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| MDA Exhibit R -2RDT&EBudgetItemJustification | Date February 2003 |
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| APPROPRIATION/BUDGETACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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| COST (\$ in Thousands) | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|---|--------|---------|--------|--------|--------|--------|--------|--------|
| Total PECost | 790535 | 1046652 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1010 Battle Management, Command and Control (BM/C2) | 30690 | 121603 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1020 Communications | 9845 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1030 Targets & Countermeasures | 90943 | 125010 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1050 Systems Engineering & Integration | 221857 | 368977 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1060 Test & Evaluation | 390986 | 372352 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1070 Producibility & Manufacturing Technology | 14083 | 21360 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1090 Program Operations | 32131 | 37350 | 0 | 0 | 0 | 0 | 0 | 0 |

A. Mission Description and Budget Item Justification

Starting in FY2004, funding for these efforts is contained within the Ballistic Missile Defense Test & Targets (0603888C), Ballistic Missile Defense Products (0603889C), and the BMD System Core (0603890C) Program Elements.

Based on Presidential direction, MDA is developing an initial defensive operational capability that is based on the BMD System Test Bed and augmented with additional development assets. MDA will continue to employ the Test Bed for testing beyond initial fielding to evolve an integrated, layered Ballistic Missile Defense capability.

The Ballistic Missile Defense (BMD) System Segment Program Element (PE) provides the resources to define, integrate, test, demonstrate and evolve the multi-layered BMD System capable of defending the United States, deployed forces, friends, and allies. The BMD System mission is comprised of seven primary projects: C2BMC, Communications, Targets & Countermeasures, SE&I, Test & Evaluation (T&E), Producibility & Manufacturing Technology, and BMD Information Management Systems. Successful performance of these activities is necessary for fielding a multi-layered, evolutionary system for defense in depth against the full spectrum of ballistic missile threats.

The missile defense program has transitioned from a element-centric to a system-centric focus, and from a requirements-based to a capability-based, Block delivery approach. The objective of this approach is to acquire a single, integrated layered Ballistic Missile Defense System (BMD System) that provides multiple engagement opportunities along the entire flight path of threat ballistic missiles. The advantage of this single, integrated layered system approach is that it provides engineers significant opportunity for synergy and tradespace to exploit the inherent capabilities of all system elements and their components while optimizing aggregate performance, resulting in operational flexibility and robustness to protect the U.S., deployed forces, friends and Allies around the world. This allows the BMD System to evolve over time employing different combinations of sensors, weapons, battle management and command, control, and communication elements as an overarching, integrated capability. The development of this layered BMD System requires a collaborative enterprise comprised of the best and most experienced people from Industry and Government. This collaboration will be accomplished through the employment of the Missile Defense National Team (MDNT). The MDNT will develop and verify BMD System level designs and products for all ground, sea, air and space based elements through the use of models and the BMD System Test Bed. The flowdown of BMD System Capability Specifications resulting from MDNT efforts in Systems Engineering & Integration (SE&I) and Command and Control, Battle Management, and Communications (C2BMC) will guide the integration of elements into the BMD System, the BMD System C2BMC architecture, and the BMD System Test Bed.

The BMD System provides initial capabilities and enhances these capabilities over time (block upgrades) by developing and testing defenses that employ complementary sensors, weapons, and communications/decision support systems to engage threats in the boost, mid-course, and terminal phases of flight. Blocks are synergistic sets of validated capability with military utility as demonstrated via the BMD System Test Bed. Each Block is comprised of selected BMD System elements which are able to operate autonomously or provide enhanced capability participating as part of the integrated BMD System Block configuration. Each subsequent Block will build on the predecessor Block. This block approach allows the Missile Defense Agency (MDA) to put the best, most capable

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| 4. Advanced Component Development and Prototypes (ACD&P) | 0603880C Ballistic Missile Defense System Segment | |
| <p>technologies "in play" sooner than would otherwise be possible. MDA has designed a comprehensive, but flexible RDT&E program to both integrate and expand existing element capabilities, and to examine and integrate the widest possible range of promising technologies into the block upgrades. The first BMDS Block 2006 is planned for the FY 2004 timeframe. Once demonstrated, Block 2006 capability is available for initial defensive operations use, if directed, and transitioned to the services for procurement, operation and support.</p> <p>The BMDS Command, Control, and Battle Management Communications (C2BMC) element is the integrating function across all BMDS elements. It is also the function that integrates the BMDS into the C2 structure of the Combatant Commanders and into that of allies and friends. C2BMC will evolve from today's limited autonomous point defense BMDS capability into a global integrated BMDS capability. The BMDS C2BMC functionality will mature into Collaborative - Distributed Planning and increased Situational Awareness C2 capabilities that support Engagement Coordination and Integrated Fire Control BM capabilities. A Missile Defense National Team for C2BMC (MDNTB) was assembled to assist MDA with this project. The MDNTB, consisting of MDA, a defense contractor team (MDNTB(I)), Federally Funded Research and Development Centers (FFRDC) and Scientific Engineering and Technical Assistance (SETA) providers, will develop and deliver a flexible integrated BMDS C2BMC.</p> <p>The Targets and Countermeasures program provides capability -based ballistic missile target systems to include missile subsystems (such as boosters, re -entry vehicles (RV) guidance and control) payloads (sensor packages, countermeasures), and launch support systems. This activity funds new target and countermeasure development, risk reduction flights, subsystem characterization, as well as procurement and maintains long lead material of major target components. Advanced target instrumentation, a new liquid booster, Mobile Launch Platform Targets, Medium Range Targets and Long Range Air Launched Target (LRALT) are being developed. In addition, this program supports aging surveillance, refurbishment and reuse of existing inventory such as Minuteman II and Pershing II hardware.</p> <p>The SE&I project provides the overall systems engineering development and integration of the BMDS. The SE&I mission is to define and manage the layered BMDS system, providing the collaborative, layered, and detailed systems engineering and integration required across the entire spectrum of BMDS warfighter capabilities. The SE&I programs span the development of individual components (e.g. boosters), elements (e.g. Block 2006 Theater High Altitude Area Defense (THAAD)), BMDS segments (e.g. midcourse), and the fully integrated BMDS system. SE&I activities provide the engineering core competency, modeling facilities, and integrative engineering development efforts needed to technically manage and field the capability -based BMDS.</p> <p>The T&E project provides consolidated BMDS -wide T&E capabilities and resources required to allow for cohesive facilitation, management, and execution of test activities. T&E efforts include the development, operation, maintenance, and modernization of the T&E infrastructure supporting both the testing of BMDS elements and System Level testing. It includes resources for the development, maintenance, and configuration management of credible core analytical tools used by all BMDS elements and for the engineering and testing of integration and interoperability across the BMDS. The project also funds the BMDS System Test and Assessment program that includes system tests, critical measurements, integration tests, and supporting technology experiments. T&E activities associated with specific BMDS elements are captured in the respective BMDS element. T&E activities are grouped in terms of System Test and Assessment; Test Resources of facilities, ranges, sensors, and test instrumentation; Modeling and Simulation (M&S); and Facilities, Siting, and Environmental (FS&E) efforts.</p> <p>Producibility and Manufacturing Technology provides tools and strategies for improving technology insertion support of the BMDS spiral development to meet block upgrades. These include near term technology insertion programs that demonstrate capabilities for multiple applications across the BMDS (encompassing risk reduction, performance enhancement, and cost reduction/avoidance). These programs are identified by utilizing systems engineering, analyses and assessments as a basis for offering potential remediation of a BMDS problem area. Producibility and Manufacturing Technology then provides manufacturing technologies and implementation strategies that will benefit all the BMDS.</p> <p>BMDS Information Management efforts will improve the management of and access to data, information and knowledge throughout the MD Enterprise. The new project will assist the acquisition of Missile Defense systems by a) providing IM/IT policies, processes and infrastructure through the MD Enterprise that allows for daily operations to be performed in an efficient, secure and affordable manner; b) creating an Enterprise Information Management System and processes using web -based technologies and establishing electronic business practices that help achieve more effective and more efficient and secure business and mission activities throughout the MD Enterprise; c) improving IT infrastructure that supports design, development and testing of MD systems; and d) development of information architectures that identify information needs for interoperability among MD systems.</p> | | |

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Program Operations under this project covers personnel and related support costs, statutory and fiscal requirements. May include funding for government civilians performing program -wide oversight functions such as contracting, program integration, safety, quality and mission assurance at Missile Defense Agency (MDA); cost estimating; audit; technology integration across all MDA projects; and assessment of schedule, cost and performance, documentation of related programmatic issues and, foreign currency fluctuations on limited number of foreign contracts. Also includes funding for charges on canceled appropriations in accordance with Public Law 101 -510.

| B.Program Change Summary | FY2002 | FY2003 | FY2004 | FY2005 |
|--|---------------|---------------|---------------|---------------|
| Previous President's Budget (FY2003 PB) | 807993 | 1065982 | 1208546 | 1157025 |
| Current President's Budget (FY2004 PB) | 790535 | 1046652 | 0 | 0 |
| Total Adjustments | -17458 | -19330 | -1208546 | -1157025 |
| Congressional Specific Program Adjustments | 0 | 7300 | 0 | 0 |
| Congressional Undistributed Adjustments | -5392 | -17912 | 0 | 0 |
| Reprogrammings | 2656 | -8718 | -1208546 | -1157025 |
| SBIR/STTR Transfer | -14722 | 0 | 0 | 0 |

Resources for FY2004 and beyond have been transferred to the BMDS System Test and Targets (0603888C), BMD Products (0603889C), and BMDS System Core (0603890C) Program Elements.

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| COST (\$ in Thousands) | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|
| 1010 Battle Management, Command and Control (BM/C2) | 30690 | 121603 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |

A. Mission Description and Budget Item Justification

Starting in FY2004, funding for this effort will be contained within the Ballistic Missile Defense Products (0603889C) Program Element.

The BMDS Command, Control, Battle Management and Communications (C2BMC) element is the integrating function across all BMDS elements. It is also the function that integrates the BMDS into the C2 structure of the Combatant Commanders and into that of allies and friends.

MDNTB:
Missile Defense Agency (MDA) established a Missile Defense National Team BM/C2/Comm (MDNTB) to structure and deliver an integrated BMDS C2 system. This effort requires a collaborative enterprise comprised of the best and most experienced minds of Industry and Government. The MDNTB is composed of major defense contractors, Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), and Scientific Engineering and Technical Assistance (SETA) providers. The concept of operations for the MDNTB is as follows: the Government provides the overall management of the BMDS program and participates within the MDNTB; and the MDNTB is responsible for the engineering, design, development and delivery of an executable BMDS C2 BMC integration framework, BMDS C2 BMC Block capability specifications, and the integration of BMDS elements into the BMDS C2 BMC integration framework.

BMDS BM:
The BMDS BM will substantially enhance BMDS effectiveness beyond that achievable by stand-alone systems. The BM component integrates skill chain functions (surveillance, detect /track/classify, engage and assess) across the layered defenses (boost, mid-course, terminal, and external sensors (Space Based Infrared System -SBIRS)) and evolves with the BMDS elements. Initially, BM will deliver the hardware/software (HW/SW) necessary to provide the means for executing pre-planned responses by integrating available information to provide the user with increased automation capability and ability to integrate information from increasingly diverse resources. BM will eventually provide a highly flexible and configurable framework for real-time, adaptive coordination of missile defense assets, while also supporting the incorporation of new elements. Block 2004 BM component currently plans to integrate Ground Missile Defense System (GMDS), Theater High Altitude Air Defense (THAAD), Airborne Laser (ABL), Patriot 3 (PAC-3) Interceptor, Aegis BMD, Space Tracking & Surveillance System (STSS), and Defense Support Program (DSP). This may change as a result of annual Block capability reviews.

BMDSC2:
The BMDSC2 provides a flexible, integrated component to plan, direct, control and monitor missile defense activities. C2 sets the framework for all subordinate commands' actions, including decisions concerning the defense course of actions; force laydown, consistent shot doctrine, etc. In addition, it provides the means to quickly re-plan and adapt to changing mission requirements. C2 develops the operational warfighting aids required for the command structure to formulate and implement informed decisions. BMDSC2 integrates, where applicable, new capabilities into National C2 Systems, Global Command and Control System (GCCS), Theater Battle Management Core Systems (TBMCS), North American Air Defense/US Combatant Commander Space Command Warfighter Support System (N/UWSS), Joint Defensive Planner (JDP) and other relevant C2 mission applications. The BMDSC2 also integrates the Combatant Commanders, North American Treaty Organization (NATO) and other allies, friends, and other external systems to which BMDSC2 will connect. Block 2004 C2 component provides prototype support for Combatant Commanders. This may change as a result of annual Block capability reviews.

COMMUNICATIONS:
The BMDS Communication efforts will consolidate, refine requirements, and develop upgrades to existing communications systems that are being developed by the BMDS. It is responsible for developing capabilities that will allow all components of BMDS to exchange data, and to permit C2 orders to be transmitted to the weapons and sensor systems. Delivery of the Joint Range Extension

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(JRE) long-haul communications capability during the FY2002/FY2003 timeframe fills a critical, and timely, warfighter need in this area. The Communication network(s) will seamlessly connect BMDS assets and link them with other applicable DoD and non-DoD networks and assets as required by optimizing the use of existing and future data and information conduits and protocols such as the Global Information Grid.

INTEGRATION TEST SUPPORT:

Part of his funding will support integration and testing activities at the JNIC. A state-of-the-art Development and Integration Environment Laboratory will be established to support C2BM Comm Integration framework and Systems Specification development; develop, test and evaluate prototype C2BM components; and support other critical BMDS C2BM efforts with the goal of fully integrating the warfighters, systems engineers, and BMDSElements capabilities developers and testers. The MDNTB will perform most of the BMD SC2BMCTest Bed component; System Specification and Elements assessment, integration, testing and validation work at the JNIC.

B. Accomplishments/Planned Program

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| C2BMC | 30690 | 109648 | | |
| RDT&E Articles (Quantity) | | 6 | | |

The Missile Defense National Team for BM/C2/Comm (MDNTB) will deliver BMDS C2BM Element definition, system design, planning for the content of each block as well as integration of C2BM components. Four major activities shall be completed: 1) define the BMDSC2BMCElement Capabilities and the evolutionary plan for achieving those capabilities; 2) develop, integrate and test as supportable Test Bed System Level C2BM capability that could also be deployed in the event initial defensive operations are required; 3) support demonstrations and experiments; 4) define the approach to support the initial defensive operations deployable capability and define the components and attributes of the necessary acquisition package for transitioning the BMDS C2BM to full-scale development and deployment.

To achieve the above objectives, the MDNTB shall develop and provide C2BM system architecture and operational architecture description data to include C2BM Element and interface data for each BMDS element, and for the Objective C2BM Element. Block 2004 shall receive primary emphasis; work on Block 2006 and on the Objective Architecture shall be accomplished as required.

BLOCK 2004:

The Block 2004 C2BM Elements shall provide C2 capability for planning, situational awareness, and control, BM capability for track correlation and execution of preplanned responses, and communications among C2 nodes, BM nodes, Block 2004 sensors and Block 2004 weapons systems. It shall include an initial capability to leverage and incorporate the data from multiple sensors (sensor netting) to improve track correlation quality and target discrimination.

-Enhances system level tracking and discrimination capability to include Improved/Precision Cueing for Aegis SMD to GMD.

-Design and integrate Sensor Netting and Early Warning capabilities into the Block 2004 C2BM. This effort shall also incorporate, as appropriate, products developed by Project Hercules. Perform Sensor Netting work including coding and productizing Hercules algorithms for the BMDS Test Bed; Discrimination Fusion, track fusion, sensor registration and advanced Sensor Netting engineering validation.

-Develop a new stand-alone C2BM node prototype to provide centralized C2/BM capability for the BMDS; and weapons system/sensors system C2BM CHW/SW that performs as components of the C2BM Element.

