

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification					Date February 2008		
---	--	--	--	--	-------------------------------------	--	--

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment			
---	--	--	--	--	--	--	--

COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	622,218	510,241	421,229	423,927	652,642	799,792	991,839
0810 Airborne Laser (ABL) Block 2006	573,601	0	0	0	0	0	0
WX19 Airborne Laser Capability Development	0	478,127	409,087	409,139	633,970	776,547	962,255
0602 Program-Wide Support	48,617	0	0	0	0	0	0
ZX40 Program-Wide Support	0	32,114	12,142	14,788	18,672	23,245	29,584

Note: The content previously planned in Project 0810 has been moved to project WX19 beginning in FY08.

A. Mission Description and Budget Item Justification

A.1 System Element Description

Program Element 0603883C, Boost Defense Segment (BDS), funds the Airborne Laser (ABL) element portions of the Ballistic Missile Defense System (BMDS). The ABL provides a capability to destroy ballistic missiles in the boost phase of their trajectory, the segment from post launch through propellant burnout. The boost phase typically includes the first 60-300 seconds of flight and concludes at altitudes between 20-450 kilometers. The ABL program is designing, building, and testing an airborne laser system with unique capabilities to provide boost-phase defense against ballistic missile threats by acquiring, tracking, and destroying ballistic missiles and to support the multi-tiered BMDS concept. ABL integrates three major subsystems (High Energy Laser [HEL]; Beam Control/Fire Control [BC/FC]; and Battle Management, Command, Control, Communications, Computers and Intelligence [BMC4I]) into a modified commercial 747 aircraft. ABL also includes ABL-specific ground support equipment.

A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)

The primary mission of ABL is to significantly increase the overall defensive capability of the BMDS by destroying threat ballistic missiles in their boost phase, by reducing the number of targets faced by successive defenders, and by addressing certain threats that are difficult for other elements to counter. ABL is the primary boost-phase defense element being developed for the BMDS, uniquely adding the capability to destroy ballistic missiles from short to Intercontinental Ballistic Missile (ICBM) range during the boost phase. By destroying the missile during the boost phase, ABL negates the threat prior to its ability to deploy multiple reentry vehicles, submunitions, or countermeasures. Following successful engagement by ABL, warheads and engagement debris do not reach the intended target areas, with a reasonable probability that the threat missile debris will fall within the hostile country's own territory, reducing the possible effect of debris on protected areas and assets and perhaps serving as a deterrent. Secondary missions for an operational ABL will be to provide additional threat protection through early ballistic missile launch warning, launch site estimation, cueing to BMDS, and impact point prediction. Detecting and tracking a missile during its boost phase significantly improves accurate estimation of

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date February 2008
---	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

the launch point and therefore enhances the probability of a successful counterstrike against an aggressor's missile launchers. ABL's sensor capabilities further increase the robustness of the BMDS by enhancing the performance of other elements. In addition, ABL's mobility and speed-of-light engagement capability present adversaries with additional complexities when trying to develop or employ countermeasures. As an airborne platform with aerial refueling capability, ABL adds unique flexibility to deploy quickly to areas of interest and to adapt more readily to evolving situations that may threaten the US or its allies. Without ABL, MDA would have to address, in much less viable ways, both the expected proliferation of threats and the likely countermeasures adversaries may deploy against other BMDS elements.

A.3 Major System Element Goals

The development of the 1st ABL which is a technology demonstrator (will be referred to as the 1st ABL technology demonstrator throughout the remainder of this document), will be accomplished by incrementally stepping through key Knowledge Points (KPs), which reflect increasing degrees of integration and testing of the overall weapon system. The KPs are established on a calendar year basis, and are taken from major milestones within the program. Some of the major overall program milestones are:

- Completion of ground testing of a flight-worthy, weapon class laser suitable for use in an ABL (Completed December 2005)
- Completion of aircraft modifications necessary for integration of the High Energy Laser (HEL) segment (Completed August 2006)
- Completion of ground and flight testing of the integrated Battle Management Command Control Communications, Computers and Intelligence (BMC4I) and Beam Control/Fire Control (BC/FC) segments (Completed August 2007)
- Completion of integration and ground/flight testing of the ABL weapon system combining the HEL, BC/FC, and BMC4I segments
- Successful ABL lethal demonstration against a threat-representative boosting ballistic missile
- Flight testing to expand the ABL weapon system performance envelope

Each milestone supports decisions to complete subsequent program milestones. In FY09, the ABL program will initiate trade studies to examine a more robust, supportable and producible 2nd ABL aircraft. The studies will focus on addressing performance, design weaponization (reliability maintainability and supportability), life-cycle affordability and other targeted improvements.

A.4 Major Events Schedule and Description

Major Event	Project	Timeframe	Description
Flight Test			
Testing Milestones			
Complete Low Power Active Flight Tests	0810	4Q FY 2007	• CY07 Knowledge Point #4 (Completed Aug 07)
Perform 1st In-Flight Atmospheric Compensation	0810	4Q FY 2007	• CY06 Knowledge Point #2 (Completed Jul 07)
Conduct High Power System Integration Flight Test	WX19	2Q FY 2009 - 4Q FY 2009	

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification		Date February 2008
---	--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

