Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
WX19: *Airborne Laser Capability Development*	368.514	177.501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	546.015
ZX40: *Program-Wide Support*	15.851	4.816	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	20.667

Note

Beginning in FY 2011, the Boost Defense Segment Program Element, 0603883C, will be transferred to the Directed Energy Research Program Element, 0603901C.

The best way to dissuade, deter, and defeat ballistic missile threats is through integrated ballistic missile defense capabilities - weapons, sensors and Command and Control, Battle Management and Communications (C2BMC). A potential or actual attack may cross regions and may fly higher and faster than stand-alone, autonomous capabilities operated by a single Military Service can defend against. Integrated Ballistic Missile Defense (BMD) capabilities draw on space-, land-, air-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile`s location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack - all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to success of efforts in other Program Elements - these connections are referred to as ``interdependencies``. Throughout the budget justification material, we have attempted to highlight interdependencies in order to explain for fully the relationship between different parts of the proposed program.

A. Mission Description and Budget Item Justification

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*

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 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.

The Airborne Laser (ABL) prototype is currently preparing to demonstrate the technology to destroy a boosting missile in flight. After the initial shoot down demonstration, ABL will test against missiles in flight at greater ranges and on the ground against countermeasures to fully characterize the ABL.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	400.751	186.697	0.000	0.000	0.000
Current President's Budget	384.365	182.317	0.000	0.000	0.000
Total Adjustments	-16.386	-4.380	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-4.380			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.779	0.000			
• SBIR/STTR Transfer	-5.957	0.000			
• Other Adjustment Detail	-0.650	0.000	0.000	0.000	0.000

Change Summary Explanation

The FY 2009 decrease of $16.386M is due to SBIR/STTR transfers and MDA programmatic changes
No FY2011 data provided in PB10.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
WX19: *Airborne Laser Capability Development*	368.514	177.501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	546.015
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Beginning in FY 2011, the Boost Defense Segment Program Element, 0603883C, will be transferred to the Directed Energy Research Program Element, 0603901C.

For Ballistic Missile Defense (BMD) System Level Test Schedule information, please refer to the BMD System Level Test Schedule.

A. Mission Description and Budget Item Justification

The Airborne Laser`s (ABL) revolutionary speed-of-light technology makes it a pathfinder for future directed energy weapon systems. The ABL program is testing an airborne laser system with unique capabilities to defend against ballistic missile threats by acquiring, tracking, and destroying ballistic missiles. The high-powered laser has been fired over 100 times on the ground and was installed on the ABL aircraft in FY 2008. The ABL has demonstrated precision tracking and atmospheric beam compensation during flight over 2 dozen times in FY 2007 and 2009 -- including successfully tracking against two boosting missiles in June 2009 and engaging against a low-power Missile Alternative Range Target Instrument (MARTI) boosting missile test asset in August 2009. The first high-powered lasing external to the aircraft in flight is scheduled for winter 2009 with the first shoot down against a short-range liquid fueled foreign acquired target scheduled for winter 2010. Engagement range for the ABL is dependent upon track illumination, atmospheric compensation, laser power and missile type. After the initial shoot down demonstration, ABL will test against missiles in flight at greater ranges and on the ground against countermeasures to fully characterize the ABL.
Current Program Knowledge Points (KPs) are:

Engagement against a Low Power Missile Alternative Range Target Instrument (MARTI) (KP#8) - This KP will validate and characterize Low Power (using the Surrogate High Energy Laser) ABL performance against boosting targets (completed Aug 09)
Demonstrate High Energy Laser (HEL) performance Internal/External on the Aircraft in Flight (KP#9) - This KP will demonstrate functionality of the optical system with the HEL on the aircraft in flight
Engagement against a High Power Missile Alternative Range Target Instrument (MARTI) (KP#10) - This KP will validate and characterize High Power (using the High Energy Laser) ABL performance against boosting targets
ABL Technology Demonstrator lethal demonstration (KP #11) - This KP will demonstrate ABL capability to negate a threat representative boosting ballistic missile.

