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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Army										Date: March 2014		
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition							
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	27.114	30.596	29.334	-	29.334	38.611	40.624	38.977	46.927	-	252.183
652: M829E4 120mm Cartridge	-	27.114	19.802	5.049	-	5.049	-	-	-	-	-	51.965
656: 120mm Cartridge (Advanced Multipurpose-AMP)	-	-	-	14.748	-	14.748	27.578	25.637	25.655	39.518	-	133.136
694: Medium Caliber Ammunition	-	-	10.794	-	-	-	-	-	-	-	-	10.794
EB8: OWL for Small Caliber Ammunition	-	-	-	1.967	-	1.967	1.971	2.169	3.158	-	-	9.265
EB9: Tunable Pyrotechnic Aircraft Countermeasure Flares	-	-	-	0.884	-	0.884	0.985	4.043	1.085	3.556	-	10.553
EC2: Advanced Armor-Piercing (ADVAP) for Small Cal Ammo	-	-	-	4.916	-	4.916	6.205	5.324	6.414	-	-	22.859
EC3: Ammunition Logistics Prototyping	-	-	-	1.770	-	1.770	1.872	3.451	2.665	3.853	-	13.611
# The FY 2015 OCO Request will be submitted at a later date.												
Note In FY15 the following new start programs were added to PE 643639: Project:656 Advanced Multipurpose Munition: \$14.748 Million Project:EB8 One Way Luminescence: \$1.967 Million Project:EC2 Advanced Armor-Piercing: \$4.916 Million Project:EB9 Tunable Pyrotechnic: \$.884 Million Project:EC3 Ammunition Logistics Prototyping: \$1.770 Million FY15 dollars were added to Project:652 M829E4: \$5.049 Million In FY15 \$7.083 Million was moved from 643639 Day Night Thermal to 654802.EC1 High Velocity, Low Velocity Thermal Training												
A. Mission Description and Budget Item Justification The Weapons and Munitions Engineering Development Program Element (PE) encompasses a comprehensive program to develop, rapidly transition to production, and field advanced weapons and munitions. These programs will ensure continued battlefield overmatch and lethality of U.S. maneuver forces against the full range												

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<p>of modern battlefield threats. To achieve this, Weapons and Munitions Engineering Development Program will identify and develop promising technologies through competitive development and streamlined acquisition procedures.</p> <p>M829E4: The M829E4 cartridge is an Abrams delivered Line of Sight (LOS) munition that will provide capability for the current force Armored Brigade Combat Team's (ABCT) commander to conduct decisive operations and destroy current and future enemy Main Battle Tanks (MBTs) equipped with Explosive Reactive Armor (ERA) and Active Protective System (APS) at ranges from 0-2km (T) and 0-4km (O). The M829E4 equips ABCT commanders with a unique capability which will increase the ABCT's lethality and ability to seize the initiative during unified land operations. After an Engineering and Manufacturing Development (EMD) Phase I competitive shoot off in FY 2011, Alliant Techsystems (ATK) was awarded the option to continue with Phase II until its conclusion in FY 2015. FY 2012 supported the continuation of Phase II of the M829E4 cartridge. FY 2013 funding supported design finalization, design verification, fabrication and initial testing of Developmental Test and Evaluation (DT&E) hardware. The full performance of the M829E4 is obtained with an Abrams equipped Ammunition Data Link breach modification. FY 2014 supports conducting hardware and performance testing, mandated Live Fire Test & Evaluation (LFT&E) and completion of Milestone C. FY 2015 supports qualifying a second source for the composite sabot material. The current single source supplier for this material has significantly increased the cost for this material, more than doubled, and expressed intentions of possibly getting out of this business. Qualification of a second source will result in competitive pricing and driving down the unit price cost, as well as mitigate the risk of the current supplier exiting as a supplier of this material.</p> <p>One Way Luminescence (OWL): Current legacy small caliber ammunition tracer rounds are comprised of a pyrotechnic tracer mix that allows enemy forces to visually see the trace round and track its trajectory back to the shooter. The objective of the OWL program is to develop and field a full day/night tracer technology to replace the current M62 pyrotechnic trace cartridge, with a new trace cartridge that is only visible to the shooter and those soldiers in close proximity.</p> <p>Advanced Multi Purpose (AMP): The Advanced Multi Purpose (AMP) program is a direct fire line of sight 120mm large caliber munition to be developed for the Abrams Main Battle Tank. It has three modes of operation including point detonate, delay and airburst. AMP is the material solution for breaching reinforced concrete walls and defeating Anti Tank Guided Missile (ATGM) teams from 50m to 2000m (T) and 50m to 4500m (O), a validated gap that cannot currently be met with existing stockpiled ammunition. In addition to added capability, AMP will also consolidate the capabilities of four existing stockpiled 120mm munitions, thereby addressing the users' battlecarry dilemma by allowing them to load a single munition that is capable of defeating multiple targets including ATGM teams, reinforced walls, personnel, light armor, bunkers, and obstacles. The full performance of the AMP is obtained with an Abrams equipped Ammunition Data Link breach modification, the same required by the M829E4. FY 2015 supports multiple contract awards for competing prototypes in Phase I of II for Engineering and Manufacturing Development (EMD).</p> <p>Medium Caliber Ammunition: The Target Practice Day Night Thermal (TP-DNT) cartridges are 40mm grenade training cartridges. The low velocity variant is for training with the M203/M320 grenade launchers; the high velocity variant is for training with the Mk19 grenade machine gun. Both cartridges will provide the Warfighter with a non-dud producing, environmentally friendly training cartridge that provides a visual impact signature seen day or night, by the naked eye, through night vision devices, and thermal weapon sights. These cartridges will replace the 40mm Target Practice, M918/M385A1 (Mixed Belt) cartridges and the 40mm M781 cartridges. It is expected that the unit price for high velocity cartridges will be lower than the Mixed Belt cartridges. Funding for FY 2015 activities transitions to PE 0604802/Project EC1.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Army			Date: March 2014			
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army I BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 Program Element (Number/Name) PE 0603639A I Tank and Medium Caliber Ammunition				
Advanced Armor-Piercing (ADVAP): The overall program objective is to develop and field an Advanced Armor Piercing (ADVAP) 7.62mm cartridge in order to defeat threat targets and provide overmatch capability versus a broad spectrum of hard targets into the future.						
Tunable Pyrotechnic Aircraft Countermeasure: This project will support research, development and testing to field new expendable countermeasure munitions that will protect Army aircraft from advanced and current guided-missile threats. Advances in the capability of threat systems to counter current decoys necessitate development of new expendable countermeasures. This program is considered essential to provide Army Aircraft protection against surface-to-air weapon systems.						
Ammunition Logistics Prototyping: This project supports the future force by improving the distribution, management, reliability and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and adaptive and environmentally friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter.						
B. Program Change Summary (\$ in Millions)		FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget		30.560	30.612	7.083	-	7.083
Current President's Budget		27.114	30.596	29.334	-	29.334
Total Adjustments		-3.446	-0.016	22.251	-	22.251
• Congressional General Reductions		-	-			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-	-			
• Adjustments to Budget Years		-3.446	-0.016	22.251	-	22.251