Major Event	Project	Timeframe	Description
Program Milestones			
System Demonstration	WX19	4Q FY 2009	• Complete ABL lethal demonstration
Ground Test			
Testing Milestones			
Complete Low Power Active Ground Tests	0810	1Q FY 2007	• CY06 Knowledge Point (Completed Dec 06)
Conduct High Power System Integration Ground Tests	WX19	2Q FY 2008 - 2Q FY 2009	
Program Milestones			
1st Light Through Beam Control/Fire Control	WX19	1Q FY 2009	• CY08 Knowledge Point #7
1st Light into the Laser Calorimeter	WX19	1Q FY 2009	• CY08 Knowledge Point #6
Other			
Program Milestones			
Laser Installation on Aircraft	0810	4Q FY 2007 - 3Q FY 2008	
Aircraft and Support Systems Ready for HPSI	WX19	1Q FY 2008	• CY07 Knowledge Point #5 (Completed Dec 07)

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008 PB)	628,958	548,759	432,432
Current President's Budget (FY 2009 PB)	622,218	510,241	421,229
Total Adjustments	-6,740	-38,518	-11,203
Congressional Specific Program Adjustments	0	-35,000	0
Congressional Undistributed Adjustments	0	-3,518	0
Reprogrammings	2,616	0	0
SBIR/STTR Transfer	-9,356	0	0
Adjustments to Budget Years	0	0	-11,203

FY07 decrease of \$6.740 million reflects SBIR/STTR transfer and MDA reprogrammings

FY08 decrease of \$38.518 million includes a Congressionally specific program decrease of 35 million and a portion of the MDA Congressional undistributed reduction.

FY09 decrease of \$11.203 million reflects MDA programmatic changes to support program requirements.

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0810 Airborne Laser (ABL) Block 2006	573,601	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Content previously planned in this project has been moved to Project WX19 beginning in FY08.

A. Mission Description and Budget Item Justification

The development of the 1st ABL technology demonstrator, is being accomplished by incrementally stepping through Knowledge Points (KPs), which reflect increasing degrees of integration and testing of the overall weapon system. Each KP denotes significant levels of accumulated risk reduction and technical knowledge that help confirm ABL's viability. The first 2004 KP, ``First Light,`` was accomplished on November 10, 2004, when the High Energy Laser fired its six modules simultaneously to produce photons, demonstrating the first-ever integration of the laser hardware and control software necessary to generate a megawatt-class laser beam. The second 2004 KP, ``First Flight,`` was achieved on December 3, 2004, with the resumption of flight tests following a two-year modification and integration program. The first 2005 KP was achieved on December 9, 2005, when ground tests of the High Energy Laser demonstrated the ability to reliably operate the laser for sufficient duration, and with enough power, to provide lethality at operationally significant ranges against all classes of ballistic missiles. The second 2005 KP was achieved on July 28, 2005, with the completion of a nine-month flight test program during which the plane flew 28 missions and over 109 flight hours and accomplished the following: successfully unstowing (exposing to the outside environment) the conformal window during flight, verification of the flight envelope for the aircraft, verification of ``floating`` of the optics benches (allows for proper alignment of the laser beams during flight), and Link-16 communications implementation testing (key for integration into the Ballistic Missile Defense System). Upon completion of this flight test program, the aircraft returned to the Boeing facility in Wichita, Kansas for the final structural modifications needed to install the High Energy Laser, along with additional Beam Control/Fire Control (BC/FC) testing. In 2006, the ABL program continued the integration, ground and flight test activities for the 1st ABL technology demonstrator. More specifically, the ABL program continued modifications in preparation for installation of the High Energy Laser (HEL) onto the 1st ABL technology demonstrator, and continued to test the integrated BC/FC, aircraft, and BMC4I systems, to include ground tests with the beacon and tracking illuminators. The program also continued work on Technology Insertion and Industrial Base efforts. The KPs for calendar year 2006 were:

- Complete Low Power Active Ground Tests (KP#1) - To achieve this KP, the program installed, activated and demonstrated ground operation of the beacon and tracking illuminators, as well as demonstrated automated interoperation of the entire low-power system (Completed Dec 06)
- Perform First In-Flight Atmospheric Compensation with the Tracking Illuminator Laser (TILL) tracking and a simulated Beacon return (KP#2) - This KP demonstrated the critical atmospheric compensation portion of the system during flight (Completed Jul 07)
- Complete Laser Optics Subsystem Tests (KP#3) - Completion of this KP signaled that a major portion of the laser refurbishment was complete and the first major laser subsystem was ready for installation on the aircraft (Completed September 06)

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

The program achieved its CY 2006 Knowledge Points. Hardware and software integration challenges delayed the on-time completion of two of the three CY 2006 Knowledge Points, which was a catalyst for moving lethal demonstration to 4Q FY09, as reported in the PB08 budget justification package. In 2007, the program continued active flight tests and completed that test series in August 2007. The KPs for calendar year 2007 were:

- Complete Low Power Systems Integration-A Flight Tests (LPSI-A) (KP#4) - This KP demonstrated first atmospheric compensation with a non cooperative target and the overall system readiness and functionality at a level suitable for High Power Systems Integration (Completed 23 Aug 07)
- Aircraft and Support Systems Ready for HPSI (KP#5) - This KP ensures all necessary components are prepared for the HEL installation upon completion of the LPSI-A flight tests (Completed 31 Dec 07)

The completion of Low Power Systems Integration - Active (LPSI-A) activities demonstrated the program's readiness to install the High Energy Laser onto the aircraft and enter into High Power Systems Integration. Over 50 missions were completed with significant accomplishments including:

- The first open air lase with the TILL, the BILL, and the surrogate High Energy Laser (SHEL)
- Verification of the aero-optic disturbances at various turret angles was demonstrated multiple times in flight
- The first-ever demonstration of active target tracking with the TILL and compensation for atmospheric disturbances between the ABL and an airborne target with the BILL

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
1st ABL	480,647	0	0
RDT&E Articles (Quantity)	0	0	0

FY07 Accomplishments:

Laser (\$100.2 million):

