to push the video feeds of all of the enablers (Interrogation Arms, VOSS, Man Transportable Robotic System, Drivers Vision Enhancement, Vehicle Situational Awareness Cameras) from various vehicles within a Route Clearance Patrol will be developed.					
The following Route Clearance Vehicles (RCV) enablers will require a full system integration design cycle to ensure suitability and compatibility with various RCV's: - Wire Neutralization System on the Medium Mine Protected Vehicle (MMPV) Type II - Debris Blower on the Buffalo Mine Protected Clearance Vehicle (MPCV) - RCIS on the MMPV Type I & II and Buffalo MPCV - HMDS on the Husky and MMPV Type I & II - An interface kit (A-Kit) for all RCVs for the next generation Add-on-Armor (AoA) kits. - MMPV Type II ROLLER/WNS kits - Husky WNS - Storage optimization					
The Military Working Dogs (MWD) will fund development of training devices and a worldwide deployable kennel for transporting/housing of the animals involved in explosive hazard detection and qualification of new explosive scents as part of kits procured.					
Explosive Hazard Pre-Detonation (EHP) capability to include a roller, debris blower, and Wire Neutralization System (WNS) to neutralize/detonate a broad spectrum of improvised explosive hazards while on the move, to support route clearance mission.					
Autonomous Mine Detection System (AMDS) provides mine and explosive hazards stand-off detection, marking and neutralization capability for the dismounted soldier. AMDS 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. AMDS will transition from Technical Development to Engineering and Manufacturing Development (EMD) in FY 2013.					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2012	FY 2013	FY 2014
Title: AMDS			0.000	14.4450	21.335
Articles:					
Description: AMDS					
FY 2013 Plans: Program documentation preparation, pre-Engineering and Manufacturing Development (EMD) In-Process Review (IPR), and Milestone (MS) B.					
FY 2014 Plans: EMD Contract Award, Preliminary Design Review (PDR).					
Title: HMDS Program of Record (POR) and HMDS Increment A GPR Testing.			36.580	40.522	8.250

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2012	FY 2013	FY 2014
Articles: Description: HMDS POR Activities.			0	0	
FY 2012 Accomplishments: HMDS Materiel Development Decision (MDD). Pre-EMD review for Increment A. Pre-award activities for Increment A. Testing of individual sensors.					
FY 2013 Plans: HMDS Increment A: Source selection and contract award for EMD.					
HMDS Increment B: Risk reduction effort for semi-autonomous payload.					
FY 2014 Plans: Contract and other activities for HMDS Increment A GPR Testing.					
Title: HMDS Increment A GPR Type Classification and Materiel Release.			0.000	0.000	9.350
Description: HMDS Increment A GPR Type Classification and Materiel Release.					
FY 2014 Plans: Contract for Increment A GPR data and logistics / complete type classification and materiel release activites.					
Title: HMDS Increment A Development / Integration of DBD and Training Devices.			0.000	0.000	17.300
Description: HMDS Increment A Development / Integration of DBD and Training Devices.					
FY 2014 Plans: Increment A contract for integration and testing of Deep Buried Detection (DBD) sensor and DBD Trainer with existing urgently fielded GPR and GPR Trainer. Pre-award activities for Increment B contract.					
Title: HMDS Increment B Integration of Semi-autonomous Control.			0.000	0.000	2.000
Description: HMDS Increment B Integration of Semi-autonomous Control.					
FY 2014 Plans: Pre-award activities for Increment B.					
Title: Military Working Dog Support.			0.703	0.000	0.000
Articles:			0		