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 652 / M829E4 120mm Cartridge			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
652: M829E4 120mm Cartridge	-	27.114	19.802	5.049	-	5.049	-	-	-	-	-	51.965
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
The M829E4 cartridge is an Abrams delivered Line of Sight (LOS) munition that will provide capability for the current force Armored Brigade Combat Team's (ABCT) commander to conduct decisive operations and destroy current and future enemy Main Battle Tanks (MBTs) equipped with Explosive Reactive Armor (ERA) and Active Protective System (APS) at ranges from 0-2km (T) and 0-4km (O). The M829E4 equips ABCT commanders with a unique capability which will increase the ABCT's lethality and ability to seize the initiative during unified land operations. After an Engineering and Manufacturing Development (EMD) Phase I competitive shoot off in FY 2011, Alliant Techsystems (ATK) was awarded the option to continue with Phase II until its conclusion in FY 2015. FY 2012 supported the continuation of Phase II of the M829E4 cartridge. FY 2013 funding supported design finalization, design verification, fabrication and initial testing of Developmental Test and Evaluation (DT&E) hardware. The full performance of the M829E4 is obtained with an Abrams equipped Ammunition Data Link breech modification. FY 2014 supports conducting hardware and performance testing, mandated Live Fire Test & Evaluation (LFT&E) and completion of Milestone C. FY 2015 supports qualifying a second source for the composite sabot material. The current single source supplier for this material has significantly increased the cost for this material, more than doubled, and expressed intentions of possibly getting out of this business. Qualification of a second source will result in competitive pricing and driving down the unit price cost, as well as mitigate the risk of the current supplier exiting as a supplier of this material.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)												
Title: Phase II EMD Articles: Description: Funding is provided for the following effort: FY 2013 Accomplishments: Continued Phase II of EMD, the design was finalized, tested and evaluated to ensure all requirements were met/ exceeded. Cartridges were fabricated for DT&E testing. A Technical Data Package (TDP) was revised and a detailed specification was assembled. Production manufacturing fixtures and subsystem test equipment were established and qualified. FY 2014 Plans: Complete DT&E culminating at Milestone C. This includes completing the delivery of DT&E hardware and test, preparing and staffing Milestone C documentation, conducting performance analysis modeling and simulation, TDP review and staffing. Build									FY 2013	FY 2014	FY 2015	
									20.500 -	9.900 -	- -	