- Completed laser optics subsystem refurbishment and test
- Completed the majority of the planned laser refurbishment and retrofits
- Initiated laser integration support on the aircraft

Aircraft (\$11.9 million):

- Continued engineering support for aircraft structural modifications, laser provisioning, Beam Control/Fire Control (BC/FC) upgrades and rework

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<p>Beam Control/Fire Control (\$78.7 million):</p> <ul style="list-style-type: none">• Completed substantiation of acquisition pointing, and tracking with Tracking Illuminator Laser (TILL)• Completed demonstration of first in-flight atmospheric compensation with Tracking Illuminator Laser tracking and Beacon Illuminator Laser (BILL)• Completed substantiation of atmospheric compensation with TILL tracking and BILL• Completed demonstration of Surrogate High Energy Laser (SHEL) scoring with illuminator laser beacons <p>Battle Management (\$12.9 million):</p> <ul style="list-style-type: none">• Completed software support of low-power flight tests• Continued software support of weapon system integration and test• Continued Active Ranging System (ARS) development <p>Air Vehicle Integration and Test (\$240.4 million):</p> <ul style="list-style-type: none">• Completed Low Power System Integration-Active (LPSI-A) ground tests• Completed Low Power System Integration-Active (LPSI-A) flight tests• Completed substantiation of atmospheric compensation with Tracking Illuminator Laser (TILL) tracking and Beacon Illuminator Laser (BILL) return in flight• Characterized performance against a climbing F-16 aircraft• Continued preparations to integrate the High Energy Laser (HEL) subsystem into the 1st ABL technology demonstrator <p>Program Management/System Engineering (\$29.9 million):</p> <ul style="list-style-type: none">• Continued System Engineering and Structural Integrity, Quality Assurance, Safety, Hardware and System Analysis and Integration efforts• Conducted Common Cost Methodology Working Group (CCMWG) efforts in support of ABL life cycle cost estimates and affordability modeling• Continued baseline studies to capture 1st ABL technology demonstrator baseline and identify required content and future ABL improvement <p>Other Support Activities (\$6.6 million):</p> <ul style="list-style-type: none">• Initiated effort to sustain the 1st ABL technology demonstrator to include: aircraft (engine wear and other maintenance), laser (valves and other plumbing, turbo pumps, gas generators, tanks), Beam Control/Fire Control (processors/cards, steering mirrors, illuminator components), Battle		

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<p>Management, Command, Control, Communication, Computers and Intelligence (processors/cards, Infrared Search and Track (IRST) components)</p> <ul style="list-style-type: none"> • Initiated implementation of amended classification guidance and program protection plans • Initiated trade studies for future procurement of Deployable Ground Support Equipment (DGSE) 			
	FY 2007	FY 2008	FY 2009
Industrial Base	8,947	0	0
RDT&E Articles (Quantity)	0	0	0
<p>Conduct investments to enhance the ABL specific industrial base with the focus on large optics, optical coatings and targeted manufacturing shortfalls for current and future ABL weapon systems. Maintain and utilize an industrial base to ensure ABL unique personnel, facilities and processes are available to meet future ABL requirements. Provide a rapid response capability if a critical component is needed while addressing sparing and long lead needs.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> • Continued sustainment of optics fabrication and coating capabilities • Continued improvements to bulkhead window production capability • Continued optical coatings process and chamber control improvements • Continued development of higher performing, lower risk conformal window coating processes 			
	FY 2007	FY 2008	FY 2009
Technology Insertion	13,458	0	0
RDT&E Articles (Quantity)	0	0	0
<p>Develop promising technologies for possible incorporation into the 1st ABL weapon system. Efforts will focus on technologies that will improve ABL lethality, reliability, maintainability and improve ABL's contribution to the BMDS. Provide technical/schedule/cost risk reduction for the 1st ABL and future blocks. Focus on critical performance risk items and areas for high-payoff to operational utility. As the 1st ABL weapon system draws near to completion, technologies already in development are ready for insertion. For this reason, technology insertion costs are tapering off.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> • Continued efforts to reduce optical jitter and improve beam control performance • Continued to develop an enhanced illuminator laser 			

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<ul style="list-style-type: none"> • Inserted fast-steering mirror technology into 1st ABL weapon system • Continued efforts to improve ABL's engagement capabilities • Continued program to increase high energy laser power, efficiency, and operational regime 			
	FY 2007	FY 2008	FY 2009
Direct Support Activities	68,048	0	0
RDT&E Articles (Quantity)	0	0	0
<p>Direct support activities for the 1st ABL technology demonstrator include support for the increased operations tempo for the ABL Combined Test Force (CTF), ground test activities at Edwards AFB, diagnostics for flight tests, boost diagnostics, and lethality and survivability. The increase in funding for lethality and survivability from FY06 to FY07 is due to the increase in the number of target evaluations, initiation of efforts to evaluate alternate target aim-points, and initiation of an aggressive full scale lethality evaluation testing process. The increase in funding for diagnostics/instrumentation is due to the purchase of diagnostics.</p> <p>FY07 Accomplishments:</p> <p>Combined Test Force (CTF) (\$31.3 million):</p> <ul style="list-style-type: none"> • Supported Low Power System Integration - Active (LPSI-A) ground and flight test activities at test ranges • Supported integration of the High Energy Laser (HEL) into the ABL aircraft • Supported System Integration Laboratory (SIL) decontamination and disassembly <p>Lethality and Survivability (\$16.4 million):</p> <ul style="list-style-type: none"> • Continued intelligence, lethality data collection, assessments and evaluations per Title 10 lethality requirements • Continued traditional susceptibility-driven survivability assessment in support of Title 10 survivability requirements • Initiated aggressive full scale lethality evaluation testing process to support FY09 shoot down <p>Diagnostics/Instrumentation (\$20.3 million):</p> <ul style="list-style-type: none"> • Provided requirements for diagnostics and targets to the MDA Targets and Countermeasures Directorate to support the ABL test program • Continued to develop and acquire High-Power Missile Alternative Range Target Instrument (MARTI) for High Power System Integration (HPSI) flight tests • Supported post mission analysis of ABL system performance 			