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2012	FY 2013	FY 2014
Description: Military Working Dog Support.					
FY 2012 Accomplishments: Military Working Dog Support Equipment - Engineering Support & Testing.					
Title: Military Working Dog Kit Development.			0.326	0.000	0.000
Articles:			0		
Description: FY 2011 Military Working Dog Kit Development.					
FY 2012 Accomplishments: FY 2012 Military Working Dog Kit Development.					
Title: Military Working Dog Program Mgmt. Support.			0.220	0.000	0.000
Articles:			0		
Description: FY2011: Military Working Dog Support.					
FY 2012 Accomplishments: Military Working Dog - Program Mgmt.					
Title: AMPS MDD and MS B Preparation.			7.719	0.000	0.000
Articles:			0		
Description: AMPS MDD and MS B Preparation.					
FY 2012 Accomplishments: AMPS MDD and MS B Preparation.					
Title: EHP			9.956	21.300	0.000
Articles:			0	0	
Description: FY 2012: EHP Contract Award.					
FY 2012 Accomplishments: EHP Contract Award.					
FY 2013 Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014
EHP Debris Blower and Wire Neutralization System (WNS) Technical Insertion Contract Awards.				
Title: RCIS Articles: Description: FY 2012: RCIS MDD, Program Documentation Prep. FY 2012 Accomplishments: RCIS MDD, Program Documentation Prep. FY 2013 Plans: RCIS MDD, Program Documentation Prep. FY 2014 Plans: MS B Preparation and Contract Award and Interoperability, Man Transportable Robotic Systems (MTRS) Increment II production verification and limited user testing.		5.364 0	7.960 0	3.100
Title: Multifunctional Display (MFD). Description: Multifunctional Display (MFD). FY 2014 Plans: MFD Prototype Development.		0.000	0.000	3.300
Title: Interface Kits. Description: Interface Kits. FY 2014 Plans: Prototype Development, LRIP and LRIP testing.		0.000	0.000	0.450
Title: VOSS MDD & Milestone C Prep. Articles: Description: VOSS MDD & Milestone C Prep. FY 2012 Accomplishments: VOSS MDD & Milestone C prep. FY 2013 Plans:		4.360 0	5.862 0	0.000

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2012	FY 2013	FY 2014	
Spec Development, plot build & test. and sustainment planning in preparation for Milestone C.											
Title: Interrogation Arms. Description: Interrogation Arms. FY 2013 Plans: Integration & Testing Verification.								Articles: 0.000	0.772 0	0.000	
Accomplishments/Planned Programs Subtotals								65.228	90.861	65.085	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 606: <i>Countermines/Barrier Advanced Dev</i>	16.399	5.054	10.625		10.625	20.225	7.150	2.500	2.500	Continuing	Continuing
• R68102: <i>GSTAMIDS</i>	14.078		50.465		50.465	83.976	88.264	132.958	151.347	Continuing	Continuing
• MA7700: <i><\$5M, Countermines Equipment</i>	7.352	3.698	4.271		4.271	4.581	3.760	3.826		Continuing	Continuing
Remarks											
D. Acquisition Strategy											
AMDS, HMDS, RCIS, A-Kits, AMPS and MWD will all be competitively solicited to the maximum extent possible for contract awards projected in FY 2012-2014. EHP Roller, Debris Blower and Wire Neutralization System technology insertion effort is intended to meet the Explosive Hazards Pre-detonation KSA and KPP requirements. AMDS is currently a technology development effort and will transition to Engineering Manufacturing Development in FY 2013. The HMDS acquisition strategy is evolutionary with two increments. Increment A consists of two configurations, (1) GPR only, leveraging rapid acquisition investment currently supporting Operation Enduring Freedom (OEF), and (2) GPR with an integrated Deep Buried Detection (DBD) capability and associated GPR and DBD training devices. These two configurations may be fielded independently and on non-concurrent timelines. Increment B consists of an integrated semi-autonomous control payload for remote operation of the Husky vehicle and Increment A payloads. VOSS will transition to a procurement funded program in FY2014. PM Ground Sensors is pursuing a two phase acquisition approach which harvests Quick Reaction Capability (QRC) procured systems for refresh and insertion into the Program of Record (POR), followed by a full and open procurement for the remaining systems.											