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014	
Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 652 / M829E4 120mm Cartridge			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2013	FY 2014	FY 2015	
cartridges with alternate sabot material. Generate fire control solution for Abrams M1A2 SEP (System Enhancement Package) V2 integration, transfer and demilitarization of any residual R&D hardware on the program.											
Title: Developmental Test & Evaluation (DT&E) Description: Funding is provided for the following effort: FY 2013 Accomplishments: The Development Test & Evaluation (DT&E) is the testing and analysis at the conclusion of EMD. A single design will undergo a battery of tests in which the capability is proven/ demonstrated, performance quantified. This covers the Test and Evaluation, the analysis of the results and the documentation that supports Milestone C . Testing included safety, survivability, armor testing, insensitive munitions, ballistic testing, noise, toxic fumes, and terminal impact dispersion/ accuracy tests. This effort included the live fire tests, user excursion tests and Stationary Ammunition accuracy testing. FY 2014 Plans: Continue and complete DT&E integrated testing with Abrams. Conduct single shot ammunition accuracy test and conduct the mandated Live Fire Testing & Evaluation (LFT&E).								Articles: 6.614 -	9.902 -	- -	
Title: Sabot Composite Material Qualification Description: Funding is provided for the following effort: FY 2015 Plans: FY 2015 supports qualifying a second source for the composite sabot material. The current single source supplier for this material has significantly increased the cost for this material, more than doubled, and expressed intentions of possibly getting out of this business. Qualification of a second source will result in competitive pricing and driving down the unit price cost, as well as mitigate the risk of the current supplier exiting as a supplier of this material.								-	-	5.049	
Accomplishments/Planned Programs Subtotals								27.114	19.802	5.049	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• M829E4: M829E4	-	30.168	41.235	-	41.235	42.033	42.606	43.503	44.429	-	243.974
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</i>
<p><u>D. Acquisition Strategy</u></p> <p>Milestone B Decision was obtained in 4Q FY 2009, and the program entered Engineering and Manufacturing Development (EMD) in FY 2010. EMD consists of two phases; the Phase I contract was awarded in 2Q FY 2010 and Phase II contract was awarded in 3Q FY 2011. During Phase I (15 months), the Government awarded two separate Cost Plus Fixed Fee (CPFF) contracts culminating in a demonstration test and competitive source selection to down select to one contractor for the 31 month Cost Plus Incentive Fee (CPIF) Phase II. The down select was based on the demonstrated performance of the cartridge design, proposed systems engineering and management approach for Phase II, and the total program cost estimate for each contractor at the time of the demonstration test. ATK was awarded the option to continue EMD Phase II until its conclusion in FY 2014. Upon successful completion of Milestone C, a Low Rate Initial Production (LRIP) option will be awarded to ATK in 3Q FY 2014. The contract also contains options for two additional production years. All production options are Firm Fixed Price (FFP).</p> <p><u>E. Performance Metrics</u></p> <p>N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 652 / M829E4 120mm Cartridge					
Product Development (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ATK Phase II	C/CPIF	ATK : MN	131.226	17.374		8.900		4.049		-		4.049	-	161.549	-
PM-MAS Labor and Travel	MIPR	PM-MAS Picatinny Arsenal : NJ	3.930	0.266		0.990		0.100		-		0.100	-	5.286	-
GD-OTS Phase 1	C/CPFF	GD-OTS : FL	2.068	-		-		-		-		-	-	2.068	-
ATK Phase 1	C/CPFF	ATK : MN	5.254	-		-		-		-		-	-	5.254	-
Subtotal			142.478	17.640		9.890		4.149		-		4.149	-	174.157	-
Support (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARDEC	MIPR	Picatinny : New Jersey	10.832	2.614		2.400		0.450		-		0.450	-	16.296	-
Subtotal			10.832	2.614		2.400		0.450		-		0.450	-	16.296	-
Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
Aberdeen Test Center (ATC)	MIPR	APG : Aberdeen, MD	7.860	1.500		2.100		-		-		-	-	11.460	-
Yuma Proving Ground	MIPR	YPG : Yuma, AZ	8.242	2.960		3.412		0.450		-		0.450	-	15.064	-
ATEC	MIPR	ATEC : Aberdeen, MD	0.400	-		0.100		-		-		-	-	0.500	-
Watervliet	MIPR	Watervliet : Troy, NY	0.868	-		-		-		-		-	-	0.868	-
JMC	MIPR	JMC : Rock Island, IL	2.100	0.900		0.400		-		-		-	-	3.400	-
Army Research Lab	MIPR	ARL : Aberdeen, Maryland	8.814	1.500		1.500		-		-		-	-	11.814	-
Subtotal			28.284	6.860		7.512		0.450		-		0.450	-	43.106	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army										Date: March 2014			
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>					Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</i>			
	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	181.594	27.114		19.802		5.049		-		5.049	-	233.559	-
Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army			Date: March 2014		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>			Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</i>