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

- Fabricated (3), integrated, and tested (2) low power MARTI diagnostics
- Initiated procurement of five high power MARTI boosters
- Upgraded Big Crow target board diagnostic system

	FY 2007	FY 2008	FY 2009
Targets	2,501	0	0
RDT&E Articles (Quantity)	0	0	0

This effort provides the Missile Defense Agency with ballistic missile target hardware, target range support, logistics support, target integration, and associated launch services to support ABL Low Power System Integration-Active (LPSI-A) and High Power System Integration (HPSI) flight tests, as well as other system-wide tests to support the development of the Ballistic Missile Defense System (BMDS).

FY07 Accomplishments:

- Began Medium Range Ballistic Missile (MRBM) target development to meet ABL-unique requirements
- Began launch range coordination effort and mission management planning for Foreign Military Asset (FMA) and MRBM-class target launch operations
- Continued storage of Lance and FMA missiles

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The Airborne Laser development follows the Missile Defense Agency's capability-based acquisition strategy that emphasizes incrementally stepping through Knowledge Points (KPs), which reflect increasing degrees of integration and testing of the overall weapon system. Each KP denotes significant levels of accumulated risk reduction and technical knowledge that help confirm ABL's viability. The FY08 effort will implement improvements learned during prior years and will continue the program's integration and ground and flight test activities for the 1st ABL technology demonstrator. It will also provide for continued ABL-specific technology maturation for integration and testing on the 1st or future ABL systems. Technology Insertion and Industrial Base activities will continue during this time as well.

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment				
I. Product Development Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
1st ABL								
Prime Contract	C/CPAF	Boeing Defense & Space Group/ Seattle, WA	788,002	0	N/A	0	N/A	788,002
BMDS Security	C/CPAF	Boeing Defense & Space Group/ Seattle, WA	10,674	0	N/A	0	N/A	10,674
Common Cost Methodology/Program Integration Spt	C/CPAF	Boeing Defense & Space Group/ Seattle, WA	4,408	0	N/A	0	N/A	4,408
Technical Support Costs	C/CPAF	Northrop Grumman/Kirtland AFB, Various	35,400	0	N/A	0	N/A	35,400
FFRDC Support	MIPR	Aerospace/MITRE/ Kirtland AFB	3,307	0	N/A	0	N/A	3,307
Technical Support Costs	MIPR	Tecolote Research/Kirtland AFB	4,306	0	N/A	0	N/A	4,306
Government and Other Support Costs	C/FP	Brooks City Base/ TX	694	0	N/A	0	N/A	694
Government and Other Support Costs	MIPR	AFRL/Kirtland, Wright Patterson & Edwards AFB/ NM, CA, OH	5,711	0	N/A	0	N/A	5,711
Government and Other Support Costs	MIPR	NAVAIR/CA	950	0	N/A	0	N/A	950
Government and Other Support Costs	C/FP	Tyndall AFB	1,133	0	N/A	0	N/A	1,133
Government and Other Support Costs	MIPR	ABL SPO/Kirtland AFB/Multiple	4,543	0	N/A	0	N/A	4,543

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Government and Other Support Costs	MIPR	ACC/VA	850	0	N/A	0	N/A	850
Logistics Costs	C/CPAF	Boeing Defense & Space Group	1,446	0	N/A	0	N/A	1,446
Government and Other Support Costs	MIPR	Kirtland AFB	427	0	N/A	0	N/A	427
Industrial Base								
Contract	SS/MIPR	Multiple, i.e. Lockheed Martin/Multiple/ MD, CA	12,020	0	N/A	0	N/A	12,020
Technical Support Costs	C/CPAF	Northrop Grumman/ Multiple	542	0	N/A	0	N/A	542
Technology Insertion								
Contract	SS/MIPR	Multiple, i.e. Northrop Grumman, Lockheed Martin/ Multiple, i.e. MD,CA	19,523	0	N/A	0	N/A	19,523
Technical Support Costs	C/CPAF	Northrop Grumman/Kirtland AFB, Multiple	596	0	N/A	0	N/A	596
Subtotal Product Development			894,532	0		0		894532
Remarks Operating support costs have been allocated to the activities they support.								

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
---	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Direct Support Activities								
Combined Test Force	MIPR	AFFTC/ Edwards AFB	43,613	0	N/A	0	N/A	43,613
Lethality and Survivability Baseline Tests	MIPR	Kirtland AFB, NM/ Eglin AFB, FL	29,503	0	N/A	0	N/A	29,503
Diagnostics/Instrumentation	MIPR	Hanscom AFB, Peterson AFB, Hill AFB, Kirtland AFB/ MA, CO, UT, NM	35,299	0	N/A	0	N/A	35,299
Targets								
Targets	MIPR	Multiple	2,501	0	N/A	0	N/A	2,501
Subtotal Test and Evaluation			110,916	0		0		110916

Remarks

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
---	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
--	---

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			1,005,448	0		0		1,005,448
--------------------	--	--	-----------	---	--	---	--	-----------

Remarks

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
--	---

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Testing Milestones																												
Complete Low Power Active Ground Tests	▲																											
Complete Low Power Active Flight Tests				▲																								
Perform 1st In-Flight Atmospheric Compensation				▲																								
Program Milestones																												
Laser Installation on Aircraft				▲	—	▲																						

