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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0101125F / <i>Nuclear Weapons Modernization</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	176.990	148.281	212.121	137.909	0.000	137.909	150.974	95.551	36.420	0.000	0.000	958.246
657007: <i>B61 LIFE EXTENSION PROGRAM</i>	176.990	148.281	212.121	137.909	0.000	137.909	150.974	95.551	36.420	0.000	0.000	958.246
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code: 468

A. Mission Description and Budget Item Justification

The purpose of this program element is to conduct and support United States Air Force (USAF) and Joint Department of Defense (DoD) / Department of Energy (DOE) acquisition activities for the modernization of nuclear weapons.

B61-12 Life Extension Program (LEP): The B61-12 LEP will integrate DOE efforts to extend the service life of the warhead with DoD efforts to develop a guided Tail Kit Assembly (TKA) required to maintain current B61 mission characteristics. Programmatic integration of the Air Force-led, joint DoD-DOE program is accomplished through the B61 LEP Project Officers Group (POG) and its subgroups. In accordance with Air Force Materiel Command mission assignment memo (dated 17 Feb 11) and National Nuclear Security Administration (NNSA)-Air Force Nuclear Weapons Center (AFNWC) Memorandum of Understanding (MOU dated 28 Jun 12), the USAF is responsible for development, acquisition and delivery of a guided TKA and All Up Round (AUR) technical integration, system qualification and fielding of the B61-12 variant on multiple platforms.

The FY2017 funding request was reduced by \$40.915 million to account for the availability of prior year execution balances.

This program is in Budget Activity 5, System Development and Demonstration (SDD), because it 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	168.357	212.121	206.283	0.000	206.283
Current President's Budget	148.281	212.121	137.909	0.000	137.909
Total Adjustments	-20.076	0.000	-68.374	0.000	-68.374
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-10.000	0.000			
• SBIR/STTR Transfer	-10.076	0.000			
• Other Adjustments	0.000	0.000	-68.374	0.000	-68.374

Change Summary Explanation

FY15: -\$10M for higher Air Force priorities; -\$10.1M for SBIR

FY17: -\$68M addressing higher Air Force priorities

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Engineering & Manufacturing Development Contract (B61)	79.200	113.642	58.024	0.000	58.024
Description: Prime contract to develop, test, integrate and nuclear certify a guided TKA in support of the B61-12 LEP.					
FY 2015 Accomplishments: Continued B61-12 TKA development, design, test, integration, qualification and nuclear certification activities in support of the B61-12 LEP. Continued design, integration and testing of the B61-12 system and verification of requirements and validation of TKA performance. Continued flight testing to verify aircraft flight environments in support of weapon development. Continued B61-12 TKA program practices that ensure the following were met: requirements flow down, requirement allocation to hardware and software, requirements compliance matrix, system performance, reliability, maintainability, product assurance, testability,					

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>producibility and supportability. Conducted contractor flight tests with weapons drops in preparation for the Critical Design Review (CDR). Conducted Environmental and Separation Flight Testing. Provided support to DOE flight tests in preparation for the Baseline Design Review (BDR) for the bomb assembly (BA). Supported aircraft Operational Flight Program (OFP) development and integration to deliver the OFP test tapes for flight testing.</p> <p>FY 2016 Plans: Continues B61-12 TKA development, design, test, integration, qualification and nuclear certification activities in support of the B61-12 LEP. Continues design, integration and testing of the B61-12 system and verification of requirements and validation of TKA performance. Continues flight testing to verify aircraft flight environments in support of weapon development. Continues B61-12 TKA program practices that ensure the following were met: requirements flow down, requirement allocation to hardware and software, requirements compliance matrix, system performance, reliability, maintainability, product assurance, testability, producibility and supportability. Provides support to the DOE flight tests in support of the BDR for the BA. Provides support to aircraft OFP development and integration to deliver the OFP test tapes in support of flight testing. Continues TKA Developmental Test (DT) drops, and preparation work for FY17 System Qualification drops.</p> <p>FY 2017 Base Plans: Continues B61-12 TKA development, design, test, integration, qualification and nuclear certification activities in support of the B61-12 LEP. Continues design, integration and testing of the B61-12 system and verification of requirements and validation of TKA performance. Continues flight testing to verify aircraft flight environments in support of weapon development. Continues B61-12 TKA program practices that ensure the following are met: requirements flow down, requirement allocation to hardware and software, requirements compliance matrix, system performance, reliability, maintainability, product assurance, testability, producibility and supportability. Provides support to aircraft OFP development and integration to deliver the OFP test tapes in support of flight testing. Continues TKA Developmental Test (DT) drops, and provides support to the FY17 System Qualification drops.</p> <p>FY 2017 OCO Plans: N/A</p>						
Title: All Up Round (AUR) Technical Integration (B61)		12.358	12.403	12.266	0.000	12.266

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Description: Covers all system engineering tasks in support of AUR technical integration, qualification & fielding, including program support to the B61 LEP POG.