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E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All 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 & AMDS	MIPR	PM-CCS:Picatinny Arsenal, NJ	11.154	13.221	Sep 2013	5.327		3.745	Mar 2014	-		3.745	Continuing	Continuing	0.000
MFD	MIPR	Various:Various	0.000	-		-		-		-		-	0.930	0.930	0.930
Interface Kits	MIPR	Various:Various	0.000	-		-		-		-		-	0.100	0.100	0.100
Subtotal			11.154	13.221		5.327		3.745		0.000		3.745			1.030
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AMDS	TBD	TBD:TBD	0.000	-		8.886		15.401	Dec 2014	-		15.401	Continuing	Continuing	Continuing
HMDS	TBD	TBD:TBD	0.000	6.990	Jun 2013	18.380	Jun 2013	-		-		-	0.000	25.370	0.000
HMDS Inc A - Integration with DBD and Training Devices	C/CPFF	TBD:TBD	0.000	-		-		12.100	Mar 2014	-		12.100	0.000	12.100	0.000
HMDS	C/FFP	EOIR:Fredericksburg, Virginia	0.000	0.500	Jul 2012	-		-		-		-	0.000	0.500	0.000
HMDS Inc A GPR Data and Logisitcs Activities	C/FFP	TBD:TBD	0.000	-		-		6.850	Mar 2014	-		6.850	0.000	6.850	0.000
HMDS	C/CPFF	Fibertek:Herndon, Virginia	0.000	0.300	Jul 2012	-		-		-		-	0.000	0.300	0.000
HMDS	C/CPFF	DCS:Alexandria, Virginia	0.000	0.845	Jun 2012	-		-		-		-	0.000	0.845	0.000
HMDS Inc A GPR Testing	C/FFP	TBD:TBD	0.000	-		-		4.750	Mar 2014	-		4.750	0.000	4.750	0.000
HMDS	C/CPFF	CACI:Chantilly, Virginia	0.000	0.520	Jul 2012	-		-		-		-	0.000	0.520	0.000
MWD	C/CPFF	S3:Huntsville, Al	1.300	0.326	Sep 2012	-		-		-		-	Continuing	Continuing	Continuing
AMPS	C/CPFF	TBD:TBD	0.000	6.572	May 2012	-		-		-		-	Continuing	Continuing	Continuing
EHP Debris Blower/WNS	C/CPFF	TBD:TBD	0.000	-		16.300		-		-		-	Continuing	Continuing	0.000
RCIS	C/CPFF	TBD:TBD	0.000	4.878	May 2012	8.936	Jul 2014	-		-		-	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interface Kits	C/CPFF	TBD:TBD	0.000	-		-		0.450	May 2014	-		0.450	1.830	2.280	1.830
Multi Functional Display	C/CPFF	TBD:TBD	0.000	-		-		3.300	May 2014	-		3.300	3.045	6.345	3.045
VOSS	C/CPFF	Various:Ft. Belvoir, VA	0.000	0.670	Mar 2012	0.600		-		-		-	Continuing	Continuing	Continuing
EHP Roller	C/CPFF	TBD:TBD	0.000	8.061	May 2013	-		-		-		-	0.000	8.061	0.000
Subtotal			1.300	29.662		53.102		42.851		0.000		42.851			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AMDS	MIPR	Various:Various	0.000	-		3.270		2.950	Mar 2014	-		2.950	Continuing	Continuing	Continuing
HMDS	MIPR	NVESD/CECOM:Fort Belvoir, VA	0.000	5.452	Feb 2012	15.700		1.300	Mar 2014	-		1.300	Continuing	Continuing	0.000
HMDS	MIPR	ATEC:MD	0.000	2.000	Jun 2013	-		-		-		-	0.000	2.000	0.000
HMDS	MIPR	Joint Products Office (JPO) Robotics Systems:Warren, MI	0.000	1.994	Mar 2013	-		1.500	Jan 2014	-		1.500	0.000	3.494	0.000
HMDS	MIPR	TARDEC:Warren, MI	0.000	0.545	Jun 2012	-		0.400	Jan 2014	-		0.400	0.000	0.945	0.000
HMDS	MIPR	Various:Various locations	0.000	2.290	Jul 2012	-		0.900	Jan 2014	-		0.900	0.000	3.190	0.000
HMDS	MIPR	ARDEC:Picatinny Arsenal, NJ	0.000	0.861	Feb 2013	-		0.400	Jan 2014	-		0.400	0.000	1.261	0.000
HMDS	MIPR	PEO STRI:FL	0.000	0.835	Jul 2013	-		-		-		-	0.000	0.835	0.000
Military Working Dogs	MIPR	Various:Various	0.000	0.703	Jan 2013	-		-		-		-	0.000	0.703	0.000
EHP	MIPR	PM AMS:Warren, MI	0.000	1.145	Apr 2013	3.000		-		-		-	Continuing	Continuing	0.000
MFD	MIPR	PM AMS:Warren, MI	0.000	-		-		-		-		-	0.705	0.705	0.705
AMPS	MIPR	Various:Various	0.000	0.772		-		-		-		-	Continuing	Continuing	0.000
IA	MIPR	TBD:TBD	0.000	-		0.600		-		-		-	Continuing	Continuing	0.000
RCIS	MIPR	RSJPO:Warren, MI	0.000	0.350		-		0.900	Jun 2014	-		0.900	Continuing	Continuing	0.000