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| <p>-Create an initial description of the C2BMC Objective Element. The Objective C2BMC Element will be updated annually. The purpose is to provide an aim point that's continually ahead and guides technology investment decisions.</p> <p>-Develop, implement and operate a C2BMC -Experimental (C2BMC -X) environment at the JNIC to perform/support demonstrations, experiments (including technology insertion), exercises, war games, and user assessments.</p> <p>-Develop, implement and operate two Development and Testing laboratories and three Integration and Testing laboratories at Huntsville, AL, and Colorado Springs, CO., for BMDSC2BMC Test Bed prototype development. One of the C2BMC CI&TSuites will do at least the BMDSC2BMC Node at the JNIC. Complete Block 2004 Spiral development cycles.</p> <p>-Perform analysis of current deployment capabilities and logistics requirement of the C2BMC composite element and impact analysis for deploying the C2BMC element for initial defensive operations capability and the production version of the deployable system.</p> <p>-Establish Global Command & Control System -Missile Defense (GCCS -MD) with DISA, and develop and field GCCS -MD mission applications. Continue development and integration of Joint Data Planner into GCCS. Continue Early Warning project focusing on technical data package (functional specifications) and finalizing the Early Warning Master implementation Plan.</p> <p>-Continue work on BMDS Information Technology Migration study to support independent technology insertions. Continue cooperative analysis on NATO (BMC2) functions required to integrate NATO Air Command and Control System integration into BMDS. Continue TMD and Strategic Missile Defense Data Interoperability Assessment program. Continue GE (EAD) Annex C program to jointly develop BMC3 functions required to integrate German AFTMD capabilities into BMDS. Continue Joint Technical Architecture (JTA) efforts to develop standard interface profiles for the Objective BMDS.</p> <p>-Support C2BMC Integration Test Center and C2BMC -X Battlelab in accordance with MDNTB directed updates, interfaces and connectivity requirements and software purchases and licenses.</p> <p>-Complete JRE standard development and testing (Block 2004) in order to enhance BMD Situational Awareness by extending Link 16 information between the Services' major C2 nodes beyond line of sight.</p> <p>-Develop and test the communications integration and test environment of the C2BMC Test Bed to ensure high availability of communications for the system.</p> <p>-Design and integrate JRE capability for Aegis BMD (Block 2004).</p> <p>-Embed the JRE capability into BMDS, and continue to update the JRE Application Protocol (JREAP). Initiated development of JRE capability for Aegis BMD.</p> <p>-Continue to develop long-haul communications requirement for the BMDS. Support DISA effort to implement a global communication capability, interconnecting the theaters, Combatant Commanders, GMD and the national level C2BMC element node at the JNIC.</p> <p>-Continue BMDS Information Assurance/Computer Network Defense (IA/CND) efforts begun in FY 2002. Update IA/CND Implementation plan and threat/risk assessment. Perform IA/CND Architecture Design. Evaluate BMDS component compliance with architecture.</p> | | |

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| | | | | |
|-------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| COMMUNICATIONS | 0 | 11955 | | |
| RDT&EArticles(Quantity) | | | | |

| | | | | | | | | | | |
|-------------------------------------|--|--|--|--|--|--|--|--|--|--|
| C.OtherProgramFundingSummary | | | | | | | | | | |
|-------------------------------------|--|--|--|--|--|--|--|--|--|--|

| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
|---|---------|---------|---------|---------|---------|---------|---------|---------|-------------|------------|
| PE0901598CManagementHeadquarters - MDA | 30191 | 25365 | 93441 | 101373 | 114107 | 121743 | 128972 | 133499 | | |
| PE0901585CPentagonReservation | 6381 | 7432 | 14481 | 13384 | 12758 | 12850 | 13158 | 13476 | | |
| PE0603883CBallisticMissileDefenseBoost DefenseSegment | 583463 | 718036 | 626264 | 653612 | 755163 | 665772 | 477109 | 354346 | | |
| PE0603884CBallisticMissileDefense Sensors | 312973 | 350436 | 438242 | 562752 | 706514 | 1043454 | 1152740 | 1261906 | | |
| PE0603886CBallisticMissileDefense SystemInterceptors | 0 | 0 | 301052 | 541178 | 1127180 | 1729613 | 2558327 | 2904096 | | |
| PE0603890CBallisticMissileDefense SystemEngineeringandIntegration | 0 | 0 | 483996 | 522458 | 604445 | 628594 | 703055 | 706501 | | |
| PE0603888CBallisticMissileDefenseTest andTargets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603889CBallisticMissileDefense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861CTheaterHigh -AltitudeArea DefenseSystem -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604867CNavyAreaTheaterMissile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0605502CSmallBusinessInnovative Research -MDA | 145102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603882CBallisticMissileDefense MidcourseDefenseSegment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |

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|---|--------|--------|--------|--------|--------|--------|--------|--------|---|--|--|
| PE0603869C Meads Concepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603175C Ballistic Missile Defense Technology | 145021 | 151130 | 240820 | 205791 | 200956 | 247990 | 287864 | 306472 | | | |
| PE0603879C Advanced Concepts, Evaluations and Systems | 0 | 0 | 151696 | 216778 | 166308 | 193949 | 241947 | 234484 | | | |
| PE0603881C Ballistic Missile Defense Terminal Defense Segment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | | |

D. Acquisition Strategy

C2/BM/C will follow the MDA's capability -based acquisition strategy that emphasizes assessment, spiral -development, testing and evolutionary acquisition through the definition of two -year capability blocks.

The design and development of a BMDSC Command and Control, Battle Management and Communication (C2/BM/Comm) Architecture and System Specifications is a collaborative effort. The strategy to require the Missile Defense National Team C2/BM/Comm (MDNTB) to perform the engineering and delivery of an executable C2/BM/Comm Test Bed, BM/C2/Comm Block capability specifications, design specifications and interface control documents for the BMDSC. The MDNT will be composed of two industry teams (MDNTB & MDNTS), major defense contractors, engineers from Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC) and System Engineering and Technical Assistance (SETA) defense contractor(s), and the government.

The intent is to develop a fully capable BMDSC Test Bed while retaining development capability that can be used for initial defensive operations deployment. C2/BM/C capability can be transitioned into further operational force structure via coordination with the Services and their acquisition community so they can plan, budget and procure necessary HW/SW for operational deployed and sustained forces.

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| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | | | | | Date February2003 | | |
| APPROPRIATION/BUDGET ACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | | |
| I.ProductDevelopmentCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| C2BMC | | | | | | | | | | | | |
| MDNTB | SS/CPAF | MDNTB/Gaith, MD;Arl,VA | 24890 | 108203 | 1Q | | | | | | 133093 | |
| SubtotalProductDevelopment | | | 24890 | 108203 | | 0 | | 0 | | | 133093 | |
| Remarks | | | | | | | | | | | | |
| II.SupportCostsCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| C2BMC | | | | | | | | | | | | |
| SETA | C/CPFF | MDA,HQ/Arl,VA | 2900 | 3400 | 1Q | | | | | | 6300 | |
| SubtotalSupportCosts | | | 2900 | 3400 | | 0 | | 0 | | | 6300 | |
| Remarks | | | | | | | | | | | | |
| III.TestandEvaluationCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| C2BMC | | | | | | | | | | | | |
| JNIC | Various | JNIC/CO | 3000 | 10000 | | | | | | | 13000 | |
| SubtotalTestandEvaluation | | | 3000 | 10000 | | 0 | | 0 | | | 13000 | |
| Remarks | | | | | | | | | | | | |

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| IV.ManagementServicesCost(\$inThousands) | | | | | | | | | | | | |
|---|-----------------------|-------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| SubtotalManagementServices | | | | | | | | | | | | |

Remarks

| | | | | | | | | | | | | |
|------------------|--|--|-------|--------|--|---|--|---|--|--|--------|--|
| ProjectTotalCost | | | 30790 | 121603 | | 0 | | 0 | | | 152393 | |
|------------------|--|--|-------|--------|--|---|--|---|--|--|--------|--|

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| MDAExhibitR -4ScheduleProfile | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMis sileDefenseSystemSegment |
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| ObjectiveArchitecture | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DefineObjectiveArchitecture | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block2004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BlockDesignReview | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BlockPlanning&CapabilityAssessment | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BlockSystemDesign(BECs,ECBs&EIDs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CommunicationNetworkDesign | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ElementTIMs | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Integration&TestPlanning | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spiral4.1Integration&Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BlockPlanning&CapabilityAssesment | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BlockSystemDesign(ECSs,EDBs,&EIDs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CommunicationNetworkDesign | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communications | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CommunicationsIntegratedLogisticsandSptPlan | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CommunicationsTransitionPlan | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JRESpiral4VerificationTesting | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| MDAExhibitR -4AScheduleDetail 1 | | | | | | Date February2003 | | |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | |
| ScheduleProfile | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
| ObjectiveArchitecture | | | | | | | | |
| DefineObjectiveArchitecture | 4Q | 1Q-4Q | | | | | | |
| Block2004 | | | | | | | | |
| BlockDesignReview | | 1Q | | | | | | |
| BlockPlanning&CapabilityAssessment | 4Q | | | | | | | |
| BlockSystemDesign(BECs,ECBs&EIDs) | | 1Q | | | | | | |
| CommunicationNetworkDesign | 4Q | 1Q-4Q | | | | | | |
| Deployment&LogisticsSptPlanning | 4Q | 1Q | | | | | | |
| ElementTIMs | 4Q | 1Q-4Q | | | | | | |
| Integration&TestPlanning | 4Q | 1Q-4Q | | | | | | |
| Model&SimTools(Eval/Instal) | 4Q | 1Q-3Q | | | | | | |
| Modeling&SimulationAnalysis | 4Q | 1Q-4Q | | | | | | |
| Spiral4.1Integration&Testing | 4Q | 1Q-2Q | | | | | | |
| Spiral4.1PrototypeDevelopment | 4Q | 1Q-2Q | | | | | | |
| Spiral4.2Integration&testing | | 3Q-4Q | | | | | | |
| Spiral4.2PrototypeDevelopment | | 1Q-4Q | | | | | | |
| Spiral4.3PrototypeDevelopment | | 3Q-4Q | | | | | | |
| Block2006 | | | | | | | | |
| BlockPlanning&CapabilityAssessment | | 1Q-4Q | | | | | | |
| BlockSystemDesign(ECSs,EDBs,&EIDs) | | 3Q-4Q | | | | | | |
| CommunicationNetworkDesign | | 3Q-4Q | | | | | | |
| Modeling&SimulationAnalyses | | 3Q-4Q | | | | | | |
| Communications | | | | | | | | |
| CommunicationsIntegratedLogisticsandSptPlan | | 2Q | | | | | | |
| CommunicationsTransitionPlan | | 2Q | | | | | | |
| JRESpiral4VerificationTesting | | 1Q | | | | | | |
| JNIC | | | | | | | | |
| FacilityModifications | | 1Q-4Q | | | | | | |
| SecuritySystem&SecurityOpsCenterUpgrades | | 1Q-4Q | | | | | | |
| SustainmentEngineeringofMissionInfrastructure | | 1Q-4Q | | | | | | |
| BM/C2/C-XExperiment | | | | | | | | |
| BM/C2/C -XExperiment | | 1Q-4Q | | | | | | |

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| MDA Exhibit R -2 ARDT&E Project Justification | | | | | | Date February 2003 | | | | | |
| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | | | | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment | | | | | | | |
| COST (\$ in Thousands) | | | | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
| 1020 Communications | | | | 9845 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <u>A. Mission Description and Budget Item Justification</u> | | | | | | | | | | | |
| <p>Missile Defense Agency (MDA) is establishing a Missile Defense National Team (MDNTB) Battle Management Command, Control and Communication (BM/C2/Comm) construct to deliver an integrated Ballistic Missile Defense System Battle Management Command and Control (BMDSBM/C2) system. This effort requires a collaborative enterprise comprised of the best and most experienced minds of Industry and Government. The MDNTB is composed of major defense contractors, Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), and Scientific Engineering and Technical Assistance (SETA) providers. The concept of operations for the MDNTB is as follows: the Government provides the overall management of the BMDS program and participates within the MDNTB; and the MDNTB is responsible for the engineering, design, development and delivery of an executable BMD BM/C2/Comm component, BMDSBM/C2/Comm Block capability specifications, and the integration of BMDS Elements into the BMDSBM/C2/Comm component.</p> <p>The Communications Project consolidates, refines requirements, and develops upgrades to existing communications systems that are being developed for the BMDS. It is the key, and critical enabler to integration of the BMDSBM/C2. The goal of BMDS communication is to provide a robust network(s) that manages the dissemination of the information necessary to perform the BM and C2 objectives. It is responsible for developing capabilities that will allow all components of BMDS to exchange BM and situational awareness data, and to permit C2 orders to be transmitted to the weapon and sensor systems. Delivery of the Joint Range Extension (JRE) long-haul communications capability during the FY2002 and FY2003 timeframe will fill a critical, and timely, warfighter need in this area. Communication between BMDS and external sensors, to a wider range of command systems, and other defense systems such as the Theater Air and Missile Defense (TAMD) and the NATO ACCS will be engineered and built to ensure the optimum effectiveness for Ballistic Missile Defense. The communication network(s) will seamlessly connect BMDS assets and link them with other applicable DoD networks and assets as required. In addition, the communication network(s) will also be able to link to other non-DoD networks and assets as required. The network infrastructure will make optimal use of existing data and information conduits and protocols.</p> <p>Communication provides the engineering capability to assess allocated requirements and translate them into communications systems specifications necessary to meet operator needs. This includes the development and allocation of communications specifications for transmission, for switches, relays and connection point hardware. Communication will use as a starting point the backbone system being developed by the Ground Based Midcourse System, a hybrid system of fiber optics and satellite systems. To meet the requirements of the other BMDS layers, it will be necessary to augment the Ground Based Midcourse System. On-going efforts such as the Joint Range Extension (JRE) program will be exploited to develop the global Ballistic Missile Defense (BMD) communication system.</p> <p>The Joint National Integration Center (JNIC), formerly known as the Joint National Test Facility (JNTF), operates as the field-operating agency for the Missile Defense Agency. A state-of-the-art Development and Integration Environment Laboratory will be established to support BM/C2/Comm Architecture and Systems Specification development; develop, test and evaluate prototype BM/C2/Comm components; and support other critical BMDSBM/C2/Comm efforts with the goal of fully integrating the warfighters, systems engineers, and BMDS Elements capabilities developers and testers. The MDNTB will perform most of the BMDS Communications Architecture, System Specification and Elements assessment, integration, testing and validation work at the JNIC.</p> | | | | | | | | | | | |
| <u>B. Accomplishments/Planned Program</u> | | | | | | | | | | | |
| | | | | FY2002 | FY2003 | FY2004 | FY2005 | | | | |
| Communications | | | | 9845 | 0 | 0 | 0 | | | | |
| RDT&E Articles (Quantity) | | | | | | | | | | | |
| Funding for the Communication effort will transition from Project 1020 to Project 1010 beginning in FY2003 to consolidate similar program functions. | | | | | | | | | | | |

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| MDA Exhibit R -2 ARDT&E Project Justification | Date February 2003 |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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The BMDS Communication efforts consolidate, refine requirements, and develop upgrades to existing communications systems that are being developed for the BMDS. It is responsible for developing capabilities that will allow all components of BMDS to exchange data, and to permit C2 orders to be transmitted to the weapon and sensor systems. Delivery of the Joint Range Extension (JRE) long-haul communications capability during the FY2002/03 timeframe is critical, and timely, warfighter need in this area. The communication network(s) will seamlessly connect BMDS assets and link them with other applicable DoD and non-DoD networks and assets as required by optimizing the use of existing and future data and information conduits and protocols such as the Global Information Grid.