FY 2015 Accomplishments:
Continued B61-12 system qualification plan, warhead component qualification, TKA qualifications, and B61-12 AUR integration activities. Continued support to maintain technical and programmatic schedules and program documents that support the AUR technical integration. Continued to develop warhead-to-TKA interface requirements and design. Continued to provide technical expertise to maintain B61-12 aircraft compatibility with platforms through completion of the test and evaluation program. Continued to develop test assets to support early integration efforts at the aircraft system integration laboratories. Conducted B61-12 AUR technical and programmatic reviews, including design reviews, systems reviews, technical interchange meetings, and test reviews. Also conducted test assessments to validate modeling and simulation results in support of system qualification; configuration management of B61-12 AUR drawings, interface control documents, and system specifications; and development of trainers and other USAF configurations. Provided AUR integration support to the DOE flight tests in support of the BDR for the BA.

FY 2016 Plans:
Continues B61-12 system qualification plan, warhead component qualification, TKA qualifications, and B61-12 AUR integration activities. Continues support to maintain technical and programmatic schedules and program documents that support the AUR technical integration. Continues to develop warhead-to-TKA interface requirements and design. Continues to provide technical expertise to maintain B61-12 aircraft compatibility with platforms through completion of the test and evaluation program. Continues to develop test assets to support integration efforts at the aircraft system integration laboratories. Includes B61-12 AUR technical and programmatic reviews, including design reviews, systems reviews, technical interchange meetings, and test reviews. Also includes test assessments to validate modeling and simulation results in support of system qualification; configuration management of B61-12 AUR drawings, interface control documents, and system specifications; and support of trainers and other USAF configurations. Provides AUR integration support to the DOE flight tests in support of the BDR for the BA. Provides for management of system security requirements. Provides AUR integration support to the DOE in preparation for System Qualification drops.

FY 2017 Base Plans:
Continues B61-12 system qualification plan, warhead component qualification, TKA qualifications, and B61-12 AUR integration activities. Continues support to maintain technical and programmatic schedules and program

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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documents that support the AUR technical integration. Continues to develop warhead-to-TKA interface requirements and design. Continues to provide technical expertise to maintain B61-12 aircraft compatibility with platforms through completion of the test and evaluation program. Continues to develop test assets to support integration efforts at the aircraft system integration laboratories. Includes B61-12 AUR technical and programmatic reviews, including design reviews, systems reviews, technical interchange meetings, and test reviews. Also includes test assessments to validate modeling and simulation results in support of system qualification; configuration management of B61-12 AUR drawings, interface control documents, and system specifications; and support of trainers and other USAF configurations. Provides for management of system security requirements. Provides AUR integration support to the DOE in support of System Qualification drops. FY 2017 OCO Plans: N/A					
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Title: Aircraft Integration (B61) Description: B61-12 integration with aircraft, including mission planning system upgrades to accommodate the new weapon variant and weapon design compatibility with threshold aircraft. FY 2015 Accomplishments: Continued meeting participation/membership and integration activities with aircraft. Continued test tapes development and demonstration/validation of the OFP. Continued mission planning upgrades for aircraft and design compatibility with threshold aircraft. Conducted aircraft OFP development and integration to deliver the OFP test tapes in support of flight testing. FY 2016 Plans: Continues meeting participation/membership and integration activities for aircraft. Continues test tapes development and demonstration/validation of the OFP. Continues design compatibility with aircraft. Continues mission planning upgrades. Continues OFP development and integration to deliver the OFP test tapes in support of flight testing. FY 2017 Base Plans: Continues meeting participation/membership and integration activities for aircraft. Continues test tapes development and demonstration/validation of the OFP. Continues design compatibility with aircraft. Continues	48.855	58.147	39.007	0.000	39.007
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C. Accomplishments/Planned Programs (\$ in Millions)					
mission planning upgrades. Continues OFP development and integration to deliver the OFP test tapes in support of flight testing.					
FY 2017 OCO Plans: N/A					
Title: Test Support (B61)					
Description: Test activities and support for TKA design validation & verification and nuclear certification, as well as B61-12 AUR system qualification (includes design and operational certification activities).					
FY 2015 Accomplishments: Continued test planning and execution activities to support B61-12 weapon development, AUR technical integration and aircraft integration. Continued flight testing to verify aircraft flight environments and TKA and AUR design verification, including environmental and separation flight testing, initial autopilot and contractor flight tests with weapons drops in preparation for the CDR. Continued development and delivery of necessary BAs to accomplish TKA test and trainer activities. Provided support to the DOE flight tests in support of the BDR for the BA. Supported aircraft OFP development and integration to deliver the OFP test tapes in support of flight testing.					
FY 2016 Plans: Continues test planning and execution activities to support B61-12 weapon development, AUR technical integration and aircraft integration. Continues flight testing to verify aircraft flight environments and TKA and AUR design verification, including initial TKA DT drops and preparation for AUR System Qualification drops. Continues development and delivery of necessary BAs to accomplish TKA test and trainer activities. Provides support to the DOE flight tests in support of the BDR for the bomb assembly. Supports aircraft development and integration to deliver the OFP test tapes in support of flight testing.					
FY 2017 Base Plans: Continues test planning and execution activities to support B61-12 weapon development, AUR technical integration and aircraft integration. Continues flight testing to verify aircraft flight environments and TKA and AUR design verification, including initial TKA DT drops and preparation for TKA Operational Test (OT) drops and AUR System Qualification drops. Continues development and delivery of necessary BAs to accomplish TKA					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	7.868	27.929	28.612	0.000	28.612