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Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interface Kits	MIPR	Various:Various	0.000	-		-		-		-		-	0.380	0.380	0.380
VOSS	MIPR	NVESD/CECOM:Fort Belvoir, VA	0.000	2.922		-		-		-		-	Continuing	Continuing	0.000
RCIS Interoperability	MIPR	RSJPO:Warren, MI	0.000	-		-		1.000	Jan 2014	-		1.000	0.000	1.000	0.000
VOSS	MIPR	Various:Various	0.000	0.768	Mar 2012	1.608		-		-		-	Continuing	Continuing	Continuing
Subtotal			0.000	20.637		24.178		9.350		0.000		9.350			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AMDS	MIPR	TBD:TBD	0.000	-		-		1.239	Mar 2014	-		1.239	0.000	1.239	0.000
HMDS	MIPR	ATEC:Alexandria, VA	0.000	0.362	Oct 2012	3.000		6.700	Mar 2014	-		6.700	Continuing	Continuing	Continuing
AMDS	MIPR	ATEC:Alexandria, VA	0.000	-		0.850		-		-		-	Continuing	Continuing	Continuing
MWD	MIPR	ATEC:Alexandria, VA	0.050	0.085	Jun 2013	-		-		-		-	0.000	0.135	0.000
AMPS	MIPR	ATEC:Alexandria, VA	0.000	0.375		-		-		-		-	0.000	0.375	0.000
EHP	MIPR	ATEC:APG, MD	0.000	0.750	Mar 2013	1.250		-		-		-	Continuing	Continuing	Continuing
MFD	MIPR	ATEC:APG, MD	0.000	-		-		-		-		-	1.620	1.620	1.620
RCIS	MIPR	ATEC:Alexandria, VA	0.000	0.136		-		1.200		-		1.200	0.000	1.336	0.000
VOSS	MIPR	ATEC:Alexandria, VA	0.000	-		3.154		-		-		-	Continuing	Continuing	Continuing
Subtotal			0.050	1.708		8.254		9.139		0.000		9.139			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army										DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>					PROJECT 415: <i>Mine Neutral/Detection</i>			
	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.504	65.228		90.861		65.085		0.000		65.085			
Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army			DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>		
			PROJECT 415: <i>Mine Neutral/Detection</i>		