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering and Manufacturing Development (EMD)																												
Engineering and Manufacturing Development (EMD) Phase II																												
Design Evaluation Testing (DET) Preparation																												
Design Evaluation Testing (DET)																												
Developmental Test & Evaluation (DT&E) Preperation																												
Developmental Test & Evaluation (DT&E)																												
Milestone C																												
Low Rate Initial Production Award																												
Low Rate Initial Production																												
Materiel Release/Full-Rate Production Decision Review																												
Sabot Composite Material Qualification																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) 652 / <i>M829E4 120mm Cartridge</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering and Manufacturing Development (EMD)	2	2010	3	2014
Engineering and Manufacturing Development (EMD) Phase II	3	2011	3	2014
Design Evaluation Testing (DET) Preparation	2	2012	2	2013
Design Evaluation Testing (DET)	3	2013	3	2013
Developmental Test & Evaluation (DT&E) Preperation	4	2012	4	2013
Developmental Test & Evaluation (DT&E)	1	2014	3	2014
Milestone C	3	2014	3	2014
Low Rate Initial Production Award	3	2014	3	2014
Low Rate Initial Production	3	2014	2	2015
Materiel Release/Full-Rate Production Decision Review	2	2015	2	2015
Sabot Composite Material Qualification	1	2014	3	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army									Date: March 2014				
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 656 / 120mm Cartridge (Advanced Multipurpose-AMP)				
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost	
656: 120mm Cartridge (Advanced Multipurpose-AMP)	-	-	-	14.748	-	14.748	27.578	25.637	25.655	39.518	-	133.136	
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-			
# The FY 2015 OCO Request will be submitted at a later date.													
Note In FY 2015 Project 656 is a new start.													
A. Mission Description and Budget Item Justification The Advanced Multi Purpose (AMP) program is a direct fire line of sight 120mm large caliber munition to be developed for the Abrams Main Battle Tank. It has three modes of operation including point detonate, delay and airburst. AMP is the material solution for breaching reinforced concrete walls and defeating Anti Tank Guided Missile (ATGM) teams from 50m to 2000m (T) and 50m to 4500m (O), a validated gap that cannot currently be met with existing stockpiled ammunition. In addition to added capability, AMP will also consolidate the capabilities of four existing stockpiled 120mm munitions, thereby addressing the users' battlecarry dilemma by allowing them to load a single munition that is capable of defeating multiple targets including ATGM teams, reinforced walls, personnel, light armor, bunkers, and obstacles. The full performance of the AMP is obtained with an Abrams equipped Ammunition Data Link breach modification, the same required by the M829E4. FY 2015 supports multiple contract awards for competing prototypes in Phase I of II for Engineering and Manufacturing Development (EMD).													
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015		
Title: Phase I Engineering and Manufacturing Development (EMD)									-	-	14.748		
Description: Funding is provided for the following effort.													
FY 2015 Plans: Initiate EMD Phase I with two contract awards for competing prototypes. Contractors will conduct engineering efforts focused on demonstrating cartridge performance requirements. This will require hardware design and procurement along with initial component and cartridge level testing. Phase I efforts will extend into FY 2016 where a cartridge demonstration will be conducted.													
Accomplishments/Planned Programs Subtotals									-	-	14.748		
C. Other Program Funding Summary (\$ in Millions) N/A													
Remarks													

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) 656 / <i>120mm Cartridge (Advanced Multipurpose-AMP)</i>
D. Acquisition Strategy The Advanced Multi Purpose EMD contract awards with competitive prototyping will occur in FY 2015. Two contracts will be awarded for EMD Demonstration Phase I. A cartridge demonstration test, conducted in late FY 2016, will be used to down select to a single contractor for EMD completion in Phase II, followed by Low Rate Initial Production (LRIP) in FY 2019 and two optional years of procurement in FY 2020 and FY 2021 respectively.		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 656 / 120mm Cartridge (Advanced Multipurpose-AMP)					
Product Development (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor 1	TBD	TBD : TBD	0.000	-		-		5.325		-		5.325	Continuing	Continuing	Continuing
Contractor 2	TBD	TDB : TBD	0.000	-		-		5.325		-		5.325	Continuing	Continuing	Continuing
PM-MAS Labor and Travel	MIPR	Picatinny : NJ	0.009	-		-		0.748		-		0.748	Continuing	Continuing	Continuing
Subtotal			0.009	-		-		11.398		-		11.398	-	-	-
Support (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARDEC	MIPR	Picatinny Arsenal : NJ	0.000	-		-		1.500		-		1.500	Continuing	Continuing	Continuing
Army Research Lab	MIPR	ARL Aberdeen : MD	0.000	-		-		0.600		-		0.600	Continuing	Continuing	Continuing
Subtotal			0.000	-		-		2.100		-		2.100	-	-	-
Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
Yuma Test Center	MIPR	Yuma Proving Ground : AZ	0.000	-		-		0.750		-		0.750	Continuing	Continuing	Continuing
Aberdeen Test Center (ATC)	MIPR	Aberdeen Proving Ground : MD	0.000	-		-		0.500		-		0.500	Continuing	Continuing	Continuing
Subtotal			0.000	-		-		1.250		-		1.250	-	-	-
			Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.009	-		-		14.748		-		14.748	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) 656 / 120mm Cartridge (Advanced Multipurpose-AMP)	

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone B																												
EMD Contract Phase I Awards																												
Engineering and Manufacturing Development (EMD) Phase I																												
Preliminary Design Review (PDR)																												
EMD Contract Phase II Award																												
Engineering and Manufacturing Development (EMD) Phase II																												
Critical Design Review																												
Developmental Test & Evaluation (DT&E)																												
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) 656 / <i>120mm Cartridge (Advanced Multipurpose-AMP)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	1	2015	1	2015
EMD Contract Phase I Awards	2	2015	2	2015
Engineering and Manufacturing Development (EMD) Phase I	2	2015	4	2016
Preliminary Design Review (PDR)	4	2015	4	2015
EMD Contract Phase II Award	1	2017	1	2017
Engineering and Manufacturing Development (EMD) Phase II	1	2017	2	2019
Critical Design Review	1	2018	1	2018
Developmental Test & Evaluation (DT&E)	4	2018	2	2019
Milestone C	2	2019	2	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 694 / Medium Caliber Ammunition			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
694: Medium Caliber Ammunition	-	-	10.794	-	-	-	-	-	-	-	-	10.794
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
Note												
In FY 2015 \$6.964 Million is moved from 643639 Project 694 - Medium Caliber Ammunition to 654802 Project EC1-High Velocity, Low Velocity Thermal Training.												
A. Mission Description and Budget Item Justification												
The Target Practice Day Night Thermal (TP-DNT) cartridges are 40mm grenade training cartridges. The low velocity variant is for training with the M203/M320 grenade launchers; the high velocity variant is for training with the Mk19 grenade machine gun. Both cartridges will provide the Warfighter with a non-dud producing, environmentally friendly training cartridge that provides a visual impact signature seen day or night, by the naked eye, through night vision devices, and thermal weapon sights. These cartridges will replace the 40mm Target Practice, M918/M385A1 (Mixed Belt) cartridges and the 40mm M781 cartridges. It is expected that the unit price for high velocity cartridges will be lower than the Mixed Belt cartridges. Funding for FY 2015 activities transitions to PE 0604802/Project EC1.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2013	FY 2014	FY 2015	
Title: Target Practice Day Night Thermal cartridges. Articles: Description: The Target Practice Day NightThermal (TP-DNT) cartridges are 40mm grenade training cartridges. FY 2014 Plans: FY14 primary activities consist of Milestone B approval, Source Selection Planning, and Bid Sample Test competition.									-	10.794	-	
									-	-	-	
									Accomplishments/Planned Programs Subtotals			
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost	
• Target Practice Day Night Thermal: Target Practice Day Night/ Thermal cartridges	-	40.466	1.972	-	1.972	34.830	61.277	78.442	75.682	Continuing	Continuing	