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲—▲	Complete Activity
▲	Significant Event (planned)
☆	Milestone Decision (planned)
◇	Element Test (planned)
▼	System Level Test (planned)
▲—▲	Planned Activity

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Testing Milestones							
Complete Low Power Active Ground Tests	1Q						
Complete Low Power Active Flight Tests	4Q						
Perform 1st In-Flight Atmospheric Compensation	4Q						
Program Milestones							
Aircraft Return to Edwards AFB	1Q						
Laser Installation on Aircraft	4Q	1Q-3Q					

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
WX19 Airborne Laser Capability Development	0	478,127	409,087	409,139	633,970	776,547	962,255
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: The content in Project WX19 is a continuation of the efforts reported in Project 0810 and was explained in Project 0519 in PB08.

A. Mission Description and Budget Item Justification

In the FY08-FY09 timeframe, the development of the 1st ABL technology demonstrator will continue by incrementally stepping through key knowledge points (KPs) that represent increasing degrees of integration and testing of the integrated weapon system. Accomplishment of each KP represents significant levels of accumulated understanding that confirm the ABL's viability for future integration of its boost-phase defense capabilities into the Ballistic Missile Defense System (BMDS). In this time period, the 1st ABL technology demonstrator will continue ground and flight testing, culminating in a lethal demonstration of the weapon system against a threat-representative ballistic missile in the fourth quarter of FY09. After lethal demonstration, the ABL technology demonstrator will serve as a flying test bed for enhancing capabilities of future ABLs through Technology Insertion, Industrial Base efforts, and refinements in operational concepts.

Knowledge Points for CY 2008:

- 1st Light into the Laser Calorimeter on the Aircraft (KP#6) - This KP will demonstrate functionality of the weapon system's High Energy Laser (HEL) on the aircraft
- 1st Light through Beam Control/ Fire Control (KP#7) - This KP will demonstrate functionality of the optical system on the aircraft

In FY09, the ABL program will initiate trade studies to examine a more robust, supportable and producible 2nd ABL aircraft (so-called Tail 2). Improvements planned for the 2nd ABL aircraft will address four targeted areas: overall performance, weaponization (reliability, maintainability and supportability), life-cycle affordability, and other targeted improvements. All four of these areas will incorporate the lessons learned from the ABL technology demonstrator program through lethal demonstration.

In the FY10-FY11 timeframe, the ABL program continues work on ABL capabilities for integration into the BMDS. During this timeframe, the ABL program includes envelope expansion efforts. Envelope expansion refers to the further testing of the ABL technology demonstrator to evaluate its performance against a broader spectrum of targets. ABL envelope expansion activities and participation in BMDS test activities are planned throughout the Future Years Defense Program (FYDP). The intent is to use the ABL technology demonstrator to test and verify system upgrades and changes based on lessons-learned prior to their inclusion in the design of the 2nd ABL aircraft. During this period, trade studies and capability baseline efforts for defining the 2nd ABL production-representative aircraft will be conducted. These activities will lead to a completion of a System

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

Requirements Review (SRR), System Functional Review (SFR) and entry into a dedicated system design. ABL-specific Technology Insertion and Industrial Base sustainment efforts also continue.

During FY12-FY13, the ABL program will continue envelope expansion testing on the ABL technology demonstrator. Envelope expansion will address ABL capabilities against an expanding set of targets. As part of envelope expansion activities, remaining requirement verification items will be prioritized and integrated into test events.

In FY12, ABL initiates acquisition activities for the purchase of the 2nd ABL production-representative aircraft. The 2nd ABL aircraft will transition to system design activities necessary to complete a System Design Review (SDR) and support subsystem design work for a Preliminary Design Review (PDR). ABL-specific technology maturation and industrial base sustainment efforts also continue.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
1ST ABL	0	408,137	302,225
RDT&E Articles (Quantity)	0	0	0

Continue the program for developing the 1st ABL technology demonstrator, to include the integration of the High Energy Laser (HEL) modules onto the aircraft (after which it will be a fully integrated weapon system) and initiation of the High Power System Integration (HPSI) phase of testing. The primary objectives of ground testing during the HPSI phase are to demonstrate, verify, and characterize the 1st ABL technology demonstrator operations and performance, characterize functionality and performance of the entire ABL weapon system and verify the readiness of the 1st ABL technology demonstrator for HPSI flight tests. The primary objective of the HPSI flight test series is to build up to and accomplish the ABL lethal demonstration - negating a threat-representative ballistic missile during the boost phase. ABL's PB08 submittal reflected Government Estimates for the 1st ABL Prime Contract. Finalization of the prime contract Estimate At Completion (EAC) is reflected in PB09. This resulted in resources being rephased, with no change in scope.