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	**PROJECT** WX19: *Airborne Laser Capability Development*

Following the ABL Technology Demonstrator lethal demonstration, additional lethal demonstration events will be conducted to further evaluate geometries and/or ranges of the current ABL configuration.

Critical Engagement Conditions/Empirical Measurement Events (CECs/EMEs) are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations. ABL currently has five Critical Engagement Conditions (CECs) and five Empirical Measurement Events (EMEs) for Verification, Validation and Accreditation (VV&A) of Modeling and Simulation (M&S) that the program will begin to demonstrate in FY 2010. CECs include: Minimum/ Maximum Slant Range (ABL to target range, helps to determine the capability to acquire and track a target and the energy lost in the beam path); High Turret Azimuth Angle (ABL to target azimuth angle, represents a condition to establish a baseline for applicable models); Staging Event (number of target stages, collects flight test data against a staging target); Low Target Reflectivity (determines the maximum standoff distance for the Tracking Illuminator Laser and for atmospheric compensation with the Beacon Illuminator Laser return); and Low Target Vulnerability to HEL Beam (laser lethality effects, determines how well the High Energy Laser propagation must be performed). EMEs include: Low Infrared (IR) Target Signature (determines range at which an engagement may be initiated); Multi-Target Engagement (stress the system`s capability to sequentially move from one target to the next); Interoperability with the BMDS (demonstrates ABLs connectivity, integration, interfaces and interoperability with the BMDS); Operational Readiness Demonstration (determines ABL capability to deploy to and operate from an overseas location); and Weapon System Suitability (Determines the degree to which a system can be satisfactorily placed in field use) .

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. ABL Element level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides ABL participation in the consolidated MDA-wide System Test Program and the resources for the, planning, design, execution and management of ABL in BMD System testing in accordance with the BMDS Test Policy, MDA Directive 3202.03 (January 2009). This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP).