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014	
Appropriation/Budget Activity 2040 / 4				R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) 694 / Medium Caliber Ammunition			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2015</u>	<u>FY 2015</u>	<u>FY 2015</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Complete</u>	<u>Total Cost</u>
Remarks											
Production dollars will be used to procure 40mm training cartridges. If not 40mm DNT cartridges, 40mm mixed belt will be procured.											
D. Acquisition Strategy											
The TP-DNT cartridges will be developed through a competitive Engineering and Manufacturing Development (EMD) program. The EMD phase will develop both High Velocity (HV) and Low Velocity (LV) variants that will most likely utilize the same critical technologies, making concurrent acquisitions a logical approach to reduce overall acquisition costs. As part of the EMD source selection, a Bid Sample shoot-off competition will be conducted to evaluate potential designs. Within funding constraints, multiple contractor designs will be awarded EMD contracts with intent to down select to one contractor for the HV variant and one contractor for the LV variant. Following the down select, begin LRIP and two production year options. Milestone C scheduled for 1Q FY 2017.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition						Project (Number/Name) 694 / Medium Caliber Ammunition			
Product Development (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor 1 Low Velocity	C/FFP	TBD : TBD	0.000	-		1.898		-		-		-	-	1.898	-
Contractor 2 Low Velocity	C/FFP	TBD : TBD	0.000	-		1.898		-		-		-	-	1.898	-
Contractor 1 High Velocity	C/FFP	TBD : TBD	0.000	-		1.898		-		-		-	-	1.898	-
Contractor 2 High Velocity	C/FFP	TBD : TBD	0.000	-		1.898		-		-		-	-	1.898	-
PM-MAS labor and travel	MIPR	Picatinny Arsenal : NJ	0.000	-		0.555		-		-		-	-	0.555	-
Subtotal			0.000	-		8.147		-		-		-	-	8.147	-
Support (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARDEC	MIPR	Picatinny Arsenal : NJ	0.000	-		1.006		-		-		-	-	1.006	-
Subtotal			0.000	-		1.006		-		-		-	-	1.006	-
Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ATEC	MIPR	ATEC : Aberdeen, MD	0.000	-		0.127		-		-		-	-	0.127	-
YPG	MIPR	YPG : Yuma, AZ	0.000	-		1.514		-		-		-	-	1.514	-
Subtotal			0.000	-		1.641		-		-		-	-	1.641	-
			Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-		10.794		-		-		-	-	10.794	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army																Date: March 2014			
Appropriation/Budget Activity 2040 / 4								R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>								Project (Number/Name) 694 / <i>Medium Caliber Ammunition</i>			

