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

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604329F / <i>Small Diameter Bomb (SDB) - EMD</i>
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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	856.957	109.580	68.738	32.624	-	32.624	47.489	15.416	15.707	6.477	-	1,152.988
655191: <i>SDB Increment II</i>	856.957	109.580	68.738	32.624	-	32.624	47.489	15.416	15.707	6.477	-	1,152.988
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 439

A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment II (SDB II) is a joint interest United States Air Force (USAF) and Department of Navy (DoN) ACAT ID program, with the Air Force (AF) as the lead service. SDB II provides the warfighter the capability to attack mobile targets from stand-off, through weather. SDB II addresses the following warfighter requirements: attack moving and stationary targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, precision munitions capability, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, reduced susceptibility of munitions to countermeasures and provides a network enabled weapon capability via Link-16 and Ultra High Frequency (UHF) Weapon Data Link. The threshold aircraft for the AF is the F-15E, and the threshold aircraft for the DoN are the F-35B and F-35C. Objective aircraft include the F-22, F-16, F-35A, B-2, A-10, MQ-9, B-1, B-52, and the F/A-18 E/F. The AC-130 is being considered as an additional objective platform. SDB II will be compatible with the BRU-61 (Bomb Rack Unit) miniature munitions carriage, the Joint Miniature Munitions BRU, the CNU-660/E carriage system, the Common Munitions BIT/Reprogramming Equipment (CMBRE), and the Joint Mission Planning System (JMPS). The SDB II program will develop and field a single weapon storage container (USAF) and a dual weapon container (DoN).

SDB II completed a 42-month competitive Risk Reduction phase in October 2009. Milestone B approval to enter the Engineering and Manufacturing Development (EMD) phase was received on 29 July 2010 and the subsequent Acquisition Program Baseline was signed on 08 October 2010. A Fixed Price Incentive Firm EMD contract was awarded on 09 August 2010. SDB II is a key component of the Air Force's Global Strike Task Force CONOPs and Global Precision Attack Core Function.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting Engineering and Manufacturing Development tasks aimed at meeting validated requirements prior to full-rate production.

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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	113.334	68.759	32.842	-	32.842
Current President's Budget	109.580	68.738	32.624	-	32.624
Total Adjustments	-3.754	-0.021	-0.218	-	-0.218
• Congressional General Reductions	-	-0.021			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.754	-			
• Other Adjustments	-	-	-0.218	-	-0.218

Change Summary Explanation

No Significant Changes

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Development	84.504	31.826	20.301	-	20.301
Description: Engineering and Manufacturing Development (EMD): Development of SDB II design that delivers the capability described in the SDB II Capability Development Document (CDD) as specified in the government approved SDB II System Performance Specification (SPS) and prepare for production, deployment, and sustainment.					
FY 2014 Accomplishments: Continued to conduct ground and flight testing and target procurement to support testing. Began Live Fire testing. Began update to F-15E training devices. Began OFP update and qualification efforts for BRU-61. Continued Advanced Joint Effectiveness Model (AJEM) lethality modeling and testing. Continued collaboration with National Security Agency (NSA) and Joint Interoperability Test Command (JITC) on weapon data link key management software. Continued Aviation and Missile Research Development and Engineering Center (AMRDEC) support for modeling and simulation tasks and Verification, Validation and Accreditation (VV&A). Continued integration of SDB II with Command and Control Infrastructure, including Air and Space Operations Center (AOC) and integration with ground controller kits. Continued mission planning support during Development Test (DT). Contract awarded for Government Confidence Test (GCT) assets.					
FY 2015 Plans:					

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
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Conduct Production Readiness Review. Complete System Verification Review and conduct Milestone C review. Continue Guided Test Vehicle (GTV) and Captive Flight Test (CFT) DT for Normal Attack Mode, Coordinate Attack Mode and Semi-Active Laser Mode. Continue Live Fire testing. Begin the DT Captive Carry Reliability Test (CCRT) program. Begin GCT program which consists of 28 Normal Attack GTV test shots. Activities include, but are not limited to, designing, developing, and verifying production capability that delivers production quantities while ensuring the "as built" items conform to the EMD design and meet System Performance Specification (SPS) requirements. Continue integration of SDB II with Command and Control Infrastructure, including AOC and integration with ground controller kits.

FY 2016 Base Plans:
 Complete Guided Test Vehicle (GTV) and Captive Flight Test (CFT) DT for Normal Attack Mode, Coordinate Attack Mode and Semi-Active Laser Mode. Complete Government Confidence Test (GCT) and CCRT program. Begin Operational Testing (OT) with up to 55 test shots. Continue OFP update and qualification efforts for BRU-61. Continue AJEM lethality modeling and testing. Continue collaboration with NSA and JITC on weapon data link key management software. Continue AMRDEC support for modeling and simulation tasks and VV&A. Continue integration of SDB II with Command and Control Infrastructure, including AOC and integration with ground controller kits. Continue mission planning support during DT. Continue data link software updates.