The BMD Digital Simulations Architecture (DSA) is the primary M&S System framework used to integrate Element baselines prior to flight or ground testing, facilitate technical trade-offs, concept analysis and trade studies, as well as providing support to Wargames and exercises within the BMDS Program. The DSA-performance architecture and Element and component high fidelity models support PA events, which provide critical system level performance data relative to all elements, system engineers, M&S developers, the OTA and Warfighters. The DSA-virtual architecture supports Element baseline integration, training, portions of ground testing and exercises.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
First Airborne Laser	305.323	55.862	0.000	0.000	0.000
See Description Below					
FY 2009 Accomplishments: Continued the program for developing the ;first Airborne Laser (ABL) technology demonstrator, to include completing the integration of the High Energy Laser modules onto the aircraft and initiation of the High Power System Integration phase of testing. The primary objectives of ground testing during the High Power System Integration phase was to demonstrate, verify, and characterize the 1st ABL technology demonstrator operations and performance, characterize functionality and performance of the entire ABL and verify the readiness of the ;first ABL technology demonstrator for High Power System Integration flight tests. The primary objective of the High Power System Integration flight test series is to build up to and accomplish Flight Test Laser-01 (FTL-01), the first test demonstrating ABL` s lethality capability, negating a threat-representative ballistic missile during the boost phase. The ABL program will also complete an affordability study to address life cycle cost of the system.					
Laser ($30.4 million):					
Continued High Energy Laser data analysis in support of High Power Systems Integration ground and flight testing Continued aircraft engineering activities in support of the ABL ground and flight test activities					
Aircraft ($4.1 million):					
Continued work on aircraft service bulletins to address deficiencies related to airworthiness/safety issues					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Supported High Power System Integration, ground and flight testing					
Battle Management ($9.7 million):					
Continued software support for High Power System Integration ground and flight test activities Performed ground functional testing of communication networks, predictive avoidance, mission planning, and the Link 16 data link Continued aircraft engineering activities in support of the ABL ground and flight test activities					
Beam Control/Fire Control ($73.5 million):					
Supported High Power System Integration ground and flight test activities Supported Beam Control/Fire Control and High Energy Laser ground testing and data analysis Supported High Power System Integration flight demonstration data analysis to include pointing accuracy and jitter control analyses Continued engineering activities in support of the ABL ground and flight test activities Continued design, implementation and integration of system performance enhancements coupled with parallel improvements to simulation and system integration tool suites					
Air Vehicle Integration and Test ($164.5 million):					
Completed ground testing of the High Energy Laser subsystem					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Completed ground testing with High Energy Laser, Beam Control/Fire Control, and Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I) subsystems Continued ABL flight test program (multiple engagements culminating in negation of a boosting missile target)					
Program Management/System Engineering ($22.6 million):					
Continued System Engineering and Structural Integrity, Quality Assurance, Safety, Hardware and System Analysis and Integration efforts, and Program and Contract Management support activities					
Other Support Activities ($.5 million):					
Continued implementation of amended security requirements (updated security classification guidance and program protection directives) Continued investigation of low cost Active Ranging System (ARS) development alternatives to improve ABL tactical performance parameter estimates (launch point, impact point, track data, etc) Updated Adversary Data Package to support future BMDS capability					
FY 2010 Plans: Planned Program ($55.9 million)					
Conduct additional lethal demonstration events during 2nd and 3rd Quarters of FY 2010, followed by system characterization, support, and development activities					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Complete Tail 1 Technology Demonstrator development contract (closeout of contractual requirements) Verify the highest priority 1st ABL Technology Demonstrator contract technical requirements Prepare and deliver final data packages required by contract Conduct an affordability study to address life cycle cost of the system In FY 2010, the Critical Engagement Condition (CEC) and Empirical Measurement Event (EME) data for Verification, Validation, and Accreditation (VV&A) of Modeling and Simulation (M&S) is projected to increase from 0% at the beginning of FY 2010 to 28% at the end of FY 2010. CECs/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations. *FY 2011 Base Plans:* N/A *FY 2011 OCO Plans:* NA					
Industrial Base See Description Below *FY 2009 Accomplishments:* Enhance the ABL specific industrial base with the focus on large optics, optical coatings and targeted manufacturing shortfalls for current and future ABL. 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 requirements.	5.262	3.970	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued development of advanced optics, coatings, and substrates to enable higher power/ increased reliability laser operations Maintained optics testing capabilities while testing new optics, materials, and coatings to maintain ready spares/aircraft availability Continued improvements to bulkhead window production capability to enable higher power/longer and safer High Energy Laser (HEL) operations *FY 2010 Plans:* Continue development of advanced optics, coatings, and substrates to enable higher power/increased reliability laser operations Maintain optics testing capabilities while testing new optics, materials, and coatings to maintain ready spares/aircraft availability Continue improvements to bulkhead window production capability to enable higher power/longer and safer High Energy Laser (HEL) operations *FY 2011 Base Plans:* N/A *FY 2011 OCO Plans:* NA					
Direct Support Activities See Description Below *FY 2009 Accomplishments:* Direct support activities include support for test activities involving ABL system characterization, and Adjunct Missions (AM). These activities also require support from the ABL Combined Test Force (CTF) to plan and execute ground and flight test activities, airborne and boosted diagnostics for flight	57.929	23.045	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
tests, and lethality and survivability assessment efforts. After demonstrating ABL`s lethality capability (Flight Test Laser-01) and continuing through 3rd Quarter FY 2010, the ABL program will continue to demonstrate viability of the ABL by conducting additional lethal demonstration efforts followed by further system characterization. Combined Test Force ($18.6 million): Planned for and supported High Power System Integration (HPSI) flight test activities Supported Airborne Diagnostic Target (ADT) development and test Supported and conducted flying operations for HPSI flight tests Planned for and supported flight test activities involving ABL participation in Ballistic Missile Defense System (BMDS) test events Planned for and supported test activities for the ABL Characterization and Capability Demonstration phase after the lethal demonstration ADT funding transferred to another test organization for acquisition and execution Lethality and Survivability ($8.6 million) Continued subscale and full-scale lethality evaluation testing to support lethal demonstration and system envelope characterization flight test activities Continued intelligence, lethality data collection, assessments Conducted High Energy Laser System Test Facility (HELSTF) ground tests to support laser lethality effectiveness analysis efforts Began aircraft vulnerability assessments and investigations Diagnostics/Instrumentation ($30.7 million):					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Ensured dedicated Airborne Diagnostic Target (ADT) was available for use in HPSI flight tests and modified to provide required instrumentation capabilities Integrated and launched Terrier Lynx (or equivalent) target missiles for HPSI flight tests Continued fabrication, integration and testing of high power Missile Alternative Range Target Instrument (MARTI) diagnostic missiles Launched low power and high power MARTI diagnostic missiles for ABL performance characterization tests *FY 2010 Plans:* Combined Test Force ($13.1 million): Plan for and support ABL maintenance activities Plan for and support ground and flight test activities for the ABL Characterization and Capability Demonstration phase: system characterization and adjunct missions Create and present safety documents to the test wing safety review boards Lethality and Survivability ($1.5 million) Continue intelligence, lethality data collection, assessments and evaluation Diagnostics/Instrumentation ($8.4 million) Ensure dedicated Airborne Diagnostic Target (ADT) is available for use during additional flight tests in FY 2010 *FY 2011 Base Plans:* N/A					