FY08 Planned Program:

Laser (\$56.0 million):

- Support HEL integration activities to include material analysis, structural analysis and initial performance measurements
- Perform HEL performance data analysis during ground testing
- Support resolution of HEL and Beam Control/Fire Control (BC/FC) laser integration challenges
- Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<p>Aircraft (\$11.4 million):</p> <ul style="list-style-type: none">• Continue aircraft engineering support during HEL component integration• Continue work on aircraft service bulletins• Continue aircraft integration efforts• Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Battle Management (\$12.5 million):</p> <ul style="list-style-type: none">• Continue software support for HPSI• Perform ground functional testing of communication networks, predictive avoidance, mission planning activities, and the Link 16 data link• Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Beam Control/Fire Control (BC/FC) (\$55.6 million):</p> <ul style="list-style-type: none">• Complete beam control component refurbishment to support High Power System Integration (HPSI) efforts• Complete integration with the High Energy Laser (HEL)• Begin Beam Control/Fire Control and HEL ground testing activities• Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Air Vehicle Integration and Test (\$239.8 million):</p> <ul style="list-style-type: none">• Complete wiring, plumbing, and installation of HEL components on the aircraft• Complete HEL activation and begin testing of the HEL subsystem• Begin integrated weapon system testing with BC/FC, HEL, and Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I) subsystems on the ground• Continue planning for HPSI flight tests of the integrated ABL weapon system• Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Program Management/System Engineering (\$28.8 million):</p> <ul style="list-style-type: none">• Continue System Engineering and Structural Integrity, Quality Assurance, Safety, Hardware and System Analysis and Integration• Conduct Common Cost Methodology Working Group (CCMWG) efforts in support of ABL life cycle cost estimates and affordability modeling• Continue baseline studies to capture the 1st ABL technology demonstrator baseline, identify required content, and future ABL improvements		

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<ul style="list-style-type: none">Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Other Support Activities (\$4.0 million):</p> <ul style="list-style-type: none">Continue the implementation of amended security requirementsContinue Active Ranging System (ARS) developmentResources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>FY09 Planned Program: Laser (\$35.5 million):</p> <ul style="list-style-type: none">Continue High Energy Laser (HEL) data analysis in support of High Power Systems Integration (HPSI) ground and flight testingPrepare for weapon system envelope expansion activitiesResources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Aircraft (\$5.9 million):</p> <ul style="list-style-type: none">Continue work on aircraft service bulletinsSupport HPSI ground and flight testingSupport post-lethal demonstration activity planning, i.e., flight test and envelope expansionResources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Battle Management (\$12.0 million):</p> <ul style="list-style-type: none">Continue software support for HPSI ground and flight test activitiesPerform functional testing of Link 16 communications, predictive avoidance, mission planning activities, and communication checksResources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Beam Control/Fire Control (\$38.2 million):</p> <ul style="list-style-type: none">Support HPSI ground and flight test activitiesComplete Beam Control/Fire Control and HEL ground testing data analysisComplete HPSI flight demonstration data analysis to include pointing accuracy and jitter control analysesResources rephased based on finalization of the Contractor's EAC. No change in scope occurred		

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<p>Air Vehicle Integration and Test (\$188.6 million):</p> <ul style="list-style-type: none"> • Complete ground testing of the HEL subsystem • Complete weapon system ground testing with High Energy Laser, Beam Control/Fire Control, and Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I) subsystems • Complete ABL weapon system flight testing/lethal demonstration • Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Program Management/System Engineering (\$19.1 million):</p> <ul style="list-style-type: none"> • Continue System Engineering and Structural Integrity, Quality Assurance, Safety, Hardware and System Analysis and Integration • Continue with Common Cost Methodology Working Group (CCMWG) efforts in support of ABL life cycle cost estimates and affordability modeling • Continue baseline studies to capture 1st ABL technology demonstrator baseline and identify required content and ABL future improvement • Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred <p>Other Support Activities (\$2.9 million):</p> <ul style="list-style-type: none"> • Continue implementation of amended security requirements • Continue Active Ranging System (ARS) development • Resources rephased based on finalization of the Contractor's EAC. No change in scope occurred 			
	FY 2007	FY 2008	FY 2009
Industrial Base	0	5,986	5,692
RDT&E Articles (Quantity)	0	0	0
<p>Conduct investments to enhance the ABL specific industrial base with the focus on large optics, optical coatings and targeted manufacturing shortfalls for current and future ABL weapon systems. Maintain and utilize an industrial base to ensure ABL unique personnel, facilities and processes are available to meet future ABL requirements. Provide a rapid response capability if a critical component is needed while addressing sparing and long lead needs.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue development of advanced optics coatings and substrates 			

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<ul style="list-style-type: none"> • Maintain optics testing capabilities while testing new optics, materials, and coatings • Continue improvements to bulkhead window production capability <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Continue development of advanced optics coatings and substrates • Maintain optics testing capabilities while testing new optics, materials, and coatings • Continue improvements to bulkhead window production capability 			
	FY 2007	FY 2008	FY 2009
Technology Insertion	0	9,250	9,550
RDT&E Articles (Quantity)	0	0	0
<p>Develop promising technologies for possible incorporation into the 1st ABL weapon system and later ABLs. Focus on technologies that will improve ABL lethality, reliability, maintainability and improve ABL's contribution to the Ballistic Missile Defense System (BMDS). Provide technical/schedule/cost risk reduction for the 1st ABL and future ABLs. Focus on critical performance risk items and areas for high-payoff to operational utility.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue next-generation tracking laser development • Continue to develop and build next generation mirrors, cameras, and navigation aids • Continue efforts to reduce optical jitter and improve beam control performance <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Continue next-generation tracking laser development • Continue to develop and build next generation mirrors, cameras, and navigation aids • Continue efforts to reduce optical jitter and improve beam control performance 			