Title: Integration and Qualification Testing	25.076	36.912	12.323	-	12.323
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Description: F-15E Aircraft Integration incorporates tests and targets, Modeling and Simulation (M&S), target lethality, data link and mission planning. Develop Suite 8E Operational Flight Program (OFP) upgrade to provide the capability to program the weapon with mission planned targets, weapon data link control, and exclusion zone information prior to launch of the weapon. It also allows the aircrew to make in-flight edits of target and weapon data link programming if/when required based on employment scenarios.

FY 2014 Accomplishments:
 Continued to conduct ground and flight testing and target procurement to support testing. Began update to F-15E training devices. Began OFP update and qualification efforts for BRU-61. Continued AJEM lethality modeling and testing. Continued collaboration with NSA and JITC on weapon data link key management software. Continued AMRDEC support for modeling and simulation tasks and VV&A. Continued integration of SDB II with Command and Control Infrastructure, including AOC and integration with ground controller kits. Continued mission planning support during DT.

FY 2015 Plans:

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue Live Fire testing. Conduct AFOTEC Operational Assessment to support Milestone C. Continue DT for Normal Attack Mode. Complete System Verification Review (SVR) and conduct Milestone C review. Begin DT for Coordinate Attack Mode and Semi-active Laser Mode. Continue Live Fire testing. Begin CCRT program. Begin Government Confidence Test (GCT) program which consists of 28 Normal Attack GTV test shots. Complete update to F-15E training devices. Continue OFP update and qualification efforts for BRU-61. Continue AJEM lethality modeling and testing. Continue collaboration with NSA and JITC on weapon data link key management software. Continue AMRDEC support for modeling and simulation tasks and VV&A. Continue integration of SDB II with Command and Control Infrastructure, including AOC and integration with ground controller kits. Continue mission planning support during DT. Begin data link software updates.					
<i>FY 2016 Base Plans:</i> Complete Guided Test Vehicle (GTV) and Captive Flight Test (CFT) DT for Normal Attack Mode, Coordinate Attack Mode and Semi-Active Laser Mode. Complete Government Confidence Test (GCT). Begin Operational Testing with up to 55 test shots. Continue collaboration with NSA and JITC on weapon data link key management software. Continue AMRDEC support for modeling and simulation tasks and VV&A. Continue integration of SDB II with Command and Control Infrastructure, including AOC and integration with ground controller kits. Continue data link software updates.					
Accomplishments/Planned Programs Subtotals	109.580	68.738	32.624	-	32.624

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MPAF: BA05: Line Item # SDB000: <i>Small Diameter Bomb</i>	-	51.298	133.697	2.520	136.217	90.621	92.401	77.151	154.555	1,361.912	1,893.960
• RDT&E: BA05: PE 0604329N: <i>Small Diameter Bomb</i>	17.975	13.353	29.329	-	29.329	38.288	59.590	80.611	105.815	92.993	550.559
• WPN: BA05: Line Item # 223800: <i>Small Diameter Bomb</i>	-	-	-	-	-	-	20.000	94.000	94.975	466.779	675.754

Remarks
 Navy RDT&E funds include F-35B and F-35C Integration and Support Cost

 FY15 MPAF BA05 Line Item #SDB000 includes \$10.720M Overseas Contingency Operation (OCO)for SDB I.

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
FY16 MPAF BA05 Line Item #SDB000 includes \$67.680M Base and \$2.52M Overseas Contingency Operation (OCO) for SDB I.											