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 Material Development Decision (MDD)																												
HMDS Increment A - MS B																												
HMDS Critical Design Review (CDR) Inc A																												
HMDS Limited User Testing (LUT)																												
HMDS Increment A GPR - MS C																												
HMDS Increment B - MS B																												
HMDS Increment A - MS C																												
HMDS Increment B - MS C																												
HMDS Increment A - Full Rate Production Decision																												
HMDS Increment B - Full Rate Production Decision																												
HMDS Increment A - FUE																												
HMDS Increment B - FUE																												
EHP																												
EHP Roller Material Development Decision (MDD)																												
EHP Roller MS C																												
EHP Roller Low Rate Initial Production (LRIP)																												
EHP Roller Full Rate Production (FRP) Decision																												
VOSS Material Development Decision (MDD)																												
VOSS MS C																												
RCIS Material Development Decision (MDD)																												
RCIS MS B																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army																		DATE: April 2013										
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: System Development & Demonstration (SDD)										R-1 ITEM NOMENCLATURE PE 0604808A: Landmine Warfare/Barrier - Eng Dev								PROJECT 415: Mine Neutral/Detection										
	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
RCIS Engin and Mftg. Devel.Contract Award																												
RCIS MS C																												
RCIS Low Rate Initial Production (LRIP)																												
MFD Prototype Development																												
MFD Low Rate Initial Production (LRIP)																												
MFD Testing																												
MFD Full Rate Production																												
Prototype Development																												
Low Rate Initial Production																												
LRIP Testing																												
Full Rate Production																												
AMDS																												
AMDS Milestone B																												
AMDS Preliminary Design Review (PDR)																												
AMDS Critical Design Review																												
AMDS Milestone C LRIP																												
AMDS Full Rate Production																												
MWD Full Rate Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>	PROJECT 415: <i>Mine Neutral/Detection</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
HMDS Material Development Decision (MDD)	2	2012	2	2012
HMDS Increment A - MS B	4	2013	4	2013
HMDS Critical Design Review (CDR) Inc A	3	2014	3	2014
HMDS Limited User Testing (LUT)	3	2015	3	2015
HMDS Increment A GPR - MS C	4	2014	4	2014
HMDS Increment B - MS B	2	2015	2	2015
HMDS Increment A - MS C	3	2015	3	2015
HMDS Increment B - MS C	4	2016	4	2016
HMDS Increment A - Full Rate Production Decision	4	2016	4	2016
HMDS Increment B - Full Rate Production Decision	1	2018	1	2018
HMDS Increment A - FUE	3	2017	3	2017
HMDS Increment B - FUE	3	2018	3	2018
EHP	3	2012	3	2012
EHP Roller Material Development Decision (MDD)	2	2013	2	2013
EHP Roller MS C	3	2014	3	2014
EHP Roller Low Rate Initial Production (LRIP)	4	2014	4	2014
EHP Roller Full Rate Production (FRP) Decision	2	2015	2	2015
VOSS Material Development Decision (MDD)	2	2013	2	2013
VOSS MS C	2	2014	2	2014
RCIS Material Development Decision (MDD)	3	2013	3	2013
RCIS MS B	3	2014	3	2014
RCIS Engin and Mftg. Devel.Contract Award	1	2015	1	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army			DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>		PROJECT 415: <i>Mine Neutral/Detection</i>
		Start		End
Events	Quarter	Year	Quarter	Year
RCIS MS C	4	2016	4	2016
RCIS Low Rate Initial Production (LRIP)	4	2017	4	2018
MFD Prototype Development	1	2014	4	2014
MFD Low Rate Initial Production (LRIP)	1	2015	1	2015
MFD Testing	2	2015	4	2015
MFD Full Rate Production	1	2016	1	2016
Prototype Development	1	2014	3	2015
Low Rate Initial Production	2	2014	3	2015
LRIP Testing	4	2014	4	2015
Full Rate Production	2	2015	2	2016
AMDS	4	2013	1	2014
AMDS Milestone B	4	2013	4	2013
AMDS Preliminary Design Review (PDR)	3	2014	3	2014
AMDS Critical Design Review	1	2015	1	2015
AMDS Milestone C LRIP	3	2016	3	2016
AMDS Full Rate Production	4	2017	4	2017
MWD Full Rate Production	4	2013	4	2013

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604808A: Landmine Warfare/Barrier - Eng Dev				PROJECT 434: Anti-Personnel Landmine Alternatives (NSD)			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
434: Anti-Personnel Landmine Alternatives (NSD)	-	8.727	14.110	27.200	-	27.200	17.385	4.400	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
Spider Networked Munitions (NM) is an integrated system of effects (lethal and non-lethal Anti Personnel (AP), existing anti-vehicle (AV) munition), software, and communications. The Spider system is a hand emplaced, remotely controlled (Man-In-The Loop) system that provides highly responsive terrain-shaping and protection capabilities. Spider Inc 1 replaces persistent anti-personnel landmines, is compliant with US National Landmine policy, and has been fielded to Afghanistan. Spider Inc 1A will build upon the existing Spider system, develop additional capabilities to enhance the Spider Remote Control Station and demonstrate the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal and non-lethal AP, lethal AV munitions, and the Spider Non-Lethal Launcher (NLL).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2012	FY 2013	FY 2014	
Title: Spider Increment 1A and Spider NLL Development Contracts Articles: Description: Develop NM Increment 1A Controller with the ability to employ/control and initiate AP & legacy AV munitions. Continue with the development of the Spider NLL for use with the Spider Inc 1A system. FY 2012 Accomplishments: Awarded NLL Development Contract. FY 2013 Plans: FY13 Spider Increment 1A pre Engineering Manufacturing and Development (EMD) contract development efforts to support 3QFY13 contract award. Continue with the development of the Spider NLL for use with the Spider Inc 1A system, and type classification for limited procurement. FY 2014 Plans: Continue with Spider Increment 1A EMD development efforts.									0.667	10.511	19.500	
									0	0		
Title: Engineering Support Articles: Description: Perform engineering support.									5.065	3.050	4.882	
									0	0		