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
	FY 2007	FY 2008	FY 2009
Direct Support Activities	0	51,325	72,465
RDT&E Articles (Quantity)	0	0	0
<p>Direct support activities include support for the increased operations tempo of the ABL Combined Test Force (CTF) at Edwards AFB during High Power System Integration (HPSI) ground and flight test activities, airborne and boosted diagnostics for flight tests, and lethality and survivability efforts. The reduction in Direct Support Activities for FY08 from PB08 to PB09 occurred due to FY08 being changed to non-flying year status. The increase in Direct Support Activities in FY09 from PB08 to PB09 occurred due to FY09 being changed to flying year status.</p> <p>FY08 Planned Program: Combined Test Force (\$15.6 million):</p> <ul style="list-style-type: none"> • Support integration of the High Energy Laser (HEL) into the ABL aircraft • Conduct planning for and support High Power System Integration (HPSI) ground test activities • Conduct planning for and support HPSI flight test activities • The reduction from PB08 to PB09 occurred due to FY08 being changed to a non-flying year <p>Lethality and Survivability (\$5.9 million):</p> <ul style="list-style-type: none"> • Continue sub-scale and full-scale lethality evaluation testing to support lethal demonstration • Continue intelligence, lethality data collection, assessments and evaluation per Title 10 lethality requirements • Continue traditional susceptibility-driven survivability assessment in support of Title 10 survivability requirements • The reduction from PB08 to PB09 reflects a delay in lethality enhancement predictive capability until Tail 2 or later ABLs <p>Diagnostics/Instrumentation (\$29.8 million):</p> <ul style="list-style-type: none"> • Ensure dedicated airborne diagnostics platform is available for use in High Power System Integration (HPSI) flight tests and modified to provide required instrumentation capabilities • Continue development and test of a loitering airborne target for high power testing • Fabricate, integrate and test low power Missile Alternative Range Target Instrument (MARTI) diagnostic missiles for HPSI (5) • Fabricate, integrate and test high power MARTI diagnostic missiles (3) 			

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
<p>FY09 Planned Program: Combined Test Force (\$42.5 million):</p> <ul style="list-style-type: none">• Conduct planning for and support HPSI flight test activities to include lethal demonstration• Conduct planning for and support post lethal demonstration test activities• Conduct planning for envelope expansion flight testing activities to include increased participation in Ballistic Missile Defense System (BMDS) level testing• The increase from PB08 to PB09 occurred due to FY09 being changed to a flying year <p>Lethality and Survivability (\$5.9 million):</p> <ul style="list-style-type: none">• Continue sub-scale and full-scale lethality evaluation testing to support lethal demonstration and envelope expansion flight test activities• Continue intelligence, lethality data collection, assessments and evaluation per Title 10 lethality requirements• Begin aircraft vulnerability assessments and investigations per Title 10 survivability requirements• The reduction from PB08 to PB09 reflects a delay in lethality enhancement predictive capability until Tail 2 or later ABLs <p>Diagnostics/Instrumentation (\$24.0 million):</p> <ul style="list-style-type: none">• Ensure dedicated airborne diagnostics platform is available for use in High Power System Integration (HPSI) flight tests and modify to provide required instrumentation capabilities• Continue development and test of a loitering airborne target for high power testing• Integrate and launch Terrier Lynx target missiles for HPSI flight tests (up to 5)• Continue fabrication, integration and testing of high power Missile Alternative Range Target Instrument (MARTI) diagnostic missiles (5)• Launch low power and high power MARTI diagnostic missiles (up to 5 each)• The increase in Diagnostics/Instrumentation from PB08 to PB09 is primarily driven by FY09 now being a flying year for Tail 1 and the requirement for a dedicated airborne diagnostics platform		

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	
	FY 2007	FY 2008	FY 2009
Targets	0	3,429	3,355
RDT&E Articles (Quantity)	0	0	0
<p>This effort provides the Missile Defense Agency with ballistic missile target hardware, target range support, logistics support, target integration, and associated launch services to support and High Power System Integration (HPSI) flight tests, as well as, other system level tests to support the development of the Ballistic Missile Defense System (BMDS).</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue range coordination and mission management activities for Foreign Military Asset (FMA) missions (FY09/FY10) • Continue storage of Lance and FMA missiles <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Continue range coordination and mission management activities for the FMA target mission • Perform initial FMA target preparation and testing • Integrate and test FMA target prior to transporting to launch range • Transport FMA target and support systems to/from launch range • Prepare the FMA target for launch, launch the FMA target, and conduct post-mission analysis of FMA target performance • Continue storage of Lance and FMA missiles 			
	FY 2007	FY 2008	FY 2009
Trade Studies	0	0	15,800
RDT&E Articles (Quantity)	0	0	0
<p>The ABL program will initiate trade studies to examine a more robust, supportable and producible 2nd ABL aircraft (so-called Tail 2). Improvements planned for a 2nd ABL aircraft will address four targeted areas: overall performance, weaponization (reliability, maintainability and supportability), life-cycle affordability, and other targeted improvements</p> <p>A 2nd ABL production-representative aircraft focuses on developing and producing an ABL that will demonstrate enhancements to the 1st ABL technology demonstrator.</p>			

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

FY09 Planned Program:

- Establish a new contract and initiate trade studies for the 2nd ABL production-representative aircraft

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2008		
--	--	--	--	--	--	------------------------------	--	--

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment				
---	--	--	--	--	--	--	--	--

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

The overall strategy of the 1st ABL technology demonstrator is to apply a building block approach to a dual-path integration and test process. This parallel approach provides earlier opportunities to characterize the key High Energy Laser weapon system parameters and identify and mitigate development risk. Furthermore, in order to mitigate risk and optimize cost, schedule, and technical objectives, the Airborne Laser program is using a knowledge-based acquisition approach consisting of yearly Knowledge Points. The focus of the program is on near-term activities that will incrementally step the program through key technical challenges leading to a successful lethal demonstration in Fiscal Year 2009. Activities planned for the 1st ABL technology demonstrator after lethal demonstration include: contract closeout activities and envelope expansion tests to demonstrate ABL capabilities against different target types under a variety of engagement conditions and to exercise ABL integration into the Ballistic Missile Defense System (BMDS). Combined, all of these activities provide a sound foundation for mitigating cost, schedule, and technical challenges within the FYDP.