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Characterization and Capability Demonstration See Description Below *FY 2009 Accomplishments:* NA *FY 2010 Plans:* After the ABL lethal demonstration (Flight Test Laser-01) and continuing through 3rd quarter FY 2010, the ABL program will continue to demonstrate viability of the ABL by conducting additional lethal demonstration efforts followed by further system characterization, support and development activities. The ABL will continue ground testing to gain knowledge of the capability of the system. ABL will perform product requirements analysis/derivation, design, development, testing and delivery of verified Modeling and Simulation tools in support of Ballistic Missile Defense System events. The program will consolidate engineering and operations data and evaluate and characterize system capabilities. Conduct additional lethal demonstration events through 3rd Quarter FY 2010 to further evaluate geometries and/or ranges of the current ABL configuration ($28.7 million) In FY 2010, the Critical Engagement Condition (CEC) and Empirical Measurement Event (EME) data for Verification, Validation and Accreditation (VV&A) of Modeling and Simulation (M&S) is projected to increase from 0% at the beginning of FY 2010 to 28% at the end of FY 2010. CECs/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations.	0.000	94.624	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Maintain ABL chemical operations and initiate post lethal demonstration ground test program to further characterize performance ($6.0 million): Initiate High Energy Laser power tuning/optimization testing, for increases in High Energy Laser power to provide a longer range kill capability Initiate wavefront analysis to provide a longer range kill capability Initiate Beam Control/Fire Control adjustments to improve jitter and pointing accuracy Conduct sustainment activities to maintain the ABL ($59.9 million): Sustain the ABL (Laser, Beam Control/Fire Control, and Battle Management subsystems) Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability Continue implementation of ABL program security requirements Publish Adversary Data Package Addenda reflecting intelligence assessment updates Produce and update threat data to support demonstration of Airborne Laser (ABL) capability to destroy a boosting missile flight *FY 2011 Base Plans:* N/A *FY 2011 OCO Plans:* NA					
Accomplishments/Planned Programs Subtotals	368.514	177.501	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603884C: *Ballistic Missile Defense Sensors*	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: *Ballistic Missile Defense System Interceptor*	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: *Ballistic Missile Defense Test and Targets*	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: *Ballistic Missile Defense Enabling Programs*	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: *SPECIAL PROGRAMS - MDA*	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: *BMD AEGIS*	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: *MULTIPLE KILL VEHICLE*	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: *BMD C2BMC*	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: *BMD HERCULES*	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603901C: *DIRECTED ENERGY RESEARCH*	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: *REGARDING TRENCH*	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: *BMD EUROPEAN INTERCEPTOR SITE*	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: *BMD EUROPEAN MIDCOURSE RADAR*	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: *BMD EUROPEAN CAPABILITY*	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: *BMD European Comm Support*	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: *ISRAELI COOPERATIVE*	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: *LAND-BASED SM-3*	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: *PRECISION TRACKING SPACE SYSTEM*	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: *Small Business Innovative Research BMDO*	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: *Pentagon Reservation*	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0901598C: *Management Headquarters-MDA*	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The ABL program through FY 2010 proves our ability to destroy ballistic missiles in the boost phase of their trajectory. The ABL program is testing an airborne laser system with unique capabilities to defend against ballistic missile threats by acquiring, tracking, and destroying ballistic missiles.