C. Other Program Funding Summary

| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
|---|--------|--------|--------|--------|---------|---------|---------|---------|-------------|------------|
| PE0603175C Ballistic Missile Defense Technology | 145021 | 151130 | 240820 | 205791 | 200956 | 247990 | 287864 | 306472 | | |
| PE0603869C Meads Concepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603879C Advanced Concepts, Evaluations and Systems | 0 | 0 | 151696 | 216778 | 166308 | 193949 | 241947 | 234484 | | |
| PE0603881C Ballistic Missile Defense Terminal Defense Segment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | |
| PE0604867C Navy Area Theater Missile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0605502C Small Business Innovative Research -MDA | 145102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0901585C Pentagon Reservation | 6381 | 7432 | 14481 | 13384 | 12758 | 12850 | 13158 | 13476 | | |
| PE0901598C Management Headquarters - MDA | 30191 | 25365 | 93441 | 101373 | 114107 | 121743 | 128972 | 133499 | | |
| PE0603883C Ballistic Missile Defense Boost Defense Segment | 583463 | 718036 | 626264 | 653612 | 755163 | 665772 | 477109 | 354346 | | |
| PE0603884C Ballistic Missile Defense Sensors | 312973 | 350436 | 438242 | 562752 | 706514 | 1043454 | 1152740 | 1261906 | | |
| PE0603886C Ballistic Missile Defense System Interceptors | 0 | 0 | 301052 | 541178 | 1127180 | 1729613 | 2558327 | 2904096 | | |
| PE0603890C Ballistic Missile Defense System Engineering and Integration | 0 | 0 | 483996 | 522458 | 604445 | 628594 | 703055 | 706501 | | |

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| MDAExhibitR -2ARDT&EProjectJustification | | | | | | | Date February2003 | | | |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopment andPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | |
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|---|---------|---------|---------|---------|---------|---------|---------|---------|--|--|
| PE0603888CBallisticMissileDefenseTest andTa rgets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603889CBallisticMissileDefense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861CTheaterHigh -AltitudeArea DefenseSystem -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603882 CBallisticMissileDefense MidcourseDefenseSegment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | | | | | Date February2003 | | |
| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | | |
| I.ProductDevelopmentCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| Communications | | | | | | | | | | | | |
| CommProducts | C/Various | MDAHQ/VA | 7245 | | | | | | | | 7245 | |
| SubtotalProductDevelo pment | | | 7245 | 0 | | 0 | | 0 | | | 7245 | |
| Remarks ThisProjecttransitionedtoProject1010beginninginFY2003. | | | | | | | | | | | | |
| II.SupportCostsCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| Communications | | | | | | | | | | | | |
| SETA | C/Other | MDAHQ/VA | 1500 | | | | | | | | 1500 | |
| SubtotalSupportCosts | | | 1500 | 0 | | 0 | | 0 | | | 1500 | |
| Remarks ThisProjecttransitionstoProject1010beginninginFY2003. | | | | | | | | | | | | |
| III.TestandEvaluationCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| Communications | | | | | | | | | | | | |
| JNIC | C/Other | JNIC/CO | 1100 | | | | | | | | 1100 | |
| SubtotalTestandEvaluation | | | 1100 | 0 | | 0 | | 0 | | | 1100 | |
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| MDAExhibitR -3RDT&EProjectCostAnalysis | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| IV.ManagementServices Cost(\$inThousands) | | | | | | | | | | | | |
|--|-------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|--|
| Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract | |
| CostCategories: | | | | | | | | | | | | |
| SubtotalManagementServices | | | | | | | | | | | | |

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| ProjectTotalCost | | | 9845 | 0 | | 0 | | 0 | | | 9845 |
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| MDAExhibitR -4ScheduleProfile | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| FiscalYear | 2002 | | | | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | | | | | |
|--|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|--|--|--|--|
| | 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 | 1 | 2 | 3 | 4 | | | | |
| Communications | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BM/C2CommRiskMgmtProcess& Program | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BM/C2Comm.AcquisitionPlan (Draft/Final) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BM/C2CommunicationsDetailed Specifications | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block2004ImplementationPlan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JointRangeExtension(JRE)Spiral3 Verification | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| MDAExhibitR -4AScheduleDetail | | | | | | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| ScheduleProfile | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| Communications | | | | | | | | |
| BM/C2Co mmRiskMgmtProcess&Program | 2Q-4Q | 1Q | | | | | | |
| BM/C2Comm.AcquisitionPlan(Draft/Final) | 2Q-4Q | 1Q | | | | | | |
| BM/C2CommunicationsDetailedSpecifications | 3Q-4Q | 1Q-2Q | | | | | | |
| Block2004ImplementationPlan | 4Q | | | | | | | |
| JointRangeExtension(JRE)Spiral3 Verification | 2Q | | | | | | | |

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| MDAExhibit R -2ARDT&EProjectJustification | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| COST(\$inThousands) | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1030Targets&Countermeasures | 90943 | 125010 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&EArticlesQty | 4 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |

A. MissionDescriptionandBudgetItemJustification

StartinginFY2004,thisprojectwilltransitiontoPE0603888C,BallisticMissileDefenseTestandTargets.

TheTargetsandCountermeasuresprogramfundsthe design,prototyping,development,acquisition,certification,productimprovement,andqualificationtestingofasuiteoftargetsandpayloadstotestthecapabilityoftheBallisticMissileDefenseSystem(BMDS).Specifically,thisprogramprovidescapability-basedballisticmissilefulluptargetssystemstoinclude targetsub-systemssuch as boosters,payloads(re-entryvehicles,sensorpackages,countermeasures,andon-boardinstrumentation),and launchsupportsystemsinsupportoftheBMDSBlockstrategy.Newtargetandpayload development,riskreductionflights,sub-systemcharacterization,andtheacquisitionandmaintenanceoflongleadmaterialofmajortargetcomponentswillbeaccomplished.Thisprogramfundsthe developmentofkeytargetsystemsforuseinBMDS testing;allelements(e.g.,GroundBasedMidcourse,AEGISBallisticMissileDefense(BMD),THAAD,etc.)fundtheacquisitionanduseof targetsrequiredforBMDS testing.ThefollowingcurrentandnewdevelopmentsareplannedtomeetBlock2004testing:

- Continuesthe developmentofShortRangeAirLaunchTargets(SRALT) tosupportArrow,Patriot(PAC-3),andTheatreHighAltitudeAreaDefense(THAAD)
- ContinuesandcompletesdevelopmentofLongRangeAirLaunchTargets(LRALT)tosupportTHAADandArrow
- Continuesthe developmentofShortRangeLiquidFuelTargetBooster
- InitiatesthemodificationofaForeignMaterialAcquisition(FMA)targetlaunchedfromaMobileLaunchPlatformtosupportArrowandTHAAD.
- Initiatesthe developmentofmulti-modeMediumRangeTargetstosupportAegisBMDandTHAAD.
- Initiateandcompletes4totalpayloadssuitesforuseinCriticalMeasurementsandCountermeasures(CMCM)tests.

CentraltothedevelopmentandacquisitionofongoingandnewtargetssystemstosupporttheBMDSblocktestingscheduleistheutilizationofaprimecontractor.During4Q/FY2003,theTargetsandCountermeasuresDirectoratewillawardaprimecontractto acontractorwhowillberesponsiblefor,butnotlimitedto:1)providingsystemsengineeringacrossthetargetsportfolio,including managing andexecutingBlocktargetrequirements;2)developingfuturetargetboosterdevelopmentactivities;3)designinganddevelopingBMDSpayloadsandcountermeasures;4)developing advancedtargets;and,5)LongLeadMaterialandAssetManagement.

B. Accomplishments/PlannedProgram

| | FY2002 | FY2003 | FY2004 | FY2005 |
|-------------------------|--------|--------|--------|--------|
| PayloadDevelopment | 10590 | 23455 | | |
| RDT&EArticles(Quantity) | 2 | 2 | | |

Thiseffortcontinuesthe developmentofcapability-basedpayloads(re-entryvehicles,countermeasures,on-boardinstrumentation)toincludedesign,development,characterization,instrumentation, andtestingeffortsinsupportofAdvancedConceptsFlightTests(ACFT)andCriticalMeasurementsProgram(CMP) flighttests.These flighttestsrequirecapability-basedpayloadsto collectand assesscriticalphenomenologydatainordertodeveloprealisticpayloadsinfortargetsusedinBMDS flighttests.This effortalsodevelopsanextgenerationFlyAlongSensorPackage(FASP), whichwillprovidecriticalvisibleandinfrared imageryformissiledefense seekerperformanceriskreduction,algorithm evaluation,andtargetpayloadcharacterization.

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| MDAExhibitR -2ARDT&EProjectJustification | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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FY2002Accomplishments:

- RDT&ETestArticles:1CMP -4decoy;1payloadforACFT -1ainAprilFY2003;
- Completeddevelopmentof aforeigncooperativeprogrampayloadforAdvancedConceptsFlightTest1 -ainApril2003.
- ContinueddevelopmentoftwopayloadsforanACFT -1binApril2003.
- InitiateddevelopmentofFlyAlongSensorPackage(FASP).
- CompleteaCriticalMeasurementsProgram(CMP -4)decoy.

FY2003PlannedAccomplishments:

- RDT&ETestArticles:2payloadsforACFT -1binAprilFY2003
- BegindevelopmentofSLOpayloadsuite(RV,instrumentation,associatedobjects,payloadinterface)tosupportGround -basedMidcourse Defense(GMD)tosupportRCF -2,IFT -21and IFT-22.
- InitiatepayloadsuitedesignanddevelopmentforCMCMCampaign1a&1bttestsin3QFY2004.
- InitiatepayloaddesignanddevelopmentfortwoCMCM -2aand2bttestsin2QFY2005.
- CompletepayloaddevelopmentforanACFTinApril2003.
- ContinueddevelopmentoftheFASP.

| | FY2002 | FY2003 | FY2004 | FY2005 |
|-------------------------|--------|--------|--------|--------|
| TargetDevelopment | 49701 | 62270 | | |
| RDT&EArticles(Quantity) | 2 | 4 | | |

Thiseffortprovidesfor:1)ongoingtargetdevelopment;2)newtargetdevelopment effortsrequiredforfull -upBMDStestingacrosstheentirespectrumoftargetlaunchtrajectories;and,3) continueearlyconceptdevelopmentandprototypingofadvancedsystemsorsub -systemsforBMDStargets.Current,ongoingtargetdevelopmenteffortsfundedinthisareainclude:theShort RangeAirLaunchTarget(SRALT);theLongRangeAirLaunchTarget(LRALT);and,aShortRangeLiquidFuelTargetBooster(LFTB).NewtargetsystemsinitiatedinFY2002andplannedfor FY2003include:modificationofanFMAtargetlaunchedfromasea -basedMobileLaunchPlatformandthedevelopmentofamulti -modeMediumRangeTarget.Earlyconceptdevelopmentand prototypingeffortsincludeanEnhancedTargetDeliverySystem(ETDS)conceptdefinitionstudy, completedinFY2002.

FY2002Accomplishments:

- RDT&ETestArticles:2LanceFuelRefurbishmentProofofDesignTests
- ContinuedSRALT,LRALT,ShortRangeLFTBdevelopmentefforts/contracts.
- AwardedFMA/MobileLaunchPlatformcontract.
- CompletedETDSconceptdefinitionstudy.

FY2003PlannedAccomplishments:

- RDT&ETestArticles:2LRALTsforriskreductiontesting;2LancesforFMA/MissionLaunchPlatformproof -of-principletesting.
- Completetwoproof -of-principletests(launchtwoLancemissilesfromtheMobileLaunchPlatform)fortheFMA/MobileLaunchPlatformeffort.
- CompleteLRALTdevelopmentandriskreductionflighttesting.
- ContinueSRALTandShortRangeLFTBdevelopmentefforts/contracts.
- AwardaMediumRangeTarget contract.

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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| | | | | |
|-------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| AssetManagement | 13571 | 16180 | | |
| RDT&EArticles(Quantity) | | | | |

This effort continues a risk reduction initiative designed to ensure the availability of capability -based targets for BMDS flight tests. Additionally, this effort provides limited long -lead target modules that will be procured in economic quantities and stored for use in BMDS flight tests. The modules include components of capability -based RV's, inter -stages, and related hardware. Upon definition and approval of a BMD target requirement, the modules will be provided to a target integrator who will perform integration, flight readiness, and launch support. This effort also includes maintenance, aging surveillance, refurbishment, and routine testing of existing Government Furnished Equipment (GFE) boosters. GFE boosters include Minuteman, Peacekeeper, Lance, and Pershing assets.

| | | | | |
|-------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| Personnel/Support Costs | 5982 | 7826 | | |
| RDT&EArticles(Quantity) | | | | |

Provides for government personnel, project costs, and targets program management support.

| | | | | |
|-------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| Target Support | 11099 | 15279 | | |
| RDT&EArticles(Quantity) | | | | |

This effort funds the Targets and Countermeasures Acquisition Strategy prime contract to include core contract costs, such as program management, systems engineering, and incentive fee. It does not include target development costs which have been captured in the Target Development line. This effort also continues target and target -related engineering and technical assistance; Missile Defense Targets Joint Program Office (MDTJPO) core operations (routine facility maintenance, rent, office equipment); and mission support (range and flight test operations for targets) to all BMDS programs. Also, Federally Funded Research and Development Centers (FFRDC) are funded to assist the targets program by providing unique requirements, certification, and instrumentation analyses.

| | | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|-------------|------------|
| C. Other Program Funding Summary | | | | | | | | | | |
| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
| PE0603869C Meads Concepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603881C Ballistic Missile Defense Terminal Defense Segment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | |

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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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|---|---------|---------|---------|---------|---------|---------|---------|---------|--|--|
| PE0603883CBallisticMissileDefenseBoost DefenseSegment | 583463 | 718036 | 626264 | 653612 | 755163 | 665772 | 477109 | 354346 | | |
| PE0603884CBallisticMissileDefense Sensors | 312973 | 350436 | 438242 | 562752 | 706514 | 1043454 | 1152740 | 1261906 | | |
| PE0603886CBallisticMissileDefense SystemInterceptors | 0 | 0 | 301052 | 541178 | 1127180 | 1729613 | 2558327 | 2904096 | | |
| PE0603890CBallisticMissileDefense SystemEngineeringandIntegration | 0 | 0 | 483996 | 522458 | 604445 | 628594 | 703055 | 706501 | | |
| PE0603888CBallisticMissileDefenseTest andTargets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603889CBallisticMissileDefense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861CTheaterHigh -AltitudeArea DefenseSystem -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604867CNavyAreaTheaterMissile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603882CBallisticMissileDefense MidcourseDefenseSegment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |

D.AcquisitionStrategy

Project1030TargetsandCountermeasureswillfollowtheMissileDefenseAgency'scapability -basedacquisitionstrategythatemphasizestesting,spiraldevelopment,andevolutionaryacquisition throughtheuseof two-yearcapabilityblocks.Theprogramdevelopscapability -basedtargetsystemsutilizingbothexistingGFEandnewtargetsystems thatmeettargetspecificationsdetailedin BMDsystemandtechnicalrequirementsdocuments.Currentdevelopmentoftarget s(toincludeLRALT,SRALT,andashort -rangeLiquidFuelBooster),countermeasures,instrumentation,and characterizationareexecutedundercontractsattheMissileDefenseTargetsJointProgramOffice(MDTJPO),theUnitedStatesAirForceSpaceMissile Center(USAF/SMC),andtheMissile DefenseAgency(MDA).Beginningin4Q/FY2003,BMDStargetsystems willbedevelopedandacquiredutilizingatargetsprimecontractforallfuturetargetboosterdevelopmentactivities, BMDSDesignanddevelopmentofpayloadsandcountermeasures,andalladvancedtargetdevelopment.Theprimecontractorwillalsoprovidesystemslevelmanagementandperformsystems engineeringacrosstheportfolioofBMDStargets.Thegovernmentwillmaintainsystemresponsibilityand willensuresuccessfulmanagementofBMDStargetsexecution.Current,ongoingtarget developmentcontractswilleitherbecompletedunderthecurrentcontractstructure,orwillbetransitionedtotheprimecontractor,dependingonthestatusofthecontractandmaturityofthetarget systembeingdeveloped.

