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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604814A / Artillery Munitions - EMD
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	6.352	-	-	-	-	-	-	-	-	-	6.352
708: XM982 Projectile	-	6.352	-	-	-	-	-	-	-	-	-	6.352

Note

FY 2014 was reduced by \$1.576 million as a result of Better Buying Power cost savings from test efficiencies.

A. Mission Description and Budget Item Justification

Excalibur is a Precision Guided Extended Range 155mm Artillery projectile providing Brigade Combat Teams an organic precision fires capability. Additionally it provides improved fire support capability due to its increased range of 40.5 kilometers and demonstrated accuracy of < 3 meters radial miss distances, which enables a first round effect on target reducing the number of rounds required while reducing collateral damage. Excalibur is compatible with the M777A2 Lightweight 155mm Howitzer (LW155), M109A6 Paladin Howitzer, M109A7 Paladin PIM Howitzer and Sweden's Archer Howitzer. Excalibur provides a 35% range increase over current Rocket Assisted Projectiles, with a < 10 meter accuracy circular error probable at all ranges. Excalibur is also highly resistant to Global Positioning System (GPS) jamming. Excalibur is an international program, teamed with the Kingdom of Sweden (KoS), who contributed resources towards the development and have procured rounds in accordance with an established Project Agreement for use in their Archer Howitzer.

Increment 1b completed a successful Initial Operational Test and Evaluation in February 2014 as well as a Full Rate Production Decision Review in June 2014.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	8.205	-	-	-	-
Current President's Budget	6.352	-	-	-	-
Total Adjustments	-1.853	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.576	-			
• SBIR/STTR Transfer	-0.277	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604814A / Artillery Munitions - EMD				Project (Number/Name) 708 / XM982 Projectile			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
708: XM982 Projectile	-	6.352	-	-	-	-	-	-	-	-	-	6.352
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Excalibur is a Precision Guided Extended Range 155mm Artillery projectile providing Brigade Combat Teams an organic precision fires capability. Additionally it provides improved fire support capability due to its increased range of 40.5 kilometers and demonstrated accuracy of < 3 meters radial miss distances, which enables a first round effect on target reducing the number of rounds required while reducing collateral damage. Excalibur is compatible with the M777A2 Lightweight 155mm Howitzer (LW155), M109A6 Paladin Howitzer, M109A7 Paladin PIM Howitzer and Sweden's Archer Howitzer. Excalibur provides a 35% range increase over current Rocket Assisted Projectiles, with a < 10 meter accuracy circular error probable at all ranges. Excalibur is also highly resistant to Global Positioning System (GPS) jamming. Excalibur is an international program, teamed with the Kingdom of Sweden (KoS), who contributed resources towards the development and have procured rounds in accordance with an established Project Agreement for use in their Archer Howitzer.

Increment Ib completed a successful Initial Operational Test and Evaluation in February 2014 as well as a Full Rate Production Decision Review in June 2014.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Title: Increment Ib development support.	2.509	-	-
Description: Increment Ib developmental support.			
FY 2014 Accomplishments: Implementation of reliability growth effort and completion of the IOT&E.			
Title: Integrated Developmental Testing/Operational Testing (DT/OT), Safety/Reliability testing, and operational assessment for Increment Ib.	3.843	-	-
Description: Conduct Integrated Developmental Testing/Operational Testing (DT/OT) , Safety/Reliability testing, and operational assessment.			
FY 2014 Accomplishments: Completion of initial operational test and evaluation, supporting the full rate production for Increment Ib.			
Accomplishments/Planned Programs Subtotals	6.352	-	-