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>		PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2012	FY 2013	FY 2014
<i>FY 2012 Accomplishments:</i> Support development of Capability Development Document, Pre-EMD and Milestone B documentation, development/issuance of procurement package (SOW, Performance Requirements Document, etc) and conduct of Industry Day. Support RFP negotiations and award of NLL contract.					
<i>FY 2013 Plans:</i> Support development of Capability Development Document, Pre-EMD and Milestone B documentation, development of procurement package (SOW, Performance Requirements Document, etc), and engineering support to award EMD/LRIP Option contract. Continue to support NLL development.					
<i>FY 2014 Plans:</i> Continue development of the Spider Inc 1A system. Provide engineering support, conduct Preliminary Design Review and Post-PDR Assessment, provide MANPRINT and HFE support to contractor Developmental Testing.					
<i>Title:</i> Test and Evaluation <i>Description:</i> Provide support to Contractor/Government test activities (Contractor DT, Pre Log Demo, FDTE, and Pre-LUT activities). <i>FY 2012 Accomplishments:</i> AMSAA provided technical and testing support for the development of milestone documents. <i>FY 2014 Plans:</i> Provide support to Contractor/Government test activities (Contractor DT, Pre Log Demo, FDTE, User Jury, Technical Interchange Meetings, and Pre-LUT activities).			0.050 0	0.000	0.975
<i>Title:</i> PM Management and Oversight <i>Description:</i> Program Management and support Spider NM Increment 1A. <i>FY 2012 Accomplishments:</i> Perform program management to support acquisition activities, program execution, Pre-EMD and Milestone B documentation, and conduct of Industry Day. Continue to support NLL development. <i>FY 2013 Plans:</i>			0.593 0	0.549 0	1.100

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>				PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2012	FY 2013	FY 2014
Perform program management to support acquisition activities, program execution, Milestone B documentation, and program management support to award EMD/LRIP Option contract. Support and complete NLL development..												
FY 2014 Plans: Perform overall program management support for the execution of the Spider Inc 1A development effort.												
Title: FY12-14 Reductions										2.352	0.000	0.743
Articles:										0		
Description: Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) and Federally Funded Research & Development Centers (FFRDC) Reductions												
FY 2012 Accomplishments: FY12 reductions are \$239K in SBIR & STTR and \$14K in FFRDC. Withhold funding from ABO \$2099K.												
FY 2014 Plans: Projected FY14 reductions are \$743K in SBIR & STTR.												
Accomplishments/Planned Programs Subtotals										8.727	14.110	27.200
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost	
• Spider Network Munitions: PAA <i>Spider Increment 1 Program</i>	43.123	17.408								0.000	60.531	
• Spider - APLA Remote Control Unit: OPA2 Spider Increment 1 <i>Program B55501</i>	36.224	34.365								0.000	70.589	
• Spider Family Of Networked Munition: OPA2 Spider Increment <i>1A Program B54020</i>						7.200	18.500	13.500		0.000	39.200	
Remarks												
D. Acquisition Strategy												
The Spider program is being developed as an incremental effort. The strategy will address all Spider requirements in the Requirements Document. The base Spider program meets US National Landmine Policy for Anti Personnel (AP) and is currently fielded in Afghanistan. Increment 1A will build upon the existing Spider system, develop additional capabilities to enhance the Spider Remote Control Station and demonstrate the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal												