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| MDA Exhibit R - 3RDT & E Project Cost Analysis | | | | | | | | | | Date February 2003 | | |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | | | | | R-INOMENCLATURE 0603880C Ballistic Missile Defense System Segment | | | | | | | |
| I. Product Development Cost (\$ in Thousands) | | | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Target Development | | | | | | | | | | | | |
| Short Rng Air Launch Target | C/CPFF | Orbital Sciences Corp/Chandler, AZ | 4800 | 17408 | | | | | | | 22208 | |
| Long Range Air Launch Target | C/CPIF | Coleman Aerospace Corp/Orlando, FL | 18554 | 4907 | | | | | | | 23461 | |
| Short Rng Liquid Fuel Booster | C/CPFF | TRW/Orbital Sciences Corp/CA/AZ | 12500 | 15600 | | | | | | | 28100 | TBD |
| FMA/Mobile Launch Platform | C | Lockheed Martin/Huntsville, AL | 6815 | 2576 | 1Q | | | | | | 9391 | |
| Medium Range Target | C | TBD | 0 | 15800 | 2Q | | | | | | 15800 | |
| Advanced Development | C/Various | TBD | 3519 | 3056 | | | | | | | 6575 | |
| Payload Development | | | | | | | | | | | | |
| Fly Along Sensor Package | C/FFRDC | MIT/LL/Boston, MA | 3800 | 7105 | | | | | | | 10905 | |
| CM Design, Develop, Character | C/Various | Various | 3349 | 8350 | 1/4Q | | | | | | 11699 | |
| HARDFAC | C/FFRDC | AFRL/Albuquerque, NM | 3441 | 4000 | | | | | | | 7441 | |
| SLO | C/FFRDC | SNL/Albuquerque, NM | 0 | 4000 | 1/4Q | | | | | | 4000 | |
| Subtotal Product Development | | | 56778 | 82802 | | 0 | | 0 | | | 139580 | |
| Remarks | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| II. Support Costs Cost (\$ in Thousands) | | | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Target Support | | | | | | | | | | | | |
| MDTJPO Support | C/Various | Various/Huntsville, AL | 5825 | 6413 | | | | | | | 12238 | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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|----------------------|-----------|-------------------------|------|-------|--|---|--|---|--|--|-------|--|
| SMCSupport | C/Various | Various/Kirtland AFB,NM | 0 | 300 | | | | | | | 300 | |
| PrimeContract | C/Other | TBD | 0 | 5009 | | | | | | | 5009 | |
| SystemsEngineering | C/Other | JHU/APL/Laurel, MD | 1613 | 1285 | | | | | | | 2898 | |
| SubtotalSupportCosts | | | 7438 | 13007 | | 0 | | 0 | | | 20445 | |

Remarks

III.TestandEvaluationCost(\$inThousands)

| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
|---------------------------|-----------------------|-------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| AssetManagement | | | | | | | | | | | | |
| Short/MedRangeTargets | Various | Various | 0 | 2725 | 1Q | | | | | | 2725 | |
| VariousBoosterManagement | Various | various | 13571 | 13455 | | | | | | | 27026 | |
| SubtotalTestandEvaluation | | | 13571 | 16180 | | 0 | | 0 | | | 29751 | |

Remarks

IV.ManagementServicesCost(\$inThousands)

| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
|-------------------------------|-----------------------|-----------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| Personnel/SupportCosts | | | | | | | | | | | | |
| MDTJPOGovtProjPer& Suppt | Other | GovtAgency - MDTJPO/Huntsville,AL | 2671 | 4630 | | | | | | | 7301 | |
| TargetsMgtSupport | C/Various | Various/Washington,DC | 3111 | 3026 | | | | | | | 6137 | |
| Core&Mission | C/Various | Various | 3661 | 2272 | | | | | | | 5933 | |
| GovernmentTravel | C/Various | various | 200 | 170 | | | | | | | 370 | |
| ProgramMgt | C/Various | GovAgency/Alb, NM | 1900 | 638 | | | | | | | 2538 | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | | | | | Date February2003 | |
| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | |
| VariousSupport | C/Various | Various/TBD | 1613 | 2285 | | | | | | 3898 | |
| SubtotalManagementServices | | | 13156 | 13021 | | 0 | | 0 | | 26177 | |
| Remarks | | | | | | | | | | | |
| | | | | | | | | | | | |
| ProjectTotalCost | | | 90943 | 125010 | | 0 | | 0 | | 215953 | |
| Remarks | | | | | | | | | | | |
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| MDAExhibitR -4ScheduleProfile | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| FiscalYear | 2002 | | | | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | | | | | |
|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|--|--|--|--|
| | 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 | 1 | 2 | 3 | 4 | | | | |
| TestingMilestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanceRRFfromMobileLaunchPlatform | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LiquidFuelBooster-StaticTests | | | | | | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| LongRangeAirLaunchTarget-Demo Mission | | | | | | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| LongRangeAirLaunchTarget-STV Drop | | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Studies&Analyses | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EnhancedTargetDeliverySystem-Study | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ProductionMilestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EnhancedTargetDeliverySystem-Contract/Devel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EnhancedTargetDeliverySystem-Phase 1Awards | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FMAMobileLaunchPlat-Contract/Develop | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LiquidFuelBooster-ContractAward | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LongRangeAirLaunchTarget-Contract Award | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MediumRangeTarget Payloads/Countermeasures Characterization | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Payloads/CountermeasuresDesign | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| MDAExhibitR -4AScheduleDetail | | | | | | Date February2003 | | |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | |
| ScheduleProfile | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
| TestingMilestones | | | | | | | | |
| LanceRRFfromMobileLaunchPlatform | | 1Q | | | | | | |
| LiquidFuelBooster -StaticTests | | 4Q | | | | | | |
| LongRangeAirLaunchTarget -DemoMission | | 4Q | | | | | | |
| LongRangeAirLaunc hTarget -STVDrop | | 1Q | | | | | | |
| Studies&Analyses | | | | | | | | |
| EnhancedTargetDeliverySystem -Study | 2Q | | | | | | | |
| ProductionMilestones | | | | | | | | |
| EnhancedTargetDeliverySystem -Contract/Devel | | 1Q-4Q | | | | | | |
| EnhancedTargetDeliverySystem -Phase1Aw ards | 1Q | | | | | | | |
| FMAMobileLaunchPlat -Contract/Develop | 4Q | 1Q-4Q | | | | | | |
| LiquidFuelBooster -ContractAward | 2Q | | | | | | | |
| LongRangeAirLaunchTarget -ContractAward | 1Q | | | | | | | |
| MediumRangeTarget | 4Q | 1Q-4Q | | | | | | |
| Payloads/CountermeasuresC haracterization | 4Q | 1Q-4Q | | | | | | |
| Payloads/CountermeasuresDesign | 2Q-4Q | 1Q-4Q | | | | | | |
| Payloads/CountermeasuresDevelopment | 2Q-4Q | 1Q-4Q | | | | | | |
| ShortRangeAirLaunchTarget -ContractAward | 1Q | | | | | | | |
| Decisions | | | | | | | | |
| AwardTargetsPrimeAcqStra tegyContract | | 4Q | | | | | | |
| DevelopTargetsPrimeAcqStrategyRFP | 4Q | 1Q | | | | | | |

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and P rototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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| COST (\$ in Thousands) | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| 1050 Systems Engineering & Integration | 221857 | 368977 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 5 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |

A. Mission Description and Budget Item Justification

Starting in FY2004 this Project is PE0603889C (BMD Products), all Projects, and PE0603890C (BMD System Core), all Projects.

The missile defense program has transitioned from a focus on individual Element programs to the development of a single, integrated, layered Ballistic Missile Defense System (BMDS). This requires an engineering program that integrates the development of individual components and Element systems across all phases of the threat ballistic missile's flight to provide a capability for multiple engagements along the entire flight path. The MDA System Engineering and Integration (SE&I) mission is to define, manage, and integrate all engineering development for the BMDS. SE&I activities provide the technical expertise, tools, and facilities to develop the BMDS. These activities include the System Engineering and Architecture (SE&A), Threat Systems Engineering (TSE), Advanced Systems, Intelligence System Threat, Joint Warfighter Support, Joint National Integration Center, Cooperative Programs and Allied Support, and BMD Information Management efforts.

SYSTEM ENGINEERING AND ARCHITECTURE/THREATS SYSTEMS ENGINEERING:

System Engineering and Architecture (SE&A) is the core technical effort to define, design, and verify the capability of the BMDS, and to enhance these capabilities over time through blockupgrades. SE&A develops a set of time-phased technical goals and objectives to guide the design and development of evolutionary capabilities for the BMDS. These goals and objectives are listed and described in the BMDS Technical Objectives and Goals (TOG) document. The design and development of an integrated, layered BMDS is a complex engineering task requiring the collaboration of the best and most experienced people from Industry and Government. The SE&A activity achieves this collaboration through the use of a Missile Defense National Team System Engineering (MDNTS). Engineering products developed through this team concept are baselined and controlled via a BMDS Configuration Control Board (CCB). The MDNTS prepares the System Evolutionary Plan (SEP) to describe the content of the BMDS development program based on the guidance in the TOG. The program content described in the SEP defines the time-phased capability of the BMDS. The MDNTS then prepares the System Capability Specification (SCS) to allocate these capabilities to component and Element programs for development. The SCS defines the technical baseline for the BMDS development program and provides technical direction to developers. The design and capability of the BMDS is verified by tests and evaluations using models and the BMDS Test Bed. SE&A prepares the Government Verification Management Plan (GVMP), and the MDNTS develops the verification requirements, which are incorporated into the SCS. Force-on-force and detailed analyses are conducted in accordance with the GVMP to establish expected capabilities and to assess system effectiveness against Technical Performance Measures developed by the MDNTS. These assessments also enable the MDNTS to track the technical progress and performance of the BMDS and to support the SE&A Risk Management Program (RMP). The RMP identifies and assesses system risks based on the priorities in the TOG and maintains a plan to mitigate those risks. SE&A conducts engineering analysis in key focus areas such as Lethality, Kill Assessment, Phenomenology, and Countermeasures/Counter-Countermeasures. These analyses are fed back into the systems engineering process to support evolutionary blockupgrades to the BMDS. Threat Systems Engineering (TSE) develops and maintains detailed characterizations of the threat to support BMDS design, development, and verification activities. TSE conducts engineering analyses to define technologically feasible threats and develops the Adversary Capability Document (ACD) that parametrically describes threat capabilities. The ACD guides BMDS design and development and supports the evaluation of BMDS robustness to unexpected variations in the threat. TSE conducts modeling and simulation of the ACD data to produce benchmark scenarios that illustrate the performance of threat systems in order to support analyses of the BMDS. TSE also identifies potential countermeasures and determines their technical feasibility to support engineering analyses and risk assessment of the BMDS. These countermeasure products are also essential for other BMD focused efforts such as Project Hercules, the Targets and Countermeasures Program, and the Countermeasures/Counter-Countermeasures Program. The MDA Countermeasures/Counter-Countermeasures program operates two adversary teams, each with a different threat perspective, to generate countermeasures to BMDS capabilities: a Red Team that is restricted to using only information on the BMDS available from open sources, and a Black Team that has complete access to all technical data on the BMDS in order to identify potential system vulnerabilities and technical concerns. A White Team, comprised of senior technical experts, reviews the adversary teams' concepts and provides MDA with an independent assessment of their feasibility and risk to the BMDS. The program's Blue Team develops capability improvements, also reviewed by the White Team, to counter the impact of high-risk vulnerabilities. The program funds initiatives to develop the Blue Team counter-countermeasures and demonstrate their readiness for insertion into the BMDS. The program budget supports two cycles per year of countermeasure generation and development of counter-countermeasure responses.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and P rototypes (ACD & P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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ADVANCED SYSTEMS:

The Advanced Systems Deputate (AS) leads a national effort to assess and pursue innovative concepts and develop algorithms to improve BMD capability. The Advanced Systems Innovative Concepts (ASIC) process evaluates all internally and externally generated advanced concepts to prove their viability and maintain cognizance over leading edge concepts that could contribute to evolutionary and revolutionary BMD capability enhancements. AS also leads the BMD Small Business & Innovative Research (SBIR) evaluation process. The Advanced Systems (AS) Deputate Project Hercules is charged with establishing a national effort to develop robust adaptive algorithms to counter off -nominal and evolving missile threats. Project Hercules is developing a decision architecture; the application of advanced decision theory to future BMD command, control and battle management concepts. Project Hercules provides ongoing algorithm development in response to BMD elements identifying critical algorithm needs in both the near and far terms. Project Hercules products will be provided to the Elements for insertion into their respective programs. In effect, Project Hercules will make capable sensors smarter by bringing algorithm development to the same level as that for developing hardware. Project Hercules utilizes an integrated corporate MDA effort approach to solving the algorithm needs of the Elements. Project Hercules brings together national experts from government organizations and private corporations to solve complicated decision and discrimination algorithm requirements.

INTELLIGENCE:

The Intelligence Directorate's primary mission is to serve as the principal advisor to the MDA Director and staff on all intelligence matters. Functional areas include current intelligence, intel assessments, scenarios, wargaming, asymmetric threat, and foreign material acquisition/exploitation. To accomplish this mission, a current and projected intelligence program, which is based on intelligence community projections, that is traceable to quantifiable analysis. This program defines and documents potential adversary military systems and forces, principally the theater and strategic missiles, which BMD systems could confront. This program produces intelligence community -validated threat descriptions and associated capstone threat and countermeasure information as well as Intel-based threat scenarios. As the ACD benchmark scenario threats produced by TSE are finalized, IN will also develop capabilities -based strategic and theater conflicts scenarios (STCS) by integrating ACD threat systems into the context of STCS. The ACD benchmark "scenarios" are more accurately described as system -level threat descriptions and 3DoF models, with the intent of allowing the ACD user to select their own launch and aim points. By inserting these conceptual threats within a STCS, the user has access to scripted scenario conflict with all the road -to-ward data appropriate for a BMD wargame or exercise.

JOINT WARFIGHTERS SUPPORT:

The Joint Warfighter Support program ensures that warfighter operational perspectives and concerns are reflected in the development of Ballistic Missile Defense (BMD) capabilities. The Deputy for Force Structure Integration and Deployment (TR) works with the Combatant Commanders, Services and Joint Staff through seminars, wargames, and exercises to achieve this goal. Through interaction, areas of improvement in BMD capability are identified for action. This project also supports planning for initial defensive operations capabilities, integration of SPACECOM/NORTHCOM in required wargames, tabletops, experiments, and System Integrated Tests and Hardware in the Loop Tests required for enhanced use of JNIC in support of operational concept development.

JOINT NATIONAL INTEGRATION CENTER:

The Joint National Integration Center (JNIC) operates as the field -operating agency of MDA and maintains a world -class research, development, test and evaluation and rapid prototyping center. The center consists of a highly secure consolidated research and development building and a support building totaling almost a million square feet. It provides MDA with a high performance computing capability with a world wide secure communications connectivity throughout the missile defense knowledge and extensive experience. The JNIC is a premier modeling and simulation and software development center for missile defense.

COOPERATIVE PROGRAMS AND ALLIED SUPPORT:

Cooperative Programs and Allied Support (CF) are responsible for directing the development and execution of MDA international acquisition programs. These efforts include programs, projects and activities with U.S. industry, allied governments and foreign industry. Cooperative Programs and Allied Support manages and directs international acquisition plans and programs. Additionally activities include conceptualization of new programmatic initiatives and development and execution of the Multinational BMD Conference.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and P rototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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INFORMATION MANAGEMENT SYSTEM:

Information Management System is responsible for the development, implementation, and operation of the BMD Information Management System, which includes decision support and collaboration tools, for both mission and business areas of the BMD Enterprise.

B. Accomplishments/Planned Program

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| SE&A/TSE | 72013 | 187403 | | |
| RDT&E Articles (Quantity) | | | | |

Beginning in FY2004, the System Engineering efforts will reside in the new Ballistic Missile Defense SE&I Program Element (0603887C).