MDA`s fiscal year FY 2010 budget submission reflected an emphasis on early intercept research and development. The acquisition strategy to conduct this technology development effort consists of three focus areas. First, leverage the technical expertise of Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant existing contracts within limits of Competition and Contracting Act (CICA) taking into account contractor past performance, scope, ceiling and period of performance. Third, for new technology initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement and competitive procurements.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Beginning in FY 2011, the Boost Defense Segment Program Element, 0603883C, will be transferred to the Directed Energy Research Program Element, 0603901C.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
First Airborne Laser Prime Contract WX19	C/CPAF	The Boeing Company Seattle, WA	653.047	36.862	Apr 2010	0.000		0.000		0.000	0	689.909	689.909
First Airborne Laser BMDS Security WX19	C/CPAF	The Boeing Company Seattle, WA	1.915	0.000		0.000		0.000		0.000	0	1.915	1.915
First Airborne Laser Technical Support Costs-1 WX19	C/CPAF	Northrop Grumman Kirtland AFB/ Various	40.293	6.000	Apr 2010	0.000		0.000		0.000	0	46.293	46.293
First Airborne Laser FFRDC Support WX19	TBD/TBD	Aerospace Kirtland AFB	2.460	0.000		0.000		0.000		0.000	0	2.460	2.460
First Airborne Laser Technical Support Costs-2 WX19	TBD/TBD	Tecolote Research Kirtland AFB	3.158	0.000		0.000		0.000		0.000	0	3.158	3.158
First Airborne Laser Logistics Costs WX19	C/CPAF	The Boeing Company Seattle, WA, Tyndall AFB FL, KAFB NM	2.080	0.000		0.000		0.000		0.000	0	2.080	2.080
First Airborne Laser Government and Other Support Costs WX19	TBD/TBD	AFRL Kirtland AFB/MA, Multiple	2.908	0.000		0.000		0.000		0.000	0	2.908	2.908
First Airborne Laser Government and Other Costs-1 WX19	C/FP	ABL SPO Kirtland AFB/ Multiple	5.179	0.000		0.000		0.000		0.000	0	5.179	5.179
	TBD/TBD	ACC	0.717	0.000		0.000		0.000		0.000	0	0.717	0.717