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>	PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>
and non-lethal AP, lethal anti-vehicle (AV) munitions, and the Spider Non-Lethal Launcher (NLL). The Engineering Manufacturing Development (EMD) contract will be a competitive contract with one Low Rate Initial Production (LRIP) option.		
E. Performance Metrics Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>						R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>						PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Spider - Program Mgmt	Various	PM-CCS,:Picatinny Arsenal, NJ	0.000	0.593		0.549		1.100		-		1.100	Continuing	Continuing	0.000
SBIR/STTR, FFRDC and ABO FY12- Reductions	Various	PM CCS,:Picatinny Arsenal, NJ	0.000	2.352		-		0.743		-		0.743	0.000	3.095	0.000
Subtotal			0.000	2.945		0.549		1.843		0.000		1.843			0.000
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Spider Non-Lethal Launcher (FY12)	C/CPIF	Alliant Techsystems Operations, LLC:Plymouth, MN	0.000	0.667	Sep 2012	-		-		-		-	0.000	0.667	0.000
Spider Inc 1A (FY13-14)	C/CPIF	Alliant Techsystems Operations, LLC:Plymouth, MN	0.000	-		10.511	May 2013	19.500	Feb 2014	-		19.500	Continuing	Continuing	0.000
Subtotal			0.000	0.667		10.511		19.500		0.000		19.500			0.000
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Spider - Eng support	MIPR	ARDEC,:Picatinny Arsenal, NJ	0.000	3.063		2.000		2.759		-		2.759	Continuing	Continuing	0.000
Spider - Eng support	MIPR	Various,:Various	0.000	-		0.200		0.565		-		0.565	Continuing	Continuing	0.000
Spider - Non Lethal Launcher Eng Spt	MIPR	ARDEC,:Picatinny Arsenal, NJ	0.000	0.650		-		-		-		-	0.000	0.650	0.000
Mitre provide C4 Support	MIPR	Mitre,:McLean, VA	0.000	0.830		0.650		0.780		-		0.780	Continuing	Continuing	0.000
Spider - Contractor Engineering Support	Various	Various,:Various	0.000	0.463		0.200		0.678		-		0.678	Continuing	Continuing	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>							R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>					PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>			

Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Spider Increment 1A Training Support	MIPR	PEO STRI:Orlando, FL	0.000	0.050		-		0.050		-		0.050		0.000	0.100	0.000
MANPRINT/HFE Support	MIPR	ARL HRED:Adelphi, MD	0.000	0.009		-		0.050		-		0.050		0.000	0.059	0.000
Subtotal			0.000	5.065		3.050		4.882		0.000		4.882				0.000

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Support Contractor/ Government Test Activities	MIPR	OTC ,AMSAA, AEC, ATEC:Various	0.000	0.050		-		0.975		-		0.975		Continuing	Continuing	0.000
Subtotal			0.000	0.050		0.000		0.975		0.000		0.975				0.000

Remarks Not Applicable																
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	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	8.727		14.110		27.200		0.000		27.200			0.000

Remarks																
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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army			DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>		
			PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>		

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
Industry Day																												
Pre-EMD Review																												
RFP																												
Source Selection																												
MS B																												
Contract Award																												
Spider Increment 1A Development																												
Contractor DT																												
Government DT																												
LUT																												
MS C																												
Initial Operational Test																												
Full Rate Production Decision																												
Initial Operational Capability																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604808A: <i>Landmine Warfare/Barrier - Eng Dev</i>	PROJECT 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Industry Day	3	2012	3	2012
Pre-EMD Review	1	2013	1	2013
RFP	1	2013	1	2013
Source Selection	2	2013	3	2013
MS B	2	2013	2	2013
Contract Award	3	2013	3	2013
Spider Increment 1A Development	3	2013	4	2015
Contractor DT	2	2014	1	2015
Government DT	2	2015	4	2015
LUT	3	2015	3	2015
MS C	4	2015	4	2015
Initial Operational Test	4	2016	4	2016
Full Rate Production Decision	2	2017	2	2017
Initial Operational Capability	3	2017	3	2017