SE&A/TSE conducts architecture and system trade studies; investment analysis studies; special studies on system, element and component capabilities and performance; adversary capabilities parametric analyses; and performs collaborative design analyses. Engineering requirements and support for verification activities in the BMDS Test Bed are provided. SE&A/TSE conducts annual exchanges between the CM/CCM Program's adversary and BMDS teams to assess and improve BMDS performance against countermeasures. The MDACM/CCM Program consolidates similar efforts being conducted by the Element Programs and associated funding into a single SE&A activity. SE&A/TSE executes a Corporate Lethality Program to support effective intercepts and establish collateral effects.

BLOCK 2004:

FY2002

- Delivered the Technical Objectives and Goals (TOG) that lists a set of time-phased technical goals and objectives to guide the design and development of evolutionary capabilities for the BMDS.
- Delivered the Adversary Capability Document (ACD) that parametrically describes threat capabilities.
- Reviewed and approved Block program definition
- Delivered initial Black Team countermeasure concept
- Delivered Blue Team countermeasure concept to initial Black Team countermeasure

FY2003

- Produce the System Evolution Plan (SEP) that describes the content of the BMDS development program.
- Produce the Block System Capability Specification (SCS) that describes the BMDS in terms of functions and performance-based capabilities, show the allocation of those capabilities to the Elements in the BMDS, and identify the method of verification for capabilities at the system level.
- Produce the Block Element/Component Capability Specification (ECS/CCS) that describes a BMDS element in terms of functions and performance-based capabilities that are allocated in, and are traced directly to the SCS. The ECS allocates these characteristics to major subsystems of the element with the result being a complete description of the element.
- Deliver the Block Interface Control Specifications (ICS) that describes BMDS interfaces and contains the requirements to establish and maintain the compatibility between interfacing systems or components.
- Deliver the Block System Integration Strategy (SIS) that guides the system integration and testing of the BMDS and its Elements. The purpose of the BMDS SIS is to determine the optimum BMDS functionality and operability and to optimize testing of the synthesized architecture (both BMDS and non-BMDS elements that may require modification to meet BMDS requirements).
- Deliver Red Team countermeasure conceptual design
- Deliver Black Team countermeasure conceptual design
- Deliver Blue Team countermeasure plan against Red and Black Team countermeasures

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and P rototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment | |
| <p>BLOCK2006: FY2002 -Conducted initial review providing insight to Block architecture -Developed initial specifications for potential Forward Based Radar FY2003 -Deliver Block SCS -Deliver Block ECS/CCS -Deliver Block ICS -Finalize specifications for Forward Based Radar -Review multiple candidates for Block architecture -Compete alternatives for BMDS Block architecture -Review and approve Block program definition -Update the TOG -Update the ACD -Update the SEP -Deliver Red Team countermeasure conceptual design -Deliver Black Team countermeasure conceptual design -Deliver Blue Team counter -countermeasure plan against Red and Black Team countermeasures</p> <p>BLOCK2008: FY2002 -Developed Concept for Kinetic Energy (KE) Boost Capability FY2003 -Complete conceptual design for Block and BMDS elements -Develop specifications for KE Boost Interceptor -Update the TOG -Update the ACD -Update the SEP</p> <p>BLOCK2008+: FY2003 -Update the TOG -Update the ACD -Update the SEP</p> | | |

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| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| Advanced Systems | 53990 | 84597 | | |
| RDT&E Articles (Quantity) | 5 | 10 | | |

PROJECT HERCULES:

Beginning in FY2004, funding for the Hercules Project will reside in the new BMDSPRODUCTS Program Element (0603889C), Project 1010 (BMC2).

- Developed a prototype decision architecture; the application of advanced decision theory to future BMDSCOMM, control & battle management concepts.
- Initiated development of a BMDSFusionToolbox for real-time fusion of distributed sensors. Initial demonstration of this toolbox will be in December of 2002
- Completed development and testing of five advanced midcourse algorithms
- Continued development of an additional 40 decision and discrimination algorithms to enhance BMDSEffectiveness
- Developed radar and optical clutter mitigation architecture
- Planned flight experiments for evaluating the clutter mitigation architecture and validation of clutter models

Project Hercules Block 2004 -2006: The initial focus of Project Hercules has been midcourse discrimination for the Ground Based Midcourse Element. In FY2002, Project Hercules expanded its scope to include all phases of missile flight and the decision architecture. In FY2003, Project Hercules will continue the spiral development and testing of these key capabilities leading to maturation and integration into the BMDS. Activities include models, delivery and testing of Discrimination Algorithm (DA) prototypes, BMDSFusionToolbox demonstration, BMDSMODEL support, post-flight-test data analysis in support of IFTs, the continuation of planning flight experiments for evaluating the clutter mitigation architecture, and validation of clutter models.

ADVANCED SYSTEMS INNOVATION CELL (ASIC):

Beginning in FY2004, funding for the ASIC effort will reside in the BMD Technology Program Element (0603175C), Project 6010, Advanced Technology.

- Processed over 150 innovative concepts and proposals in a formal scientific, and engineering, peer review process; prepared briefings, and presented decision briefings to MDA senior leadership.
- 7 innovative concepts selected for further investigation and were put forth as POM initiatives.
- Currently funded 2 proposals with FY2002 AS funding.
- Provided a forum for unique unsolicited proposals from concerned Citizens to make a contribution to missile defense.

The ASIC evaluates all internally and externally generated advanced concepts to prove their viability and maintains cognizance over leading edge concepts that could contribute to evolutionary and revolutionary BMD capability enhancements. It is the ASIC team's goal to release an annual Broad Agency Announcement each October and to have each concept the Agency receives reviewed within sixty days.

SMALL BUSINESS & INNOVATIVE RESEARCH (SBIR) EVALUATION:

Beginning in FY2004, funding for SBIR evaluation effort will reside in the BMD Technology Program Element (0603175C), Project 6010, Advanced Technology.

- Established formal Tri -service review group
- Offered 21 new SBIR solicitation topics
- Evaluated over 3000 SBIR proposals
- Recommended 28 proposals for Phase I contract
- Recommended 5 Phase I contracts for Phase II contract
- Leveraged BAA topics and Project Hercules into the current SBIR solicitation

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The SBIR Evaluation team leads the development of SBIR/STTR topics, the evaluation, assessment, and recommendation of SBIR/STTR proposals, and monitors SBIR/STTR contracts and the integration of their products into MDA and MDA/AS programs and thrusts.

| | FY2002 | FY2003 | FY2004 | FY2005 |
|-----------------------------|--------|--------|--------|--------|
| Intelligence Systems Threat | 12149 | 12292 | | |
| RDT&E Articles (Quantity) | | | | |

Beginning in FY2004, funding for the Intelligence Systems Threat effort will reside in the Ballistic Missile Defense SE&I Program Element (0603887C).

Serve as MDA's liaison to the intelligence community and provide current and projected intelligence information to support all MDA activities. Produce the BMD Threat Assessment, specialty threats, targets analyses intel -based and capabilities -based threat scenarios, and provide management and planning support. MDA/IN supports missile defense developers with a foundation of DIA validated ballistic missile threat data. The foundation consists of: databases, missile system studies, and level 1 (engagement), level 2 (lethality), and level 3 (test target design) missile system studies. Asexamples:

- Database include
- Characteristics
 - Performance
 - IOC&servicelife
 - Payloads
 - Countermeasures
 - Forcelevels
 - Proliferation
 - Radarandinfraredsignatures

SCENARIOS

- 2002 Accomplishments:
- GMDBlock2006threatsuites
 - GMDBlock2008threatsuites
 - ACDIntel -BasedThreatData
 - ACDConceptualSystems3,4,10
 - MDSEBuild3.4ThreatTrajectories
 - MDExthreatsupport
 - GMDSim02Athreatsupport
 - BPEx02 -1threatsupport

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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandP rototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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- BPEX02 -2threatsupport
- HWILT02athreatsupport
- HWILT02bthreatsupport
- BMDSWargamethreatsupport

2003Planned:

- ACDConceptualThreatSystems,Intel -BasedSystems
- MiddleEastCrisisScenario(MECS)2006
- MDExthreatsupport
- BPEX02 -3threatsupport
- IntegratedMissileDefenseExperiment(IMD)Ithreatscenario
- GMDSim02Athreatsup port
- HWILTthreatsupport
- TestBed -threatspeccs

| | FY2002 | FY2003 | FY2004 | FY2005 |
|-------------------------|--------|--------|--------|--------|
| JointWarfighterSupport | 18264 | 15980 | | |
| RDT&EArticles(Quantity) | | | | |

BeginninginFY2004,fundingforthiseffortwillresideintheBMDSProductsProgra mElement(0603889C),Project1010,C2BC.

FY2002Accomplishments:

ProvidedBMDexpertisetothCombatantCommanders,bringingjoint/combined/coalitionlessonslearnedtothedeveloper,coordinatedblockcontingencydeploymentplans,engagedCombatantCommandersinCommandandControldevelopment,facilitatedintra/intertheaterCONOPSdevelopments,facilitatedprogramtransitiontoservices,maintainedinteractionwiththetransitioned programs,andsupportedCommandersinChiefBMDexercises,wargames, andtabletops.

Block2004:

- DeveloppreliminaryIMDCONOPSfortheBMDS.
- DevelopTTPandROEtointegrateBMDSelementsintoOperationalCommunity.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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- Develop and coordinate deployment of BMDS initial defensive operations.
- Interface and coordinate BMDS issues with Services, Joint Staff and Allied Forces.
- Explore emerging BMDS and BMC2 concepts/options through studies, seminars, SWARFS, workshops, tabletops, wargames and exercises using the JNIC as the hub.
- Manage Board of Directors process to support Service integration and transition.
- Construct BMDS curriculum to build knowledge base with Combatant Commanders senior warfighters.

| | FY2002 | FY2003 | FY2004 | FY2005 |
|-----------------------------------|--------|--------|--------|--------|
| Joint National Integration Center | 47423 | 46900 | | |
| RDT&E Articles (Quantity) | | | | |

Beginning in FY2004, funding for this effort will reside in the BMDS Products Program Element (0603889C), Project 1010, BM/C2.

The FY2002 funding provided a core capability, operational support, limited modernization of infrastructure, and personnel. The core capability provided a limited corporate knowledge base comprised of leading technical experts with the capability to respond quickly to customer requirements in the areas of Integrated Missile Defense Analysis, Exercise Support, the Multi-Mission Integration Cell, Wargames, and the Missile Defense Wargame and Analysis Resource (MDWAR). The Operational support provided a secure facility and infrastructure encompassing computers, communications, networks, environmental support, Test Bed environments and other capabilities essential for the execution of MDA programs and activities. Limited modernization provided for minor infrastructure upgrades and limited upgrades to selected information technology capabilities throughout the JNIC. Planned modernization was deferred to support growing missions resulting in a degradation of infrastructure and information management systems support. The personnel and support category provided a well-trained, highly qualified, government and civilian presence to ensure execution of the JNIC mission in support of the MDA. The FY2003 funding levels will allow the JNIC to continue maintaining these programs at the level of FY2002 and again with limited modernization.

| | FY2002 | FY2003 | FY2004 | FY2005 |
|--|--------|--------|--------|--------|
| Cooperative Program and Allied Support | 937 | 1399 | | |
| RDT&E Articles (Quantity) | | | | |

Provide the forum to introduce countries and international organizations to the value-added of missile defense in cooperative programs and capabilities by providing protection to their selected critical assets as well as potentially providing support to the international community. These efforts included development and evaluation of non-U.S. operational concepts created in conjunction with supported countries as well as evaluation of systems and architecture performance. Efforts include but are not limited to bilateral, unilateral and multi-lateral examinations of U.S. and foreign assets in extended air defense scenarios. Provide the basis for developing potential foreign military sales opportunities.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and P rototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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|-------------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| Information Management System | 17081 | 20406 | | |
| RDT&E Articles (Quantity) | | | | |

Beginning in FY2004, funding for this effort will reside in the new Ballistic Missile Defense SE&I Program Element (0603887C), Project 1080, BMD Information Management Systems.

Develop, implement, and operate the MDA Information Management System. Includes decision support and collaboration tools for both mission and business areas of the MDA enterprise.

In FY2002, accomplishments included the following: Developed WIN2000 enterprise implementation strategy; Designed WIN2000 enterprise; Upgraded Virtual Data Center (VDC) circuits and host server to accommodate associative neuro -networking technology; Began the establishment of a Single BMD Web portal; Made Corporate Board process online; Awarded contract extension to expand BMD Information Resource Center (BIRC) to improve Automated Information Systems, begin scanning documents and linking to card catalog database, link library system to BMDONet web portal for remote access; Selected Portal S/W for integrated BMDData Centers card catalog; Began Information Management/Knowledge Management (IM/KM) System Planning; Established Groupware HW/SWR requirements; Developed Web Portal Version 2.0; Began the expansion of Data Center's integrated card catalog to link N WAS.

In FY2003, efforts will include, but will not be limited to the following: Complete WAN modernization and compliance with DoD guidance; Transfer BMDO network circuit to service approved networks; Consolidate VDC network and BMDONet maintenance; Design WEB Exchange with remote access capability; Develop BMD WAN architecture for enterprise applications; Implement WIN2000 enterprise; Implement classified remote access capability (VPN); Complete the upgrade of VDC circuits and server to accommodate associative neuro -networking technology; Complete establishment of Single BMD Web portal; Establish Bulk Email Process; Negotiate with N WAS to link the eir database card catalog to Data Centers Program; Develop Enterprise IM/ITS System Strategy; Upgrade Oracle 8i to Facilitate Web Integration; Update infrastructure for transparent/selective access, BMDO Internal Net, BMD Extranet, and Merge Internal/External nets.

C. Other Program Funding Summary

| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
|--|---------|---------|---------|---------|---------|---------|---------|---------|-------------|------------|
| PE0603175C Ballistic Missile Defense Technology | 145021 | 151130 | 240820 | 205791 | 200956 | 247990 | 287864 | 306472 | | |
| PE0603869C Meads Concepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603879C Advanced Concepts, Evaluations and Systems | 0 | 0 | 151696 | 216778 | 166308 | 193949 | 241947 | 234484 | | |
| PE0603881C Ballistic Missile Defense Terminal Defense Segment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | |
| PE0603882C Ballistic Missile Defense Midcourse Defense Segment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |
| PE0603883C Ballistic Missile Defense Boost Defense Segment | 583463 | 718036 | 626264 | 653612 | 755163 | 665772 | 477109 | 354346 | | |
| PE0603884C Ballistic Missile Defense Sensors | 312973 | 350436 | 438242 | 562752 | 706514 | 1043454 | 1152740 | 1261906 | | |

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and P rototypes (ACD & P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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|---|--------|--------|--------|--------|---------|---------|---------|---------|--|--|
| PE0603886C Ballistic Missile Defense System Interceptors | 0 | 0 | 301052 | 541178 | 1127180 | 1729613 | 2558327 | 2904096 | | |
| PE0603890C Ballistic Missile Defense System Engineering and Integration | 0 | 0 | 483996 | 522458 | 604445 | 628594 | 703055 | 706501 | | |
| PE0603888C Ballistic Missile Defense Test and Targets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603889C Ballistic Missile Defense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861C Theater High -Altitude Area Defense System -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604867C Navy Area Theater Missile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0605502C Small Business Innovative Research -MDA | 145102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0901585C Pentagon Reservation | 6381 | 7432 | 14481 | 13384 | 12758 | 12850 | 13158 | 13476 | | |
| PE0901598C Management Headquarters - MDA | 30191 | 25365 | 93441 | 101373 | 114107 | 121743 | 128972 | 133499 | | |

D. Acquisition Strategy

SE&I will implement the MDA's capability -based acquisition strategy that emphasizes testing, spiral development, & evolutionary acquisition through the use of two -year capability blocks.