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment			
I. Product Development Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
IST ABL								
Prime Contract	C/CPAF	Boeing Defense & Space Group/ Seattle, WA	0	372,282	1/4Q	267,519	1/4Q	639,801
BMDS Security	C/CPAF	Boeing Defense & Space Group/ Seattle, WA	0	1,960	1/4Q	1,860	1/4Q	3,820
Technical Support Costs	C/CPAF	Northrop Grumman/ Kirtland AFB/Various	0	20,158	1/4Q	19,750	1/4Q	39,908
FFRDC Support	MIPR	Aerospace/ Kirtland AFB	0	1,200	1/4Q	1,400	1/4Q	2,600
Technical Support Costs	C/MIPR	Tecolote Research/ Kirtland AFB	0	1,358	1/4Q	1,800	1/4Q	3,158
Logistics Costs	C/CPAF	Boeing Defense & Space/AFRL/DOE/ Seattle, WA, Tyndall AFB FL, KAFB NM	0	1,300	1/4Q	400	1/4Q	1,700
Government and Other Support Costs	MIPR	AFRL/Kirtland AFB/ MA, Multiple	0	2,788	1/4Q	2,601	1/4Q	5,389
Government and Other Costs	C/FP	ABL SPO/Kirtland AFB/Multiple	0	3,739	1/4Q	3,774	1/4Q	7,513
Government and Other Costs	MIPR	ACC/VA	0	350	1/4Q	350	1/4Q	700
Government and Other Costs	MIPR	Brooks City Base/ TX	0	400	1/4Q	525	1/4Q	925
Other Support Costs	MIPR	Tyndall AFB/FL	0	435	1/4Q	125	1/4Q	560

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
CCMWG/Program Integration Support	C/CPAF	Boeing Defense & Space/ Seattle, WA	0	1,800	1/4Q	1,800	1/4Q	3,600
Government and Other Costs	C/MIPR	KAFB/WPAFB/ Multiple/ Multiple	0	367	1/4Q	321	1/4Q	688
Industrial Base								
Contract	SS/MIPR	Multiple, i.e. Lockheed Martin/Multiple/ MD, CA	0	5,986	1/4Q	5,692	1/4Q	11,678
Technology Insertion								
Contract	SS/MIPR	Multiple, i.e. Lockheed Martin/Multiple/ MD, CA	0	9,250	1/4Q	9,550	1/4Q	18,800
Trade Studies								
Trade Studies (2nd ABL) Contract	C/CPAF	Boeing Defense & Space Group/ Seattle, WA	0	0	N/A	15,800	1/4Q	15,800
Subtotal Product Development			0	423,373		333,267		756640
Remarks								

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
---	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Direct Support Activities								
Combined Test Force	MIPR	AFFTC/ Edwards AFB	0	15,600	1/4Q	42,500	1/4Q	58,100
Lethality and Survivability Baseline Tests	MIPR	AFRL/Eglin AFB/ NM, FL	0	5,942	1/4Q	5,940	1/4Q	11,882
Diagnostics/Instrumentation	MIPR	Hanscom AFB, Peterson AFB, Hill AFB, Kirtland AFB/ MA, CO, UT, NM	0	29,783	1/4Q	24,025	1/4Q	53,808
Targets								
Targets	MIPR	Multiple	0	3,429	N/A	3,355	N/A	6,784
Subtotal Test and Evaluation			0	54,754		75,820		130574

Remarks

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
---	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
--	---

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	478,127		409,087		887,214
--------------------	--	--	---	---------	--	---------	--	---------

Remarks

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
--	---

Fiscal Year	2007				2008				2009				2010				2011				2012				2013							
	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				
Testing Milestones																																
Conduct High Power System Integration Ground Tests								▲	—	—	—	▲																				
Conduct High Power System Integration Flight Test												▲	—	▲																		
Conduct Envelope Expansion Tests													▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲			
Program Milestones																																
Aircraft and Support Systems Ready for HPSI					▲																											
1st Light into the Laser Calorimeter												▲																				
1st Light Through Beam Control/Fire Control												▲																				
System Demonstration																▲																

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲—▲	Complete Activity
▲	Significant Event (planned)
☆	Milestone Decision (planned)
◇	Element Test (planned)
▼	System Level Test (planned)
▲—▲	Planned Activity

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Testing Milestones							
Conduct High Power System Integration Ground Tests		2Q-4Q	1Q-2Q				
Conduct High Power System Integration Flight Test			2Q-4Q				
Conduct Envelope Expansion Tests				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Program Milestones							
Aircraft and Support Systems Ready for HPSI		1Q					
1st Light into the Laser Calorimeter			1Q				
1st Light Through Beam Control/Fire Control			1Q				
System Demonstration			4Q				

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
--	--	--	--	--	------------------------------	--	--

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment			
---	--	--	--	--	--	--	--

COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0602 Program-Wide Support	48,617	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Efforts within this project continue in FY 2008 under project ZX40

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	48,617	0	0
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment				
C. Other Program Funding Summary								
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
--	------------------------------

APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment
---	--

COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ZX40 Program-Wide Support	0	32,114	12,142	14,788	18,672	23,245	29,584
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: In accordance with the Missile Defense Agency revised block structure, the content previously planned in Project 0602 for FY08-FY13 is now captured in Project ZX40.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	0	32,114	12,142
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification							Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment				
C. Other Program Funding Summary								
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,985,140	2,243,213	2,209,262	2,276,848	1,385,258	946,437	1,103,532	13,149,690
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

UNCLASSIFIED

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603883C Ballistic Missile Defense Boost Defense Segment	

This page intentionally left blank.