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Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604814A / <i>Artillery Munitions - EMD</i>				Project (Number/Name) 708 / <i>XM982 Projectile</i>			
C. Other Program Funding Summary (\$ in Millions)											
			FY 2016	FY 2016	FY 2016					Cost To	
Line Item	FY 2014	FY 2015	Base	OCO	Total	FY 2017	FY 2018	FY 2019	FY 2020	Complete	Total Cost
• Procurement Ammo: <i>Procurement</i>	77.326	35.672	45.518	-	45.518	-	-	-	-	-	158.516
<i>Ammunition Army: Proj</i>											
<i>155mm Extended Range:</i>											
<i>XM982-U Excalibur: E80103</i>											
Remarks											
D. Acquisition Strategy											
Excalibur is a family of Precision Guided Extended Range Munitions. In 1997, a competitive Engineering and Manufacturing Development (EMD) contract was awarded for the initial increment, with options for Low Rate Initial Production (LRIP) quantities. In coordination with the Army Acquisition Executive, the Army implemented an incremental development approach that provided for an early fielding capability in FY 2007 in response to an Urgent Needs Statement in support of Operation Iraqi Freedom (as of September 2010 re-named to Operation New Dawn) and Operation Enduring Freedom. Increment Ib was solicited as a full and open competition and awarded to two contractors in September 2008. Following the Increment Ib strategy, the Army conducted a demonstration phase followed by a shoot off between the two competing contractors and down selected to a single contractor for qualification and production. The shoot off was completed in July 2010 followed by the downselect decision on 25 August 2010 to support Phase II development and qualification. Increment Ib completed successful Milestone C Decision Review on December 12, 2012, Initial Operational Test and Evaluation in February 2014 followed by a Full Rate Production Decision Review in June 2014. The Excalibur Increment projectile was Type Classified and Full Material Released in June 2014.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604814A / Artillery Munitions - EMD				Project (Number/Name) 708 / XM982 Projectile					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Misc Support Contracts	Various	Various : Various	3.645	-		-		-		-		-	-	3.645	3.645
Platform Integration/Fire Control - AFATDS	SS/CPIF	Raytheon AFATDS : Fort Wayne, IN	5.907	-		-		-		-		-	-	5.907	5.907
Govt Support for Paladin, LW155 Integration SW Development	MIPR	ARDEC, Software Engineering : Picatinny, NJ	7.588	-		-		-		-		-	-	7.588	7.588
Increment 1b Development Phase 2	C/CPIF	Raytheon Missile System : Tucson, AZ	77.428	-		-		-		-		-	-	77.428	77.428
Increment 1b Development Phase 1	C/FFP	Alliant Techsystems : Plymouth, MN	30.773	-		-		-		-		-	-	30.773	30.773
Increment 1b Development Phase 1	C/FFP	Raytheon Missile System : Tucson, AZ	30.413	-		-		-		-		-	-	30.413	30.413
Platform Integration & EPIAFS Software Development	MIPR	Navy, Surface Warfare Center : MD	0.230	-		-		-		-		-	-	0.230	0.230
Follow on Precision Artillery risk reduction	C/CPFF	ARDEC : Picatinny, NJ	5.049	-		-		-		-		-	-	5.049	5.049
Platform Integration-Systems Contractor	MIPR	ARES : Annapolis, MD	0.840	-		-		-		-		-	-	0.840	0.840
TCM Merger Assessment	SS/FP	Bofors Defence, Karlskoga : Sweden	14.430	-		-		-		-		-	-	14.430	14.430
Fee on Excalibur Development Contract	C/CPIF	Raytheon Missile System : Tucson, AZ	35.377	-		-		-		-		-	-	35.377	35.377
Platform Integration LW155 M777A2	C/CPIF	BAE : Burlington, VT	11.989	-		-		-		-		-	-	11.989	11.989
ARDEC fuze technology maturation (DOTC)	SS/FP	ARDEC : Picatinny, NJ	3.872	-		-		-		-		-	-	3.872	3.872
SS-SFM Test Projectiles	C/FFP	Various : Varoius	10.815	-		-		-		-		-	-	10.815	10.815
Advanced Cargo Projectile Technology	MIPR	DMEA, McClellan : CA	2.390	-		-		-		-		-	-	2.390	2.390
Platform Integration Firing Tables Development	MIPR	ARDEC, Firing Tables Branch Picatinny, NJ and : Aberdeen, MD	2.399	-		-		-		-		-	-	2.399	2.399

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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Excalibur Increment Ia Development	C/CPIF	Raytheon Missile System : Tucson, AZ	428.187	-		-		-		-		-	-	428.187	428.187
Subtotal			671.332	-		-		-		-		-	-	671.332	671.332
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	PO	PM Excalibur : Picatinny, NJ	28.071	0.500	Oct 2013	-		-		-		-	-	28.571	28.571
Government Support- Excalibur XM982	MIPR	ARDEC : Picatinny, NJ	68.661	1.989	Jan 2014	-		-		-		-	-	70.650	70.650
Government Support- Ft Sill	MIPR	Ft. Sill : OK	3.534	0.020	Nov 2013	-		-		-		-	-	3.554	3.554
Milestone Support	C/FP	Camber : Alexandria, VA	1.792	-		-		-		-		-	-	1.792	1.792
Miscellaneous Support	Various	Various : Various	4.175	-		-		-		-		-	-	4.175	4.175
Engineering Services Contract for Increment 1a-2	SS/CPFF	Raytheon Missile Systems : Tucson, AZ	0.085	-		-		-		-		-	-	0.085	0.085
Paladin Platform Integration	MIPR	PM Paladin : Picatinny, NJ	0.930	-		-		-		-		-	-	0.930	0.930
Government Support - SS-SFM	MIPR	ARDEC : Picatinny, NJ	1.625	-		-		-		-		-	-	1.625	1.625
Technical Spt Contract for Platform Integration	C/FP	Camber : Dallas, TX	0.821	-		-		-		-		-	-	0.821	0.821
Fire Control development support	MIPR	Fort Monmouth, NJ and : Fort Sill, OK	1.008	-		-		-		-		-	-	1.008	1.008
Platform Integration Software Support	MIPR	Navy Surface Warfare Center : MD	0.390	-		-		-		-		-	-	0.390	0.390
Government TCM Support	MIPR	ARDEC : Picatinny, NJ	0.910	-		-		-		-		-	-	0.910	0.910