To bring about the transition to a BMDS, MDA has created the Missile Defense National Team System Engineering and Integration (MDNTS) and the Missile Defense National Team Battle Management/Command and Control (MDNTB). The MDNTS is composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), System Engineering and Technical Assistance (SETA), and industry contractors. The strategy is for the Missile Defense National Team System Engineering & Integration (MDNTS) to ensure successful development of the BMDS through system definition & analyses, capability allocation, block integration, and verification. The execution of detailed systems engineering and integration is a collaborative effort that is achieved via integrated product teams comprised of individuals from each component of the MDNTS.

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| MDAExhibitR -3RDT&EProjectCostAnalysis | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| I.ProductDevelopmentCost(\$inThousands) | | | | | | | | | | | | |
|--|-----------------------|---------------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| AdvancedSystems | | | | | | | | | | | | |
| AdvancedSystems | Various | LMMC/Sparta/SM DC/Boeing/JHU/AP L/ONR | 30506 | 49501 | 1Q | | | | | CONT. | 80007 | |
| SubtotalProductDevelopment | | | 30506 | 49501 | | 0 | | 0 | | | 80007 | |

Remarks

| II.SupportCostsCost(\$inThousands) | | | | | | | | | | | | |
|---|-----------------------|-------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| SE&A/TSE | | | | | | | | | | | | |
| MDNTS(I) | CPAF | Boeing/VA | 11757 | 113318 | 1/2Q | | | | | CONT. | 125075 | |
| CorporateLethalityPrgm | Various | Various | 7600 | 6700 | 1/3Q | | | | | CONT. | 14300 | |
| CM/CCM | Various | Various | 1600 | | 1/3Q | | | | | CONT. | 1600 | |
| SETASupport | CPFF | Sparta/VA | 6485 | 20200 | 2Q | | | | | CONT. | 26685 | |
| SETASupport | CPFF | CSC/VA | 5792 | 13885 | 2Q | | | | | CONT. | 19677 | |
| SETASupport | Various | VRI/VA | 1515 | 800 | 1Q | | | | | CONT. | 2315 | |
| SETASupport | CPFF | SAIC/VA | | 200 | 1Q | | | | | | 200 | |
| AdvancedSystems | | | | | | | | | | | | |
| AdvancedSystems | Various | Various | 20000 | 25000 | 1Q | | | | | | 45000 | |
| IntelligenceSystemsThreat | | | | | | | | | | | | |
| ArmyIntelSupport | MIPR | NGIC,SMDC | 1788 | 2823 | 2Q | | | | | | 4611 | |
| AirForceIntelSupport | Other | NAIC | 870 | 885 | 2Q | | | | | | 1755 | |
| ProgramSupport | Other | SMDC/AL | 4380 | 3199 | 2Q | | | | | | 7579 | |
| AppSupport | Other | SPC/CO | 2580 | 2867 | 2Q | | | | | | 5447 | |
| ScenarioPro | Other | MDA/VA | 2231 | 2118 | 2Q | | | | | | 4349 | |
| WargamingSupport | Other | SPC/CO | 300 | 400 | 2/4Q | | | | | | 700 | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | | | | | Date February2003 | | |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | | |
| InformationManag ement System | | | | | | | | | | | | |
| EnterpriseInfoMgt | MIPR | AMSC/AL | 1851 | 2664 | 2Q | | | | | | | 4515 |
| EnterpriseInfoMgt | MIPR | MDDC/AL | 3920 | 4306 | 2Q | | | | | | | 8226 |
| EnterpriseInfoMgt | MIPR | JNIC/CO | 878 | 2071 | 2Q | | | | | | | 2949 |
| EnterpriseInfoMgt | BPA | FEDSIM/VA | 3260 | 1570 | 2Q | | | | | | | 4830 |
| EnterpriseInfoMgt | CPFF | DRC/VA | 1239 | 1579 | 2Q | | | | | | | 2818 |
| EnterpriseArchitecture&Eng | BPA | SRA/VA | | 4303 | 2Q | | | | | | | 4303 |
| EnterpriseArchitecture&Eng | MIPR | DISA/VA | 782 | 800 | 2Q | | | | | | | 1582 |
| EnterpriseInfoMgt | Various | Various | 2128 | 618 | 2Q | | | | | | | 2746 |
| EnterpriseArchitecture&Eng | Various | Various | 426 | | | | | | | | | 426 |
| JointNationalIntegration Center | | | | | | | | | | | | |
| JNIC | Other | 50SpaceWing/CO | | 906 | 1Q | | | | | | | 906 |
| SubtotalSupportCosts | | | 81382 | 211212 | | 0 | | 0 | | | | 292594 |
| Remarks | | | | | | | | | | | | |
| III.TestandEvaluationCost(\$inThou sands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| JointWarfi ghterSupport | | | | | | | | | | | | |
| CombatantCommanders Experim | Other | TheatreCombatant Commanders | 15175 | 13980 | 2/4Q | | | | | CONT. | 29155 | |
| JointNationalIntegration Center | | | | | | | | | | | | |
| JNIC | C/CPAF | Northrop Grumman/CO | 36261 | 35909 | 2Q | | | | | CONT. | 72170 | |
| AdvancedSystems | | | | | | | | | | | | |
| AdvancedSystems | Various | SMDC/AL | | 5096 | 1/3Q | | | | | | 5096 | |
| SubtotalTestandEvaluation | | | 51436 | 54985 | | 0 | | 0 | | | 106421 | |
| Remarks | | | | | | | | | | | | |

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| MDA Exhibit R - 3RDT&E Project Cost Analysis | | | | | | | | | Date February 2003 | | | |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | | | | | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment | | | | | | | |
| IV. Management Services Cost (\$ in Thousands) | | | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| SE&A/TSE | | | | | | | | | | | | |
| FFRDC/UARCs/DOELabs | MIPR | Various | 26595 | 27500 | 2Q | | | | | CONT. | 54095 | |
| Government Personnel Spt | Other | WHS/Washington, DC | 10100 | 4200 | 2Q | | | | | CONT. | 14300 | |
| Travel | Other | Various | 700 | 600 | 2Q | | | | | CONT. | 1300 | |
| Advanced Systems | | | | | | | | | | | | |
| Advanced Systems | Other | CSC/SMDC | 3484 | 5000 | 1Q | | | | | CONT. | 8484 | |
| Joint Warfighter Support | | | | | | | | | | | | |
| Support Contracts | MIPR | CSC, Vanguard, Sparta/VA | 3170 | 2000 | 2Q | | | | | CONT. | 5170 | |
| Joint National Integration Center | | | | | | | | | | | | |
| JNIC | Other | JNIC/CO | 3794 | 3305 | 1/4Q | | | | | CONT. | 7099 | |
| JNIC | Other | USN/NRL, MD | 900 | 926 | 1/4Q | | | | | CONT. | 1826 | |
| JNIC | CPAF | ARINC/CO | 4111 | 4197 | 1Q | | | | | CONT. | 8308 | |
| JNIC | MIPR | FFRDC/Various | 2357 | 1657 | 1Q | | | | | CONT. | 4014 | |
| Cooperative Program and Allied Support | | | | | | | | | | | | |
| CF Program Support | CPFF | Sparta/Various | 937 | 1399 | 2Q | | | | | CONT. | 2336 | |
| Information Management System | | | | | | | | | | | | |
| Ent. Plans Policies & Analyses | CPFF | EMC/CA | 2355 | 2295 | 1/2Q | | | | | CONT. | 4650 | |
| Ent. Plans Policies & Analyses | CPFF | Gartner/VA | 242 | 200 | 2Q | | | | | | 442 | |
| Subtotal Management Services | | | 58745 | 53279 | | 0 | | 0 | | | 112024 | |
| Remarks | | | | | | | | | | | | |
| Project Total Cost | | | 222069 | 368977 | | 0 | | 0 | | | 591046 | |
| Remarks | | | | | | | | | | | | |

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| MDAExhibitR -4ScheduleProfile | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| FiscalYear | 2002 | | | | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | | | | | |
|--|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|--|--|--|--|
| | 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 | 1 | 2 | 3 | 4 | | | | |
| TestingMilestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Algorithms(AS) | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.TOG/Updates(SE) | | | ▲ | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.AdversaryCapability Document/Updates(SE) | | ▲ | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.SystemEvolutionPlan/Updates(SE) | | | ▲ | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.BlockSCS(SE) | | | | | | | ▲ | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.BlockECS/CCS(SE) | | | | | | | ▲ | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| AlgorithmstoTest(AS) | | | | ▲ | | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| BMDThreatAssesment(IN) | | | ■ | | | | | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMDSFusionToolboxDemonstration (AS) | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMDModel(AS) | | ▲ | | ▲ | | | | ▲ | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| DAPrototype(AS) | | | | ▲ | | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | |
| ThreatScenarios(IN) | | ■ | | | | | | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IntegratedFlightTest | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Post-flight-testdataanalysis(AS) | | ■ | | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
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| FiscalYear | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--|------|------|------|------|------|------|------|------|
| Other | | | | | | | | |
| BAASubmission(AS) | | ▲ | | ▲ | | | | |
| CombatantCommandersExperiments (TR) | | | | | | | | |
| DecisionArchitetureReviews(AS) | ▲ | | ▲ | | ▲ | | | |
| DecisionArchitetureReviews(AS) | | ▲ | | | | | | |
| InformationAssuranceOpsCtrDef.and Dep.(CI) | | | | | | | | |
| InitialEnterpriseKnowledgeManagement Sys(CI) | | | | | | | | |
| ProjectHerculesProgramReview(AS) | | ▲ | | | ▲ | | | |
| SBIRPhaseIIInvitations(AS) | ▲ | ▲ | | ▲ | ▲ | | | |
| SBIRTopicsReleased(AS) | ▲ | ▲ | | ▲ | ▲ | | | |
| STTRPhaseIIInvitations(AS) | | | | ▲ | | | | |
| STTRPhaseIIInvitations(AS) | | ▲ | | | | | | |
| STTRTopicsReleased(AS) | ▲ | | | | ▲ | | | |
| WANArchitectureDevelopment(CI) | | | | | | | | |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | |
| ScheduleProfile | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
| TestingMilestones | | | | | | | | |
| Algorithms(AS) | 1Q,4Q | 1Q,4Q | | | | | | |
| Deliveries | | | | | | | | |
| 1.TO G/Updates(SE) | 3Q | 3Q | | | | | | |
| 2.AdversaryCapabilityDocument/Updates(SE) | 2Q | 2Q | | | | | | |
| 3.SystemEvolutionPlan/Updates(SE) | 3Q | 3Q | | | | | | |
| 4.BlockSCS(SE) | | 1Q,4Q | | | | | | |
| 5.BlockECS/CCS(SE) | | 1Q,4Q | | | | | | |
| AlgorithmstoTest(AS) | 1Q,4Q | 1Q,4Q | | | | | | |
| BMDThreatAssessment(IN) | 3Q | 3Q | | | | | | |
| BMDSFusionToolboxDemonstration(AS) | | 1Q | | | | | | |
| BMDSMModel(AS) | 2Q,4Q | 2Q,4Q | | | | | | |
| DAPrototype(AS) | 4Q | 4Q | | | | | | |
| GovernmentVerificationManagementPlan(SE) | | 1Q | | | | | | |
| ReviewedandapprovedBlockprogramdefinition (SE) | | 4Q | | | | | | |
| SpecificationsforKEBoostInterceptor(SE) | | 3Q | | | | | | |
| SystemDesignReview(SE) | 4Q | 1Q,3Q | | | | | | |
| ThreatScenarios(IN) | 1Q-4Q | 1Q-4Q | | | | | | |
| Studies&Analyses | | | | | | | | |
| InitialreviewofBlock06architecture(SE) | 3Q | | | | | | | |
| Decisions | | | | | | | | |
| ReviewedandapprovedBlockprogramdefinition (SE) | 4Q | | | | | | | |
| IntegratedFlightTest | | | | | | | | |
| Post -flight-testdataanalysis(AS) | 2Q,4Q | | | | | | | |
| Other | | | | | | | | |
| ACICConceptEvaluation(AS) | 1Q-4Q | | | | | | | |
| AlgorithmHandoverMeetings(AS) | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | | | | | | |
| BAASubmission(AS) | 4Q | 4Q | | | | | | |
| CombatantCommandersExperiments(TR) | 1Q-4Q | 1Q-4Q | | | | | | |
| DecisionArchitectureReviews(AS) | 1Q | 1Q,4Q | | | | | | |

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| MDAExhibitR -4AScheduleDetail | | | | | | Date February2003 | |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | R-1NOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | |
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|---|-------|-------|--|--|--|--|--|
| DecisionArchitectureReviews(AS) | 4Q | | | | | | |
| InformationAssuranceOpsCtrDef.andDep.(CI) | 1Q-4Q | 1Q-4Q | | | | | |
| InitialEnterpriseKnowledgeManagementSys(CI) | 3Q-4Q | | | | | | |
| ProjectHerculesProgramReview(AS) | 4Q | 4Q | | | | | |
| SBIRPhaseIIInvitations(AS) | 1Q,3Q | 1Q,3Q | | | | | |
| SBIRTopicsReleased(AS) | 1Q,2Q | 1Q,2Q | | | | | |
| STTRPhaseIIInvitations(AS) | | 2Q | | | | | |
| STTRPhaseIIIInvitations(AS) | 2Q | | | | | | |
| STTRTopicsReleased(AS) | 1Q | 4Q | | | | | |
| WANArchitectureDevelopment(CI) | 1Q-4Q | 1Q-4Q | | | | | |

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| MDA Exhibit R -2 ARDT&E Project Justification | Date February 2003 |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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| COST (\$ in Thousands) | FY2002 | FY2003 | FY2004 | FY 2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|------------------------|--------|--------|--------|---------|--------|--------|--------|--------|
| 1060 Test & Evaluation | 390986 | 372352 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |

A. Mission Description and Budget Item Justification

Beginning in FY2004, funding for this effort is moved to the Ballistic Missile Defense Test & Targets Program Element (PE0603888C) and the Ballistic Missile Defense System Core Program Element (PE0603890C).

The Test & Evaluation (T&E) Project consolidates all System-wide T&E resources. This allows for the more cohesive facilitation, management and execution of these test activities for a single, integrated BMDS System. This activity provides the resources needed for the test infrastructure and analytical tools needed by the Missile Defense Agency (MDA) to execute a System-wide Test Program. Specific T&E costs are captured in the respective BMDS Element.

MDA's testing needs are quickly expanding beyond those of the individual BMDS Elements. To address these needs, the System Test & Assessment Program provides for the test planning, management, and execution of the BMDS Test Program and the BMDS Measurements Program.

The BMDS Test Program provides for a cohesive program of testing to include: System Integrated Flight Tests (SIFTs); the Missile Defense Integrated Exercises (MDIEs), and the Missile Defense Wargames. The BMDS Test Program provides for characterization of BMDS performance as input to block assessments. Program objectives can be accomplished through dedicated test events or through overlays on other test exercises. SIFTs are designed to: measure BMDS integration, assess BMDS capabilities, and provide truth data and validation data for models and simulations. The MDIE utilizes the Missile Defense System Exerciser (MDSE) Hardware-in-the-loop (HWIL) to stimulate system elements. These exercises are redesigned to perform system capability assessments, measure interoperability, provide verification of element interfaces, and provide initial integration and test of block upgrades. The Missile Defense Wargame Analysis Resource (MDWAR - formerly Wargame 2000) is an Operator-in-the-Loop test tool which supports assessment of BMDS capability and development of BMDS operating concepts. To support the BMDS Test Program development, program objectives, and performance characterization, MDAT&E provides resources to support the activities of the Optical Data Analysis (ODA), Radar Data Analysis (RDA), and Radar Data Exploitation (RDE) groups. These groups perform various functions which support BMDS data collection objectives (mission planning, sensor execution, data analysis), explore phenomenology to improve future BMDS systems and new mission areas, and provide characterization and assessment for BMDS testing. These tests directly improve the threat system representation in the system core models.