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MS-B																												
Engineering Manufacturing Development																												
Bid Sample Testing																												
Preliminary Design Review																												
Development Engineering Test Phase I																												
Development Engineering Test Phase II																												
Critical Design Review																												
Developmental Test & Evaluation																												
MS-C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) 694 / <i>Medium Caliber Ammunition</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MS-B	3	2014	3	2014
Engineering Manufacturing Development	3	2014	1	2017
Bid Sample Testing	4	2014	1	2015
Preliminary Design Review	3	2015	3	2015
Development Engineering Test Phase I	4	2015	4	2015
Development Engineering Test Phase II	2	2016	2	2016
Critical Design Review	3	2016	3	2016
Developmental Test & Evaluation	4	2016	4	2016
MS-C	1	2017	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014																						
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>				Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</i>																							
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost																				
EB8: <i>OWL for Small Caliber Ammunition</i>	-	-	-	1.967	-	1.967	1.971	2.169	3.158	-	-	9.265																				
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-																						
<p># The FY 2015 OCO Request will be submitted at a later date.</p> <p>Note In FY 2015 Project EB8 is a new start.</p> <p>A. Mission Description and Budget Item Justification One Way Luminescence (OWL): Current legacy small caliber ammunition tracer rounds are comprised of a pyrotechnic tracer mix that allows enemy forces to visually see the trace round and track its trajectory back to the shooter. The objective of the OWL program is to develop and field a full day/night tracer technology to replace the current M62 pyrotechnic trace cartridge, with a new trace cartridge that is only visible to the shooter and those soldiers in close proximity. Additional benefits of the OWL program, depending on the technology that is selected, include a possible reduction in unit cost compared to the pyrotechnic trace round and the potential for every round to provide a both a trace and Enhanced Performance Round (EPR) capability, thereby increasing soldier survivability.</p> <p>B. Accomplishments/Planned Programs (\$ in Millions)</p> <table border="1"> <thead> <tr> <th></th> <th>FY 2013</th> <th>FY 2014</th> <th>FY 2015</th> </tr> </thead> <tbody> <tr> <td>Title: One Way Luminescence (OWL)</td> <td align="center">-</td> <td align="center">-</td> <td align="center">1.967</td> </tr> <tr> <td>Description: One Way Luminescence (OWL) will develop and demonstrate a full day/night tracer technology that eliminates the shortcomings of current legacy tracers.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 2015 Plans: FY 2015 work will include concurrent government and contractor development efforts. The efforts will include procurement, development, and testing of competing material solutions to meet user requirements.</td> <td></td> <td></td> <td></td> </tr> <tr> <td align="right">Accomplishments/Planned Programs Subtotals</td> <td align="center">-</td> <td align="center">-</td> <td align="center">1.967</td> </tr> </tbody> </table> <p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p>														FY 2013	FY 2014	FY 2015	Title: One Way Luminescence (OWL)	-	-	1.967	Description: One Way Luminescence (OWL) will develop and demonstrate a full day/night tracer technology that eliminates the shortcomings of current legacy tracers.				FY 2015 Plans: FY 2015 work will include concurrent government and contractor development efforts. The efforts will include procurement, development, and testing of competing material solutions to meet user requirements.				Accomplishments/Planned Programs Subtotals	-	-	1.967
	FY 2013	FY 2014	FY 2015																													
Title: One Way Luminescence (OWL)	-	-	1.967																													
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FY 2015 Plans: FY 2015 work will include concurrent government and contractor development efforts. The efforts will include procurement, development, and testing of competing material solutions to meet user requirements.																																
Accomplishments/Planned Programs Subtotals	-	-	1.967																													

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</i>
<u>D. Acquisition Strategy</u> The OWL concept will be developed through multiple competitive prototyping efforts. An annual Technology Readiness Assessment (TRA) will be conducted in FY 2015, FY 2016, and FY 2017 to measure the progress of the designs. If the technology matures to a Technology Readiness Level of 6 (prototypes fired from the M240 machine gun) by FY 2017, there will be a down select to one design for Engineering and Manufacturing Development (EMD) program.		
<u>E. Performance Metrics</u> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) EB8 / OWL for Small Caliber Ammunition					
Product Development (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor 1	TBD	TBD : TBD	0.000	-		-		0.500		-		0.500	Continuing	Continuing	-
Contractor 2	TBD	TBD : TBD	0.000	-		-		0.500		-		0.500	Continuing	Continuing	-
PM MAS Labor & Travel	MIPR	Picatinny Arsenal : New Jersey	0.000	-		-		0.200		-		0.200	Continuing	Continuing	-
Subtotal			0.000	-		-		1.200		-		1.200	-	-	-
Support (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARDEC	MIPR	Picatinny Arsenal : New Jersey	0.000	-		-		0.367		-		0.367	Continuing	Continuing	-
Subtotal			0.000	-		-		0.367		-		0.367	-	-	-
Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARL	MIPR	Aberdeen : Maryland	0.000	-		-		0.200		-		0.200	Continuing	Continuing	-
Army Corps of Engineers	MIPR	Ft.Belvoir : Virginia	0.000	-		-		0.200		-		0.200	Continuing	Continuing	-
Subtotal			0.000	-		-		0.400		-		0.400	-	-	-
			Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-		-		1.967		-		1.967	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army			Date: March 2014		
Appropriation/Budget Activity 2040 / 4		R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>			Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</i>