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
test and trainer activities. Provides support to the DOE flight tests for the bomb assembly. Supports aircraft development and integration to deliver the OFP test tapes in support of flight testing.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	148.281	212.121	137.909	0.000	137.909

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PAAF: BA01 Line Item # 354040: B61	0.000	0.000	0.000	0.000	0.000	145.440	207.208	2.460	0.000	0.000	355.108

Remarks

E. Acquisition Strategy
 The Milestone Decision Authority directed a three-fold competitive acquisition strategy at the 30 April 2012 Materiel Development Decision. 1) A single prime contractor was chosen to develop the B61-12 TKA through Engineering Manufacturing and Development (EMD) using full and open competition. EMD consists of two phases; 2) the prime contractor is to maintain competition at the subcomponent level; and 3) a sole source contract will be awarded for production to the EMD contractor.

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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 5				PE 0101125F / Nuclear Weapons Modernization				657007 / B61 LIFE EXTENSION PROGRAM								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	
B61 LEP EMD Contracts	C/CPIF	Boeing : St Charles, MO	107.389	74.067	Nov 2014	108.634	Dec 2015	52.916	Nov 2016	0.000		52.916	113.388	456.394	0.000	
Subtotal			107.389	74.067		108.634		52.916		0.000		52.916	113.388	456.394	0.000	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	
AUR Technical Integration	MIPR	Various : various	17.358	12.358	Oct 2014	12.403	Jan 2016	12.266	Jan 2017	0.000		12.266	11.162	65.547	-	
Aircraft Integration	MIPR	Various : various	23.728	48.855	Oct 2014	58.147	Nov 2015	39.007	Nov 2016	0.000		39.007	96.249	265.986	-	
Subtotal			41.086	61.213		70.550		51.273		0.000		51.273	107.411	331.533	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	
Test Support for B61 LEP Development	PO	96 TW : Eglin, FL	15.519	7.868	Oct 2014	27.929	Dec 2015	28.612	Nov 2016	0.000		28.612	56.762	136.690	-	
Subtotal			15.519	7.868		27.929		28.612		0.000		28.612	56.762	136.690	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	
PMA	Various	various : various	12.996	5.133	Oct 2014	5.008	Oct 2015	5.108	Oct 2016	0.000		5.108	5.384	33.629	-	
Subtotal			12.996	5.133		5.008		5.108		0.000		5.108	5.384	33.629	-	
Project Cost Totals			176.990	148.281		212.121		137.909		0.000		137.909	282.945	958.246	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 5			R-1 Program Element (Number/Name) PE 0101125F / <i>Nuclear Weapons Modernization</i>			Project (Number/Name) 657007 / <i>B61 LIFE EXTENSION PROGRAM</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
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 & Manufacturing Development Phase 1	
Engineering & Manufacturing Development Phase 2	
All-Up-Round Integraton Test	
Ground Test/WTT/Flight Test	
F-15E Integration	
CDR	
F-16 Integration	
B-2A Integration	
PA-200 Integration	
F-35 Integration	
Milestone C Decision	
Production	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering & Manufacturing Development Phase 1	1	2015	4	2017
Engineering & Manufacturing Development Phase 2	1	2016	4	2018
All-Up-Round Integraton Test	1	2015	4	2019
Ground Test/WTT/Flight Test	1	2015	4	2020
F-15E Integration	1	2015	2	2021
CDR	2	2016	2	2016
F-16 Integration	1	2015	2	2021
B-2A Integration	2	2015	4	2020
PA-200 Integration	3	2015	4	2020
F-35 Integration	3	2015	4	2021
Milestone C Decision	1	2019	1	2019
Production	1	2019	4	2021

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