The BMDS Measurements Program is an integrated test program designed to provide an understanding of the phenomenology associated with discrimination (with and without countermeasures), lethality and kill assessment. This program consists of the Critical Measurements Program (CMP), Countermeasure/Counter-countermeasure (CM/CCM) Program, Aerial Dispersion Experiment (ADE), Lethality and Kill Assessment Programs. The CMP tests collect data for all elements and the BMDS to support Systems Engineering assessments, ground effects analysis and to characterize specific CMs and CCMs to augment the CM/CCM Program. As the CMP progresses it will become more CM/CCM centric and will be merged with the CM/CCM Program (after FY2003). Future flight tests occurring after FY2003 will be designated Critical Measurements and Countermeasures (CMCM) flight tests. The CM/CCM Program has two principal efforts: Advanced Systems Flight Tests (ASFT) and the CM/CCM Test effort. The ASFT objectives are: CM characterization including signatures and phenomenology to support discrimination algorithm development and model validation and development and assessment of feasibility and efficacy of CMs. The CM/CCM Test effort encompasses: developing and executing tests to address CM characterization, element/system degradation and CCM mitigation assessment. The Aerial Dispersion Experiment (ADE) test is designed to characterize debris dispersion and footprint after ground impact of four liquid propelled rockets. The Lethality and Kill Assessment Test Programs leverage BMD intercept tests of opportunity to characterize post-intercept remnants. This characterization is essential to maintain and improve the core lethality models: PEELS, KIDD, and PEGEM and to identify successful intercepts, perform ground effects analysis, support systems engineering assessments, facilitate development of real time decision tools to support tactics and engagement doctrines.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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The Test Resources Program provides the resources for the development, sustainment, and modernization of core corporate T & E infrastructure facilities of the BMD Test Bed to support system and element-level testing. This currently includes support at

BMD-unique ground test facilities:

- Kinetic Kill Vehicle Hardware in the Loop Simulator (KHILS) at Eglin AFB in Fort Walton Beach, FL
- Arnold Engineering and Development Center (AEDC) Hypervelocity Wind Tunnel Number 9 (Tunnel 9) at White Oak, MD
- Infrared and Blackbody Standards at the National Institute of Standards and Technology (NIST) in Gaithersburg, MD
- Hypervelocity Ballistic Range Light Gas Gun Von Karman Facilities (VKF) at AEDC in Tullahoma, TN
- 7V and 10V Space Chambers at AEDC, Tullahoma, TN
- National Hover Test Facility (NHTF) at Edwards AFB, CA
- Army Missile Optical Range (AMOR) at Redstone Arsenal, AL
- Aero-Optic Evaluation Center (AOEC) at Calspan - University of Buffalo Research Center (CUBRC), NY
- Holloman High Speed Test Track (HHSTT) at Holloman AFB, NM

BMD-unique range assets at various DoD test ranges:

- White Sands Missile Range (WSMR) in Las Cruces, NM including Ft. Wingate Launch Complex near Gallup, NM
- Reagan Test Site (RTS) at the United States Army Kwajalein Atoll
- Pacific Missile Range Facility (PMRF) and Kauai Test Facility (KTF) at Kauai, HI
- Wake Island Launch Complex
- Naval Air Warfare Center, Weapons Division, Pt Mugu, CA

Airborne sensors, data collection assets, and special test equipment include:

- High Altitude Observatory I (HALO -I)
- High Altitude Observatory II (HALO -II)
- Wide-body Airborne Sensor Platform (WASP)
- Sea-Lite Beam Director (SLBD), based at White Sands Missile Range, Las Cruces, NM
- Remote Area Safety Aircraft -P -3s

All of these assets provide valuable program risk reduction and test implementation capability in support of BMD activities. Individual BMD elements pay only the direct costs associated with their specific test efforts. Recommended test infrastructure improvements resulting from the FY 2002 Test Bed Infrastructure Study and the on-going Target Requirements Study are also implemented through the Test Resources Program. The Test Resources effort also supports the development of target requirements and the certification that target sets satisfy test objectives.

The Core Modeling and Simulations (M&S) Program provides for the development, maintenance, upgrades, verification and validation integrated into evolutionary block upgrades for new capabilities and spiral development within the block to support the acquisition strategy. BMD system core models include the engineering, phenomenology, threat, lethality, scene generation, and multispectrum data products required to validate the set of tools in common and general use in all elements of the BMD. Hardware in the Loop (HIL) Tool support TMDE exercises for engineering, development, and test of BMD integration and interoperability. Operator in the loop tool support wargaming exercises and the development of Concepts of Operations (CONOPS) and Tactics, Techniques and Procedures (TTPs). Highly aggregated construction models along with medium and high fidelity construction models provide the capability to conduct long, medium, and short term BMD studies, analysis, tradespace options, doctrine development, logistic support and feasibility studies. This project also funds the development of applicable standards, improved automated support tools, information assurance, vulnerability assessments, a standards-based V&V program, improved conceptual models, implementation of the High Level Architecture, and verification, validation, and accreditation activities required to ensure credibility of the analytical tools. The International M&S Program supports over 15 international initiatives including the Israel Arrow Program. Programs such as Russian Cooperative Modeling and Simulation program are also resourced within this project.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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The Facilities, Siting and Environmental program provides guidance, environmental impact analyses and documentation, real property facility siting, acquisition, and facility operational support for the BMD systems. This project plans, programs, budgets, and oversees facility acquisition through the Military Construction (MILCON) and RDT&E construction programs. This project provides guidance and supports Environmental Safety and Occupational Health (ESOH) Programs, including the Environmental Assessment and Environmental Impact Statement process, environmental compliance, pollution prevention, and other environmental efforts.

B. Accomplishments/Planned Program

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| System Test & Assessment | 129932 | 139287 | | |
| RDT&E Articles (Quantity) | 0 | 8 | | |

FY2003 RDT&E Articles: Two (2) Castor IV B boosters with threat -like RVs for CMP -4, Two (2) Black Brant X I missiles for ASFT, Four (4) liquid propellant rockets for ADE

FY2002 Accomplishments

The BMD System Test Program completed the following efforts:

- Executed a highly successful System Integration Test which included demonstration and data collection on threat representative targets, and demonstration of a BMD System Interoperability event in which Patriot was successfully cued by Aegis.
- Conducted Wargame 02 employing MDWARs which focused on development and refinement of operational concepts and characterized the effect of C2 BMD Operator involvement and information exchange needs which support the 2004 and 2006 BMD System Capability Assessments.
- Completed Missile Defense Integration Exercises.
- Supported the PATRIOT IOT&E Interoperability Demonstration employing MDSE and EADTB accredited by ATEC.
- Performed SITI/Coral Talon III Risk Reduction and ARROW System Improvement Program Interoperability testing support by MDSE -ARROW.
- Supported data collection by Observation Island and Gray Star missions, supported data planning, collection, and analysis of optical and radar data, and explored phenomenology for critical BMD mission areas that support enhancements to SSGM and development of the Battlespace Environments and Signatures Toolkit (BEST).

The BMD System Measurements Program conducted the following efforts:

- Conducted test planning, sensor planning, material development, range integration efforts, and design reviews in support of measurement flight test programs scheduled for FY2003. These efforts include: Critical Measurements Program 4 (CMP -4), Advanced Systems Flight Test (ASFT), and Aerial Dispersion Experiment (ADE).
- Re-established Kill Assessment Program and performed analysis/comparison on historic datasets and recent IFT impact datasets to survey phenomenology which may provide a method for identifying warhead related materials.
- Continued monitoring of the lethality Ground and Live Fire Test and Evaluation activities associated with various program elements, and designing flight test experiments which leverage BMD intercepts for the collection of lethality ground effect data that support improvements to PEGEM, KIDD and PEELS.

FY2003 Planned Program:

- The planned BMD System Test Program includes Missile Defense Integrated Exercises (MDIEs), the System Integrated Flight Tests (SIFTs), and the Missile Defense Wargames.
- The MDIE will perform Block 2004 Testing to support SIFTs (with initial look at Block 2006).
- Expand MDSE to Block 2004 System Elements.
- Conduct Testing using SITI data, Model Validation, and Flight Test Risk Reduction testing.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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-Continue US -Israeli interoperability testing and development of a US/Russian Federation Cooperative M&S Initiative.
 -Execute the Block 2004 Midterm Program and Block 2004 GRADEX using SIFT to overlay system level objectives on to currently planned element tests.
 -The MDWAR will support at least two Wargame events per year in FY2003 to explore operational concepts with a focus on collaborative planning and crisis action rehearsal -planning for the 2004 and 2006 architectures, and at least two Wargame events per year in FY2004 -FY2005 to explore operational concepts, tactics, techniques, and procedures, and C2BMC to support assessment of the 2006 and 2008 architectures.

The planned BMD S Measurements Program includes:

- Critical Measurements Program 4 (CMP -4), Advanced Systems Flight Test (ASFT), and the Aerial Dispersion Program (ADE). As the complete Measurements Program test requirements definition process unfolds, MDAT&E will combine CMP, ASFT and SECM/CCM campaign to reduce costs, leverage assets and compress times schedules.
- MDAT&E will conduct test planning and test execution for future BMD S Measurements Program flight test campaign to incorporate requirements for: Systems Engineering assessments and ground effects analysis; improved Scene Generation, updated threat models, discriminational algorithm development and model validation; and assessment, characterization, feasibility and efficacy of countermeasures/counter-countermeasures along with the element or system degradation assessment.
- The Lethality Test Program will continue monitoring of the lethality Ground and Live Fire Test and Evaluation activities associated with various program elements, and designing flight test experiments leveraging BMD intercepts for the collection of lethality ground effect data to improve the System Lethality Models.
- The Kill Assessment Test Program will extend the analysis activities to examine data collected on the Aegis BMD FM2 and FM3 impact events, optimize sensors based on the present data and analyses, develop engineering models, exercise and evaluate data driven modeling together with impact data in real time to test a draft Kill Assessment decision tool and begin the process of insertion of the KA decision capabilities into the BMD S Block 2006 C2BMC suite.

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| Test Resources | 169296 | 127294 | | |
| RDT&E Articles (Quantity) | 0 | 4 | | |

FY2003 RDT&E Articles: Two (2) Lance Targets for use in MLP Demonstration; complete Development of HALO -II; WASPIOC

FY2002 Accomplishments

- Continued to maintain the core test infrastructure (Ground Test Facilities, Airborne Sensors, Test Ranges).
- Conducted a MDA -Wide study to identify the test infrastructure needed to support the BMD S Test Bed and developed an investment plan to support the element BMD S Block Build.
- Began development of a transportable Telemetry/Range Safety system that will support world wide test data collection for all BMD S element and system tests.
- Continued development of the Wide -body Airborne Sensor Platform (WASP) and the High Altitude Observatory -(HALO) II air borne sensors system. (WASP and HALO II support IR data collection on BMD S system and element -level testing).
- Initiated a common range safety standardization program designed to lower test execution risk and cost while leveraging on the experience of the BMD test community.
- Initiated preparations for a proof -of-principle demonstration of a rudimentary mobile launch platform (MLP).

FY2003 Planned Program

- Provide for operations, sustainment, and modernization of the core corporate test and evaluation infrastructure components of the BMD S Test Bed including ranges/instrumentation, airborne sensors, and ground test facilities to support element -and system -level testing.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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-Provide level -of-effort funding to ranges/instrumentation to maintain MDA -unique test facilities for MDA tests. For example, at the Reagan test site Meck Island will be maintained for GMD testing.

-Provide sustainment funding to maintain the current airborne assets, HALO -I and the Airborne Surveillance test bed (AST).

-Provide investment funding to complete development and sustain the next generation, state -of-the-art airborne instrumentation platforms, HALO -II and WASP that will replace HALO -I and AST.

-Provide level -of-effort funding to maintain MDA -unique ground test facilities, including wind tunnels, space chambers, light gas guns, the high speed test track, and the hover test facility.

-Support BMD Stetson transition to a common test management and execution process as well as provide upgrades and improvements to test range hardware and software based planning and execution tools.

-Conduct a MLP demonstration in early FY2003.

-Implement recommendations from the Test Bed Infrastructure Study to improve the test infrastructure in terms of capability and quantity. These improvements build on the existing core test infrastructure to support element -and system -level testing.

-Procure transportable range safety/telemetry collection system to provide depth and flexibility for emerging flight test scenarios and support MDA testing at remote locations.

-At the Reagan Test Site, improve Meck Island test infrastructure including the power grid to support GMD testing and upgrade existing ground based sensors (millimeter wave -MMW) to expand the testing envelope through an increase in range and sensitivity.

-At PMRF, upgrade telemetry capability to support long -range engagements.

-Standardize flight safety procedures, analysis tools, flight hardware, and safety officer training through three -phase programs scheduled for completion by 2Q/04.

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| Modeling & Simulation | 88203 | 98956 | | |
| RDT&E Articles (Quantity) | | | | |

FY2002 Accomplishments

-Developed and maintained a validated set of Core models and simulations (M&S) and M&S support activities

-Maintained the Advanced Research Center/Simulation Center (ARC/SC) and the MDA Data Centers in direct support of the System -Wide Test Program, System Engineering Program, BMD Architecture development, Project Hercules, Joint Warfighter wargaming, National Teams, and cooperative international coalition efforts.

-Competed and awarded the Battlespace Environments and Signatures Toolkit (BEST) contract to incorporate and upgrade legacy environment and signature software codes to current software practices.

-Started lethality M&S development upgrade in concert with the Corporate Lethality Program (CLP) and international collaborative M&S initiatives to expand current capability.

FY2003 Planned Program

-Develop and maintain a validated set of System Core models and simulations (M&S) and M&S support activities

-Maintain the Advanced Research Center/Simulation Center (ARC/SC) and the MDA Data Centers in direct support of the System -Wide Test Program, System Engineering Program, BMD Architecture development, Project Hercules, Joint Warfighter wargaming, National Teams, and international Cooperative M&S efforts.

-Continue to mature legacy environment and signature software codes for BEST.

-Continue the Lethality M&S development upgrade in concert with the CLP.

-Expand International collaborative M&S initiatives with international cooperative agreements.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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|------------------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| Facilities, Siting & Environmental | 3555 | 6815 | | |
| RDT&E Articles (Quantity) | | | | |

FY2002 Accomplishments

- Provided environmental program guidance, compliance, planning and NEPA support, real property facility, acquisition, facility operations, and maintenance/repairs support for the BMDS.
 - Planned, programmed, budgeted, and provided oversight to facility acquisition through the Military Construction (MILCON) and RDT&E construction programs.

FY2003 Planned Program

- Provide forenvironmental program guidance, compliance, planning and NEPA support, real property facility, acquisition, facility operations, and maintenance/repairs support for the BMDS.
 - Ensure the MILCON, Minor MILCON, and RDT&E design and construction activities are executed in time to support BMD programs' facility requirements and ensure compliance with all applicable laws and regulations.

C. Other Program Funding Summary

| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
|---|---------|---------|---------|---------|---------|---------|---------|---------|-------------|------------|
| PE0603883C Ballistic Missile Defense Boost Defense Segment | 583463 | 718036 | 626264 | 653612 | 755163 | 665772 | 477109 | 354346 | | |
| PE0603884C Ballistic Missile Defense Sensors | 312973 | 350436 | 438242 | 562752 | 706514 | 1043454 | 1152740 | 1261906 | | |
| PE0603886C Ballistic Missile Defense System Interceptors | 0 | 0 | 301052 | 541178 | 1127180 | 1729613 | 2558327 | 2904096 | | |
| PE0603890C Ballistic Missile Defense System Engineering and Integration | 0 | 0 | 483996 | 522458 | 604445 | 628594 | 703055 | 706501 | | |
| PE0603888C Ballistic Missile Defense Test and Targets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603889C Ballistic Missile Defense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861C Theater High -Altitude Area Defense System -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603882C Ballistic Missile Defense Midcourse Defense Segment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |

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| MDA Exhibit R -2 ARDT&E Project Justification | Date February 2003 |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
|---|---|

| | | | | | | | | | | |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
| PE0603175C Ballistic Missile Defense Technology | 145021 | 151130 | 240820 | 205791 | 200956 | 247990 | 287864 | 306472 | | |
| PE0603869C Meads Concepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603879C Advanced Concepts, Evaluations and Systems | 0 | 0 | 151696 | 216778 | 166308 | 193949 | 241947 | 234484 | | |
| PE0603881C Ballistic Missile Defense Terminal Defense Segment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | |
| PE0604867C Navy Area Theater Missile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0605502C Small Business Innovative Research -MDA | 145102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0901585C Pentagon Reservation | 6381 | 7432 | 14481 | 13384 | 12758 | 12850 | 13158 | 13476 | | |
| PE0901598C Management Headquarters - MDA | 30191 | 25365 | 93441 | 101373 | 114107 | 121743 | 128972 | 133499 | | |
| PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |

D. Acquisition Strategy

Test & Evaluation Program will support the Missile Defense Agency's capability -based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two -year capability blocks.