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Multiple Development Contracts																												
Engineering and Manufacturing Development (EMD)																												
Technology Readiness Assessment 1																												
Technology Readiness Assessment 2																												
Technology Readiness Assessment 3																												
Milestone B (MS-B)																												
Design Evaluation Test																												
User Assessment																												
Preliminary Design Review (PDR)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EB8 / <i>OWL for Small Caliber Ammunition</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Multiple Development Contracts	1	2015	3	2017
Engineering and Manufacturing Development (EMD)	3	2017	4	2018
Technology Readiness Assessment 1	2	2015	2	2015
Technology Readiness Assessment 2	2	2016	2	2016
Technology Readiness Assessment 3	2	2017	2	2017
Milestone B (MS-B)	3	2017	3	2017
Design Evaluation Test	2	2018	2	2018
User Assessment	2	2018	2	2018
Preliminary Design Review (PDR)	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014																						
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) EB9 / Tunable Pyrotechnic Aircraft Countermeasure Flares																							
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost																				
EB9: Tunable Pyrotechnic Aircraft Countermeasure Flares	-	-	-	0.884	-	0.884	0.985	4.043	1.085	3.556	-	10.553																				
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-																						
<p># The FY 2015 OCO Request will be submitted at a later date.</p> <p>Note In FY15 Project EB9 is a new start.</p> <p>A. Mission Description and Budget Item Justification This project will support research, development and testing to field new expendable countermeasure munitions that will protect Army aircraft from advanced and current guided-missile threats. Advances in the capability of threat systems to counter current decoys necessitate development of new expendable countermeasures. This program is considered essential to provide Army Aircraft protection against surface-to-air weapon systems.</p> <p>B. Accomplishments/Planned Programs (\$ in Millions)</p> <table border="1"> <thead> <tr> <th></th> <th>FY 2013</th> <th>FY 2014</th> <th>FY 2015</th> </tr> </thead> <tbody> <tr> <td>Title: Expendable Countermeasures to Guided Missile Threats</td> <td>-</td> <td>-</td> <td>0.884</td> </tr> <tr> <td>Description: This program will develop expendable countermeasure decoys which will protect Army aircraft from surface-to-air missiles.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 2015 Plans: Develop and prepare documentation for MDD approval for the following countermeasure (CM) decoys. These decoys are designed to defeat specific threat types. Details of their operation are classified. a. Cloud CM b. Dazzler CM c. Advanced Seeker CM d. Radar Guided Threat Countermeasures to include improved Chaff and Active RF Expendable Decoy</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Accomplishments/Planned Programs Subtotals</td> <td>-</td> <td>-</td> <td>0.884</td> </tr> </tbody> </table> <p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p>														FY 2013	FY 2014	FY 2015	Title: Expendable Countermeasures to Guided Missile Threats	-	-	0.884	Description: This program will develop expendable countermeasure decoys which will protect Army aircraft from surface-to-air missiles.				FY 2015 Plans: Develop and prepare documentation for MDD approval for the following countermeasure (CM) decoys. These decoys are designed to defeat specific threat types. Details of their operation are classified. a. Cloud CM b. Dazzler CM c. Advanced Seeker CM d. Radar Guided Threat Countermeasures to include improved Chaff and Active RF Expendable Decoy				Accomplishments/Planned Programs Subtotals	-	-	0.884
	FY 2013	FY 2014	FY 2015																													
Title: Expendable Countermeasures to Guided Missile Threats	-	-	0.884																													
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Accomplishments/Planned Programs Subtotals	-	-	0.884																													

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition	Project (Number/Name) EB9 / Tunable Pyrotechnic Aircraft Countermeasure Flares
D. Acquisition Strategy Strategy is under development and will be approved by the MDA once complete.		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) EB9 / Tunable Pyrotechnic Aircraft Countermeasure Flares					
Management Services (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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	MIPR	PM Close Combat Systems : PICATINNY ARSENAL	0.000	-		-		0.277	Dec 2014	-		0.277	-	0.277	-
Subtotal			0.000	-		-		0.277		-		0.277	-	0.277	-
Support (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	ARDEC : PICATINNY	0.000	-		-		0.607	Jan 2015	-		0.607	-	0.607	-
Subtotal			0.000	-		-		0.607		-		0.607	-	0.607	-
			Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-		-		0.884		-		0.884	-	0.884	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army																Date: March 2014			
Appropriation/Budget Activity 2040 / 4								R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition								Project (Number/Name) EB9 / Tunable Pyrotechnic Aircraft Countermeasure Flares			

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EB9 / <i>Tunable Pyrotechnic Aircraft Countermeasure Flares</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Material Development Decision	4	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) EC2 / Advanced Armor-Piercing (ADVAP) for Small Cal Ammo			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
EC2: Advanced Armor-Piercing (ADVAP) for Small Cal Ammo	-	-	-	4.916	-	4.916	6.205	5.324	6.414	-	-	22.859
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
Note In FY 2015 Project EC2 is a new start.												
A. Mission Description and Budget Item Justification The overall objective of the Advanced Armor Piercing (ADVAP) program is to develop and field a 7.62mm ADVAP cartridge that will provide overmatch capability to defeat lightly armored targets within typical medium caliber machine gun ranges. Current Armor Piercing ammunition performance has been stagnant over the last 20 years, which has led to known deficiencies against current and future hard target threats. The ADVAP cartridge will be designed specifically for use in the M240 Machine Gun and will replace the older M993 Armor Piercing cartridge.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: Advanced Armor Piercing (ADVAP) Description: Develop and demonstrate an Advanced Armor Piercing (ADVAP) 7.62mm cartridge in order to defeat threat targets and provide overmatch capability versus a broad spectrum of hard targets. FY 2015 Plans: FY 2015 work will include optimization of the projectile design through advanced modeling, simulation, and test iterations, along with alternate material studies, manufacturing studies and propellant requirement investigation. A Technology Readiness Assessment is planned for FY 2015 to determine the technology readiness level of the design.									-	-	4.916	
Accomplishments/Planned Programs Subtotals									-	-	4.916	
C. Other Program Funding Summary (\$ in Millions) N/A												
Remarks												
D. Acquisition Strategy The 7.62mm ADVAP cartridge will be a Government design employing expertise from Armament Research, Development & Engineering Center (ARDEC) and the Army Research Laboratory (ARL). Multiple component contracts will be awarded to purchase raw materials and propellant. The 7.62mm ADVAP projectiles will												