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
First Airborne Laser Government and Other Costs-2 WX19		VA											
First Airborne Laser Government and Other Costs-3 WX19	TBD/TBD	Brooks City Base TX	0.625	0.000		0.000		0.000		0.000	0	0.625	0.625
First Airborne Laser Other Support Costs WX19	TBD/TBD	Tyndall AFB FL	0.260	0.000		0.000		0.000		0.000	0	0.260	0.260
First Airborne Laser CCMWG/Program Integration Support WX19	C/CPAF	The Boeing Company Seattle, WA	3.734	0.000		0.000		0.000		0.000	0	3.734	3.734
First Airborne Laser Active Ranging System WX19	TBD/TBD	ESC Hanscom AFB MA	3.000	0.000		0.000		0.000		0.000	0	3.000	3.000
First Airborne Laser Technical Support Costs-3 WX19	C/Various	KAFB/WPAFB Multiple	0.476	0.000		0.000		0.000		0.000	0	0.476	0.476
First Airborne Laser Common Threat WX19	Various/ Various	Multiple Multiple	1.862	0.000		0.000		0.000		0.000	0	1.862	1.862
First Airborne Laser Cost Affordability/Risk Reduction WX19	C/CPAF	The Boeing Company Seattle, WA	0.000	3.000	Apr 2010	0.000		0.000		0.000	0	3.000	3.000
First Airborne Laser BMDS Level Testing WX19	C/CPAF	The Boeing Company Seattle, WA	0.000	10.000	Oct 2009	0.000		0.000		0.000	0	10.000	10.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Industrial Base Contract WX19	TBD/TBD	Multiple, i.e. Lockheed Martin/ Multiple MD, CA	11.678	3.970	Apr 2010	0.000		0.000		0.000	0	15.648	15.684
Characterization and Capability Demonstration Prime Contract WX19	C/CPAF	The Boeing Company Seattle, WA	0.000	35.580	Jan 2010	0.000		0.000		0.000	0	35.580	35.580
Characterization and Capability Demonstration BMDS Security WX19	C/CPAF	The Boeing Company Seattle, WA	0.000	0.040	Jan 2010	0.000		0.000		0.000	0	0.040	0.040
Characterization and Capability Demonstration Technical Support Costs-1 WX19	C/CPAF	Northrup Grumman Kirtland AFB/ Various	0.000	4.151	Jan 2010	0.000		0.000		0.000	0	4.151	4.151
Characterization and Capability Demonstration Government and Other Support Costs-1 WX19	TBD/TBD	AFRL Kirtland AFB/MA, Multiple	0.000	0.225	Oct 2009	0.000		0.000		0.000	0	0.225	0.225
Characterization and Capability Demonstration Government and Other Support Costs-2 WX19	C/FP	ABL SPO Kirtland AFB, Multiple	0.000	1.701	Oct 2009	0.000		0.000		0.000	0	1.701	1.701
Characterization and Capability	TBD/TBD	ACC, Brooks City Base	0.000	0.325	Jan 2010	0.000		0.000		0.000	0	0.325	0.325

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Demonstration Government and Other Support Costs-3 WX19		VA, TX											
Characterization and Capability Demonstration FFRDC Support WX19	TBD/TBD	Aerospace KAFB	0.000	1.200	Oct 2009	0.000		0.000		0.000	0	1.200	1.200
Characterization and Capability Demonstration Technical Support Costs-2 WX19	TBD/TBD	Tecolote Research KAFB	0.000	0.670	Jan 2010	0.000		0.000		0.000	0	0.670	0.670
Characterization and Capability Demonstration Common Threat WX19	TBD/TBD	Multiple Multiple	0.000	0.677	Jul 2010	0.000		0.000		0.000	0	0.677	0.677
Characterization and Capability Demonstration BMDS Level Testing WX19	C/CPAF	The Boeing Company Seattle, WA	0.000	50.055	Jan 2010	0.000		0.000		0.000	0	50.055	50.055
		Subtotal	733.392	154.456		0.000		0.000		0.000	0.000	887.848	887.884