E. Acquisition Strategy

The SDB II Engineering and Manufacturing Development (EMD) contract was awarded using competitive procedures. At the completion of the 42-month Risk Reduction phase in October 2009, one contractor was selected in April 2010 and awarded the EMD contract in August 2010. The EMD contract is a Fixed-Price Incentive Firm (FPIF) contract with priced production options for the first five production lots. SDB II production Lots 1-3 are FPIF. Production Lots 4-5 are fixed price not-to-exceed pricing with an economic price adjustment clause for labor and materials. The Government is buying the SDB II based on the contractor System Performance Specification (SPS) which has been approved by the Government. The contractor is accountable for system performance as defined in the SPS and a system warranty as defined in the EMD contract. Accordingly, the contractor is accountable to the Government for the design of the weapon system, as well as the planning and execution of the Development Test & Evaluation (DT&E) program to verify system performance. The Government formally arranges and funds the use of Government flight test support for DT&E.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604329F / Small Diameter Bomb (SDB) - EMD	Project (Number/Name) 655191 / SDB Increment II
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Risk Reduction Contract 1	C/CPFF	Boeing : St. Louis, MO	151.922	-		-		-		-		-	-	151.922	151.922
Risk Reduction Contract 2	C/CPFF	Raytheon : Tucson, AZ	150.800	-		-		-		-		-	-	150.800	150.800
EMD Contract	C/FPIF	Raytheon : Tucson, AZ	384.394	43.412	Oct 2013	15.500	Oct 2014	15.400	Oct 2015	-		15.400	1.463	460.169	460.169
Technical Support Contract	SS/ Various	Raytheon : Tucson, AZ	5.739	38.351	Dec 2013	9.489	Dec 2014	3.426	Dec 2015	-		3.426	16.757	73.762	73.762
MPACT High Pressure Air Compressor System	SS/FFP	Boeing : St. Charles, MO	3.175	-		-		-		-		-	-	3.175	3.175
F-15E Integration and Test Support	SS/ Various	Boeing : St. Louis, MO	38.370	2.409	Jan 2014	2.234	Jan 2015	0.883	Jan 2016	-		0.883	0.080	43.976	43.976
BRU-61/A Integration and Test Support	SS/ Various	Boeing : St. Charles, MO	4.906	3.511	Mar 2014	3.031	Mar 2015	1.954	Mar 2016	-		1.954	-	13.402	13.402
Mission Planning	Various	Various : Various,	4.914	0.055	Dec 2013	0.055	Dec 2014	0.056	Dec 2015	-		0.056	-	5.080	5.080
Data Link Integration & Support	Various	Various : Various,	2.714	0.101	Dec 2013	0.138	Dec 2014	0.037	Dec 2015	-		0.037	3.489	6.479	6.479
System Performance & Lethality	Various	Various : Various,	31.125	2.364	Nov 2013	0.827	Nov 2014	0.754	Nov 2015	-		0.754	0.052	35.122	35.122
Other Product Development	Various	Various : Various,	8.487	1.846	Nov 2013	3.806	Nov 2014	0.663	Nov 2015	-		0.663	62.774	77.576	77.576
Subtotal			786.546	92.049		35.080		23.173		-		23.173	84.615	1,021.463	1,021.463

Remarks
None.

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Government Costs	Various	Various : Various,	2.652	0.684	Apr 2014	0.505	Apr 2015	-	Apr 2016	-		-	-	3.841	3.841
Subtotal			2.652	0.684		0.505		-		-		-	-	3.841	3.841

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604329F / <i>Small Diameter Bomb (SDB)</i> - EMD	Project (Number/Name) 655191 / <i>SDB Increment II</i>
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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
None.

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DT&E: 96th Test Wing	PO	96th Test Wing : Eglin AFB, FL	13.857	5.489	Nov 2013	12.545	Nov 2014	4.762	Nov 2015	-		4.762	-	36.653	36.653
DT&E: UTTR, WSMR	Various	Various : Various,	3.960	3.225	Nov 2013	10.329	Nov 2014	-		-		-	-	17.514	17.514
Targets	PO	Various : Various,	21.153	2.822	Jan 2014	2.666	Jan 2015	1.059	Jan 2016	-		1.059	-	27.700	27.700
Other Test Support	Various	Various : Various,	3.973	2.815	Dec 2013	5.085	Dec 2014	3.435	Dec 2015	-		3.435	-	15.308	15.308
Subtotal			42.943	14.351		30.625		9.256		-		9.256	-	97.175	97.175

Remarks
None.

Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Acquisition Management Support (TAMS)	Various	COLSA Corp : Eglin AFB, FL	1.386	0.307	Feb 2014	0.508	Feb 2015	-	Feb 2016	-		-	-	2.201	2.201
Technical and Engineering Acquisition Support (TEAS)	Various	Jacobs Technology : Eglin AFB, FL	15.196	1.178	Dec 2013	1.048	Dec 2014	-	Dec 2015	-		-	-	17.422	17.422
Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	8.234	1.011	Oct 2013	0.972	Oct 2014	0.195	Oct 2015	-		0.195	0.474	10.886	10.886
Subtotal			24.816	2.496		2.528		0.195		-		0.195	0.474	30.509	30.509

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604329F / <i>Small Diameter Bomb (SDB)</i> - EMD	Project (Number/Name) 655191 / <i>SDB Increment II</i>
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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
None.

	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	856.957	109.580	68.738	32.624	-	32.624	85.089	1,152.988	1,152.988

Remarks
EMD contract is budgeted to the contract ceiling price.

The EMD Target Value includes AF funding only. The target value for the contract, including Navy funding, is \$450.827M.

UTTR: Utah Test and Training Range
WSMR: White Sands Missile Range

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
F-15 Integration Developmental/Operational Testing	1	2014	4	2017
Milestone C	3	2015	3	2015
Government Confidence Testing	3	2015	1	2016
Operational Testing	2	2016	3	2017
F-15E Required Assets Available	4	2017	4	2017
SDB II Redesign for F-35B/C	1	2017	4	2020