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC2 / <i>Advanced Armor-Piercing (ADVAP) for Small Cal Ammo</i>
<p>be manufactured and tested to demonstrate proof of concept in FY 2015. In FY 2016 design optimization and prototype manufacturing will occur. Upon successful Technology Readiness Level (TRL) 6 completion, Milestone B (MS-B) will occur at the end of FY 2016 to include fabrication and testing qualification of hardware.</p> <p><u>E. Performance Metrics</u> N/A</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Army												Date: March 2014			
Appropriation/Budget Activity 2040 / 4						R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition						Project (Number/Name) EC2 / Advanced Armor-Piercing (ADVAP) for Small Cal Ammo			
Product Development (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
Raw Materials Contract TBD	C/FFP	TBD : TBD	0.000	-		-		0.750		-		0.750	Continuing	Continuing	-
Propellant Contract TBD	C/FFP	TBD : TBD	0.000	-		-		0.250		-		0.250	Continuing	Continuing	-
PM-MAS Labor & Travel	MIPR	Picatinny Arsenal : New Jersey	0.000	-		-		0.200		-		0.200	Continuing	Continuing	-
Subtotal			0.000	-		-		1.200		-		1.200	-	-	-
Support (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARDEC	MIPR	Picatinny Arsenal : New Jersey	0.000	-		-		1.316		-		1.316	Continuing	Continuing	-
ARL	MIPR	Aberdeen : Maryland	0.000	-		-		1.000		-		1.000	Continuing	Continuing	-
Subtotal			0.000	-		-		2.316		-		2.316	-	-	-
Test and Evaluation (\$ in Millions)				FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 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
ARL	MIPR	Aberdeen : Maryland	0.000	-		-		1.400		-		1.400	Continuing	Continuing	-
Subtotal			0.000	-		-		1.400		-		1.400	-	-	-
			Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-		-		4.916		-		4.916	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Army			Date: March 2014		
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>		
			Project (Number/Name) EC2 / <i>Advanced Armor-Piercing (ADVAP) for Small Cal Ammo</i>		

	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced Concept Development																												
Propellant Analysis & Testing																												
Prototype Test & Evaluation																												
Design Evaluation Test 1																												
Technology Readiness Assessment																												
Milestone B																												
Engineering & Manufacturing Development																												
Preliminary Design Review (PDR)																												
Design Evaluation Test 2																												
Critical Design Review (CDR)																												
Design Test & Evaluation																												
Milestone C (MS-C)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Army			Date: March 2014
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC2 / <i>Advanced Armor-Piercing (ADVAP) for Small Cal Ammo</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Concept Development	1	2015	4	2016
Propellant Analysis & Testing	1	2015	2	2016
Prototype Test & Evaluation	1	2015	4	2016
Design Evaluation Test 1	2	2016	4	2016
Technology Readiness Assessment	4	2016	4	2016
Milestone B	4	2016	4	2016
Engineering & Manufacturing Development	1	2017	4	2018
Preliminary Design Review (PDR)	3	2017	3	2017
Design Evaluation Test 2	3	2017	3	2017
Critical Design Review (CDR)	2	2018	2	2018
Design Test & Evaluation	2	2018	4	2018
Milestone C (MS-C)	1	2019	1	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army										Date: March 2014		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0603639A / Tank and Medium Caliber Ammunition				Project (Number/Name) EC3 / Ammunition Logistics Prototyping			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
EC3: Ammunition Logistics Prototyping	-	-	-	1.770	-	1.770	1.872	3.451	2.665	3.853	-	13.611
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
Note In FY15 Project EC3 is a new start.												
A. Mission Description and Budget Item Justification This project supports the future force by improving the distribution, management, reliability and survivability of ammunition through the advanced development, integration, and demonstration of logistics system enablers. These enablers will improve the efficiency and effectiveness of ammunition operations, to include retrograde, while reducing the logistics footprint on the battlefield. Technology areas addressed include handling, distribution, and management (strategic and tactical), prognostics, diagnostics, and asset visibility, explosives safety, and adaptive and environmentally friendly packaging and palletization. The efficient deployment and sustainment of reliable ammunition is vital to success on the battlefield. This project enhances the operational effectiveness of the ammunition logistics system to ensure the distribution of reliable ammunition to the warfighter.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: Munitions Health and Inventory Monitoring Systems Description: Performance & reliability of certain munitions can be degraded by the environmental exposure history they have experienced in their lifetime. This program will develop simple to complex environmental health and inventory monitoring systems to improve reliability and asset visibility and enable effective Condition Based Management for Ammunition. FY 2015 Plans: Integrate and test components of an embedded environmental health monitoring system that will facilitate improved ammunition management.									-	-	1.000	
Title: Munitions Containerization Systems Description: For each family of munitions containers, optimize prototype container systems for automation compatibility, combat unit load quantity, sustainability/recyclability, Insensitive Munitions/explosives safety, environmental protection, load reconfiguration, unitization, and standardized interfaces. This will improve ammunition distribution efficiency while minimizing environmental and operational impacts. FY 2015 Plans:									-	-	0.770	

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Army		Date: March 2014	
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603639A / <i>Tank and Medium Caliber Ammunition</i>	Project (Number/Name) EC3 / <i>Ammunition Logistics Prototyping</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014
Mature the design of advanced lightweight, environmentally friendly ammunition packaging and conduct an operational evaluation.			
Accomplishments/Planned Programs Subtotals		-	1.770
C. Other Program Funding Summary (\$ in Millions) N/A			
Remarks			
D. Acquisition Strategy N/A			
E. Performance Metrics N/A			