Remarks

Common threat engineering produces common and consistent adversary trajectory and signature data to enable Ballistic Missile Defense (BMD) System and sub-system concept and requirements, design, verification, and assessment. Common Threat data is contained in the Adversary Capability Document (ACD) and Adversary Data Packages (ADP) and drives BMDS ground tests, flight tests, digital simulations, and pre-mission analysis activities. It is also used to develop the BMD System Description Document and BMD System Specification.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Direct Support Activities BMDS Level Testing - Combined Test Force WX19	TBD/TBD	AFFTC Edwards AFB	41.375	13.120	Jan 2010	0.000		0.000		0.000	0	54.495	54.495
Direct Support Activities BMDS Level Testing - Lethality and Survivability WX19	TBD/TBD	AFRL Eglin AFB/NM, FL	24.834	1.500	Jan 2010	0.000		0.000		0.000	0	26.334	26.334
Direct Support Activities BMDS Level Testing - Diagnostics/ Instrumentation WX19	TBD/TBD	Hanscom AFB, Peterson AFB, Hill AFB, Kirtland AFB MA, CO, UT, NM	47.267	8.425	Jan 2010	0.000		0.000		0.000	0	55.692	55.692
		Subtotal	113.476	23.045		0.000		0.000		0.000	0.000	136.521	136.521

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Targets funding transitioned to the Targets and Countermeasures Program Element beginning in FY 2009.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000			

Remarks

NA

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	846.868	177.501		0.000		0.000		0.000	0.000	1,024.369	1,024.405

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Engagement of Low Power Missile Alternative Range Target Instrument				■																								
Complete High Power System Integration Ground Testing					■																							
Demonstrate High Energy Laser Performance in Flight					■																							
Engagement of High Power Missile Alternative Range Target Instrument					■																							
Complete High Power System Integration Flight Testing						■																						
1st ABL Lethal Demonstration - ABL Intercept Flight Test (01)						■																						
Engagement of Second High Power Missile Alternative Range Target Instrument							■																					
Complete Life Cycle Affordability Study								■																				
ABL Intercept Flight Test (02)							■																					

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	**PROJECT** WX19: *Airborne Laser Capability Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Engagement of Low Power Missile Alternative Range Target Instrument	4	2009	4	2009
Complete High Power System Integration Ground Testing	1	2010	1	2010
Demonstrate High Energy Laser Performance in Flight	1	2010	1	2010
Engagement of High Power Missile Alternative Range Target Instrument	1	2010	1	2010
Complete High Power System Integration Flight Testing	2	2010	2	2010
1st ABL Lethal Demonstration - ABL Intercept Flight Test (01)	2	2010	2	2010
Engagement of Second High Power Missile Alternative Range Target Instrument	3	2010	3	2010
Complete Life Cycle Affordability Study	4	2010	4	2010
ABL Intercept Flight Test (02)	3	2010	3	2010

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	15.851	4.816	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	20.667
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), 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 fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Civilian Salaries and Support	15.851	4.816	0.000	0.000	0.000
See Description Below					
FY 2009 Accomplishments: See Section A: Mission Description and Budget Item Justification					
FY 2010 Plans: NA					
FY 2011 Base Plans: NA					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT ZX40: *Program-Wide Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA					
Accomplishments/Planned Programs Subtotals	15.851	4.816	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603884C: *Ballistic Missile Defense Sensors*	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: *Ballistic Missile Defense System Interceptor*	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: *Ballistic Missile Defense Test and Targets*	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: *Ballistic Missile Defense Enabling Programs*	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: *SPECIAL PROGRAMS - MDA*	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: *BMD AEGIS*	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT ZX40: *Program-Wide Support*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603894C: *MULTIPLE KILL VEHICLE*	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: *BMD C2BMC*	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: *BMD HERCULES*	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: *DIRECTED ENERGY RESEARCH*	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: *REGARDING TRENCH*	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: *BMD EUROPEAN INTERCEPTOR SITE*	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: *BMD EUROPEAN MIDCOURSE RADAR*	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: *BMD EUROPEAN CAPABILITY*	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: *BMD European Comm Support*	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: *ISRAELI COOPERATIVE*	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: *LAND-BASED SM-3*	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT ZX40: *Program-Wide Support*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*											
• 0604883C: *PRECISION TRACKING SPACE SYSTEM*	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: *Small Business Innovative Research BMDO*	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: *Pentagon Reservation*	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: *Management Headquarters-MDA*	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

NA

E. Performance Metrics

NA