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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Government Support-Advanced Cargo Projectile Technology	MIPR	ARDEC : Picatinny, NJ	0.353	-		-		-		-		-	-	0.353	0.353
Government Support Platform Integration	MIPR	ARDEC : Picatinny, NJ	6.241	-		-		-		-		-	-	6.241	6.241
PM CAS SS-SFM	PO	PM CAS : Picatinny, NJ	0.700	-		-		-		-		-	-	0.700	0.700
Increment Ia Engineering Services	MIPR	DMEA : McClellan, CA	5.078	-		-		-		-		-	-	5.078	5.078
Increment Ia Engineering Services	C/CPFF	DRS : Eatontown, NJ	12.850	-		-		-		-		-	-	12.850	12.850
Modeling and Structural Development	MIPR	Army Research Labs : Adelphi, MD	9.034	-		-		-		-		-	-	9.034	9.034
Government Engineering Support for Precision Artillery Risk Reduction	MIPR	ARDEC : Picatinny, NJ	2.750	-		-		-		-		-	-	2.750	2.750
Subtotal			149.008	2.509		-		-		-		-	-	151.517	151.517
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
TECOM Test Range	MIPR	Yuma Proving Grounds : Yuma, AZ	25.768	2.437	Nov 2013	-		-		-		-	-	28.205	28.205
Test Instrumentation and Analysis	MIPR	Army Research Labs : Adelphi, MD	3.935	0.196	Dec 2013	-		-		-		-	-	4.131	4.131
Telemetry Support	SS/FFP	Physical Science Laboratories (PSL) : Las Cruces, NM	3.146	-		-		-		-		-	-	3.146	3.146
Telemetry Support	MIPR	ARDEC : Picatinny, NJ	17.711	0.150	Nov 2013	-		-		-		-	-	17.861	17.861

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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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
Telemetry Cryptographic Support & Anti-Jam Support	MIPR	Ft. Huachuca : AZ	0.919	-		-		-		-		-	-	0.919	0.919
Target Replacement, Definition, Maintenance and Repair and Threat Assessment	MIPR	Target Management Office : Huntsville, AL	1.558	0.078	Nov 2013	-		-		-		-	-	1.636	1.636
Operational Test Support & AEC	MIPR	ATEC : Alexandria, VA	9.457	0.040	Dec 2013	-		-		-		-	-	9.497	9.497
ARDEC Testing	MIPR	ARDEC : Picatinny, NJ	2.814	0.221	Jan 2014	-		-		-		-	-	3.035	3.035
TECOM Test Range	MIPR	White Sands Missile Range : NM	13.595	-		-		-		-		-	-	13.595	13.595
Operational Test Support	MIPR	Ft. Sill : OK	3.244	0.721	Nov 2013	-		-		-		-	-	3.965	3.965
Test Gun Equipment	MIPR	Watervliet Arsenal : NY	3.972	-		-		-		-		-	-	3.972	3.972
Test Hardware	SS/CPFF	SAVIT : Parsippany, NJ	0.450	-		-		-		-		-	-	0.450	0.450
Live Fire Test and Evaluation	MIPR	ARL : Aberdeen, MD	0.697	-		-		-		-		-	-	0.697	0.697
Tri-Service Software Assessment	MIPR	OSD : Washington, DC	0.061	-		-		-		-		-	-	0.061	0.061
SS-SFM Testing	MIPR	Yuma Proving Grounds : Yuma, AZ	2.300	-		-		-		-		-	-	2.300	2.300
Subtotal			89.627	3.843		-		-		-		-	-	93.470	93.470
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			909.967	6.352		-		-		-		-	-	916.319	916.319
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604814A / <i>Artillery Munitions - EMD</i>	Project (Number/Name) 708 / <i>XM982 Projectile</i>
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Increment Ia-2 Prod. Deliveries	2 Deliveries																											
Increment Ib development	EMD																											
Increment Ib Production Deliveries	Ib Deliveries (FY12-FY16 options Qtys)																											
(1) Increment Ib First Article Testing	1 FAT																											
Preparation & Execution of Increment Ib IOT&E	IOT&E																											
(2) Increment Ib IOC	2 IOC																											
(3) Increment Ib Full Rate Production Review	3 FRP																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604814A / <i>Artillery Munitions - EMD</i>	Project (Number/Name) 708 / <i>XM982 Projectile</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Increment Ia-2 Prod. Deliveries	4	2011	2	2014
Increment Ib development	4	2008	2	2014
Increment Ib Production Deliveries	1	2014	4	2017
Increment Ib First Article Testing	1	2014	1	2014
Preparation & Execution of Increment Ib IOT&E	4	2013	2	2014
Increment Ib IOC	4	2014	4	2014
Increment Ib Full Rate Production Review	3	2014	3	2014