Test and Infrastructure programs will be executed utilizing a diverse acquisition strategy to take advantage of private industry competitive forces and existing DoD agency, FFRDCs, and international coalition partner capabilities. Examples of participants in this acquisition strategy include the U.S. Army Space and Missile Defense Command, Air Force Space and Missile Command, and the U.S. Navy Research Lab.

Test programs will be executed utilizing a consolidated targets development, test resource, facilities, siting and environmental, and system -widest program strategy. BMD management requirements will be met through MDA and other DoD agency personnel. BMD technical and program management services will be competitively procured from industry to provide the required infrastructure, engineering, programmatic, test and evaluation, and systems specific expertise required to develop BMDS programs.

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| MDA Exhibit R - 3RDT & E Project Cost Analysis | | | | | | | | | Date February 2003 | | | |
|---|------------------------|--------------------------------|----------------|-------------|---|-------------|-------------------|-------------|-----------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | | | | | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment | | | | | | | |
| I. Product Development Cost (\$ in Thousands) | | | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Subtotal Product Development | | | | | | | | | | | | |
| Remarks | | | | | | | | | | | | |
| II. Support Costs Cost (\$ in Thousands) | | | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Subtotal Support Costs | | | | | | | | | | | | |
| Remarks | | | | | | | | | | | | |
| III. Test and Evaluation Cost (\$ in Thousands) | | | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| System Test & Assessment | | | | | | | | | | | | |
| System Integrated Flight Tests | Various | Various including USASMD C | 13997 | 16702 | 1Q | | | | | | 30699 | |
| Critical Measurements Program | Various | Various | 24496 | 29475 | 1Q | | | | | | 53971 | |
| Missile Def Integ Exercises | Various | Various | 7811 | 10412 | 1Q | | | | | | 18223 | |
| Special Program Tests | Various | USASMD C/Huntsville, AL | 18935 | 7760 | 1Q | | | | | | 26695 | |
| Radar Exploitation | Various | USASMD C/Huntsville, AL | 2346 | 2555 | 1Q | | | | | | 4901 | |
| Corporate Data Collect & Analy | Various | Redstone Ars, Quantico/AL, VA | 1560 | 5186 | 1Q | | | | | | 6746 | |
| Optical Data Analysis | Various | Various | 5911 | 5303 | 1Q | | | | | | 11214 | |
| Radar Data Analysis | Various | Various | 3443 | 3391 | 1Q | | | | | | 6834 | |
| CM/CCM Support | Various | Various | 27225 | 27997 | 1Q | | | | | | 55222 | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | Date February2003 | | | | | | |
|---|-----------|--------------------------------------|-------|-------|---|----------------------|--|--|--|--|--------|--|
| APPROPRIATION/BUDGETACTIVITY 4.Ad vancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | | |
| BMDSWargames | Various | JNIC/Colorado Springs,CO | 1406 | 1719 | 1Q | | | | | | 3125 | |
| Lethality | Various | Various | 814 | 2945 | 1Q | | | | | | 3759 | |
| KillAssessment | Various | USASMDC/Huntsville,AL | 1833 | 2620 | 1Q | | | | | | 4453 | |
| Arrow-MDSE | Various | Various | 1879 | 2456 | 1Q | | | | | | 4335 | |
| InternationalPrograms | Various | Various | 5731 | 825 | 1Q | | | | | | 6556 | |
| TestPlanning | MIPR | Various/NJ,Wash D.C., TN | 795 | 787 | 1Q | | | | | | 1582 | |
| IFT-10P re/PostAnaly&Exec | Various | Navy | 0 | 3109 | 1Q | | | | | | 3109 | |
| TacticalS&TMK99CWIX - Band | Various | Navy | 0 | 1155 | | | | | | | 1155 | |
| TestResources | | | | | | | | | | | | |
| GroundTestFacilities | Various | Army&Air Force/NY,AL,FL, MD,TN,CA,NM | 20982 | 20949 | 1Q | | | | | | 41931 | |
| TestRanges | Various | Various/HI,NM, MarshallIs | 28451 | 54770 | 1Q | | | | | | 83221 | |
| AirborneSensors | C/Various | Raytheon,Aeromet, Boeing/CA,OK, WA | 71486 | 35782 | 1Q | | | | | | 107268 | |
| TargetsCert&Req's | Various | USASMDC, POET/HSVAL, WashD.C. | 637 | 1343 | 1Q | | | | | | 1980 | |
| RDT&EConstruction | | TBD | | 962 | | | | | | | 962 | |
| CongressionalAdds | Various | Various/HI | 33957 | | | | | | | | 33957 | |
| Modeling&Simulation | | | | | | | | | | | | |
| InternationalCoopM&S | Various | Various | 8940 | 8030 | 1Q | | | | | | 16970 | |
| BMDSystemCoreM&S | Various | Army,JNICetal/AL,CO | 34941 | 34872 | 1Q | | | | | | 69813 | |
| BMDEng/LethM&S | Various | Army,AirForce, Navy | 22382 | 28847 | 1Q | | | | | | 51229 | |
| SystemModelProgramSupport | Various | Army | 3277 | 6865 | 1Q | | | | | | 10142 | |
| Adv.ResCtr&SimCtr | Various | USASMDC/Huntsville,AL | 12000 | 11789 | 1Q | | | | | | 23789 | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.Ad vancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
|---|---|

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|---|---------|-------------------------|--------|--------|----|---|--|---|--|--|--|--------|
| Facilities, Si ting& Environmental | | | | | | | | | | | | |
| Facilities&Siting | Various | Various | 88 | 233 | 1Q | | | | | | | 321 |
| EnvironmentalCompliance | Various | Various | 197 | 287 | 1Q | | | | | | | 484 |
| RDT&EConstruction | Other | DOT/FedHwy Admin/Alaska | 1700 | | 1Q | | | | | | | 1700 |
| BMDProg.EIS | Other | | | 2646 | 1Q | | | | | | | 2646 |
| SubtotalTestandEvaluation | | | 357220 | 331772 | | 0 | | 0 | | | | 688992 |

Remarks

IV.ManagementServicesCost(\$inThousands)

| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
|----------------------------------|-----------------------|-------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| SystemTest&Assessment | | | | | | | | | | | | |
| Gov'tPersonnel&Spt | Other | USASMDC/Huntsville | 2417 | 3054 | 1Q | | | | | | 5471 | |
| SupportContracts | C/FFP | SPARTA, TASC/CA,MA | 8654 | 11304 | 1Q | | | | | | 19958 | |
| TETravel | Other | MDA/WashD.C. | 679 | 532 | 1Q | | | | | | 1211 | |
| TestResources | | | | | | | | | | | | |
| SMDCGovtPersonnel | Other | USASMDC/Hunsville,AL | 1646 | 2544 | 1Q | | | | | | 4190 | |
| SETASupport | C/FFP | TASC, SPARTA/MA,CA | 8231 | 9365 | 1Q | | | | | | 17596 | |
| TestRangesSupport | SS/MIPR | POET/Arlington, VA | 1480 | 1579 | 1Q | | | | | | 3059 | |
| OSDWithhold | | OSDWithhold | 726 | | 1Q | | | | | | 726 | |
| Modeling&Simulation | | | | | | | | | | | | |
| Gov'tProjectPersonnel | Other | USASMDC/Huntsville,AL | 1555 | 1614 | 1Q | | | | | | 3169 | |

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|--|-------|------------------------------|--------|--------|---|--|---|--|---|-----------------------------|--------|--|
| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | | | | | Date February2003 | | |
| APPROPRIATION/BUDGETACTIVITY 4.Ad vancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | | |
| SupportContract | FFP | BoozAllen Hamiltonetal/CA | 5108 | 6939 | 1Q | | | | | | 12047 | |
| Facilities,Siting& Environmental | | | | | | | | | | | | |
| SupportContracts | C/FFP | ICF,SciComm/VA, MD | 3270 | 3649 | 1Q | | | | | | 6919 | |
| SubtotalManagementServices | | | 33766 | 40580 | | | 0 | | 0 | | 74346 | |
| Remarks | | | | | | | | | | | | |
| ProjectTotalCost | | | 390986 | 372352 | | | 0 | | 0 | | 763338 | |
| Remarks TheTest&EvaluationprojectdistributesthemajorityofitsfundingtoExecutingAgents(i.e.theAirForce,Army,Navy,JointNationalIntegrationCenter(JNIC),andDTRA)forfurther dissemination.TheseExecutingAgentswilluseMilitaryInterdepartmentalPurchaseRequests(MIPRs)and/orin-housecontractvehiclestoaccomplishthetasksspecified. | | | | | | | | | | | | |

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| MDAExhibitR -4ScheduleProfile | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-1NOMENCLATURE 0603880CBallisticMissileDefense SystemSegment |
|--|--|

| FiscalYear | 2002 | | | | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | | | | | |
|--------------------------------------|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|--|--|--|--|
| | 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 | 1 | 2 | 3 | 4 | | | | |
| TestingMilestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AdvancedSystemsFlightTests | | | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BESTDevelopment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMDSWargaming | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CriticalMeasurementProgramFlightTest | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MDIE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SystemIntegratedFlightTests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Studies&Analyses | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TestBedInfrastructureStudy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TestAssetUpgrades | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HALOIIDevelopmentComplete | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WASPIOC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| MDAExhibitR -4AScheduleDetail | | | | | | Date February2003 | | |
|--|--------|--------|--------|---|--------|----------------------|--------|--------|
| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | |
| ScheduleProfile | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
| TestingMilestones | | | | | | | | |
| AdvancedSystemsFlightTests | | 2Q | | | | | | |
| AerialDispersionExperiment(ADE) | | 2Q-3Q | | | | | | |
| BESTDevelopment | 3Q-4Q | 1Q-4Q | | | | | | |
| BMDSWargaming | 3Q-4Q | 2Q-3Q | | | | | | |
| BlueVelvetTesting | | 1Q | | | | | | |
| CriticalMeasurementProgramFlightTest | | 3Q | | | | | | |
| LRALTCharacterization | | 4Q | | | | | | |
| MDIE | 3Q-4Q | 1Q-4Q | | | | | | |
| MeasurementsPrograms | 3Q-4Q | 1Q-4Q | | | | | | |
| MobileLaunchPlatformDemonstration | | 1Q | | | | | | |
| SystemIntegratedFlightTests | 3Q | | | | | | | |
| Studies &Analyses | | | | | | | | |
| BMDSSupplement.ProgrammaticEnvImpact Statement | | 1Q-4Q | | | | | | |
| GapAnalysis | 3Q-4Q | | | | | | | |
| TargetRoadmapStudy | 4Q | 1Q-2Q | | | | | | |
| TestBedInfrastructureStudy | 2Q-3Q | | | | | | | |
| TestAssetUpgrades | | | | | | | | |
| HALOIIDevelopmentComplete | | 2Q | | | | | | |
| RangeSafetyStandardizationProgram | 3Q-4Q | 1Q-4Q | | | | | | |
| WASPIOC | | 3Q | | | | | | |
| Other | | | | | | | | |
| TransferofWakeIslandtoAirForce | | 1Q | | | | | | |

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| MDA Exhibit R -2 ARDT&E Project Justification | Date February 2003 |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
|---|---|

| COST (\$ in Thousands) | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|
| 1070 Producibility & Manufacturing Technology | 14083 | 21360 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

A. Mission Description and Budget Item Justification

Beginning in FY2004, funding for this effort will reside in the new Ballistic Missile Defense SE&I Program Element (0603889C).

The Producibility and Manufacturing Technology (MP) program provides manufacturing technologies and implementation strategies that benefit the Ballistic Missile Defense System (BMDS). These include near term insertion programs that demonstrate capabilities for multiple applications across the BMDS encompassing risk reduction, cost reduction/avoidance and performance enhancement. These programs are identified by utilizing systems engineering, analyses, and assessments as a basis for offering potential remediation of a BMDS area of concern. MP provides tools, strategies for improving the processes in support of the spiral development for the BMDS to meet block up grade goals.

MP serves as the Missile Defense Agency's (MDA) source for industrial reliability, manufacturing, producibility and capability assessments. MP completes assessments and reports to the Director key industrial base issues associated with developing and acquiring missile defense to include identifying gaps in industrial capabilities for component production. MP supports Program Directors/Program Managers in accomplishing manufacturing and industrial investment strategies for system affordability and technology insertion opportunities including utilization of commercial practices and technologies. MP efforts include working with the Services, Industry (Systems Integration Contractor to subsystem vendors) and other government agencies to leverage current and future projects that will lead to more reliable and affordable components to benefit the BMDS.

B. Accomplishments/Planned Program

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| Producibility | 9526 | 14103 | | |
| RDT&E Articles (Quantity) | | | | |

The MDA/MP program identifies and funds projects that address producibility for the near term insertion into the BMDS. This includes sensors, propulsion, and electronics, production improvements and reliability enhancements, and materials that provide a basis for cost reduction activities for the BMDS. The FY2003 producibility projects included developing composite components; canisters and missile structures; proof of production processes for Advanced Optical Processor (AOP); demonstration of hardware for Very Long Wave Infrared Focal Plane Array (VLWIRFPA); Complete Proof of Production Process for Two Color Infrared Focal Plane Array (Two Color IRFPA); and initial tests for the Angle - Angle Range Intensity (AARI) Laser Radar (LADAR).

FY2002:
AARILADAR - Perform operational testing at White Sands Missile Range using representative target missile/Provide operational data to verify target acquisition, tracking, IR and -off and target discrimination in a representative combined IR/LADAR system.

AOP - Complete the development of the 1GHz AOP/ Test in representative Radar Systems at MIT/LL and at KMR to image, discriminate, and track simulated and real targets/ Verify the capability of the 1GHz AOP that will provide high fidelity range compressed and range -doppler imaging.

VLWIRFPA - Complete the scale up of a producible 192X192 FPA sensor characterization testing/ Produce five Lots of FPA to verify lot -to-lot repeatability of the process.

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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
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Two Color IR FPA - Complete the initial pilot production to verify repeatability of the production process/Provide an insertion point with hardware to BMD Selements.

Composite Canister - Focus on full -scale prototype manufacturing for testing by PAC3 and MEADS/Accomplish modeling and simulation for canister producibility analysis and produce sub -scale parts for optimization of processes/Target THAAD canister components for sub -scale prototyping.

FY2003:
AARILADAR - Develop a flightworthy package to be integrated with a passive IR seeker/Flight test a combined package on a representative interceptort to demonstrate actual IR to LADAR hand off, target discrimination and aim -point selection from launch through HTK.

AOP - Insertion point for the 1GHz AOP into the BMD radars.

VLWIR FPA - Test integrated FPAs with ROICs that meet Radiation Hardening requirements for program elements/Test three lots of integrated parts to assure repeatability of process.

Composite Canister - Develop manufacturing processes for the common canister along with the evaluating and optimizing the production process through use of lean manufacturing techniques/Conduct testing of hardware produced under operational conditions.

MP continue to identify and assess new projects that address producibility aspects for nearer term insertion into the BMDs.

| | | | | |
|---------------------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 |
| Manufacturing Technology | 4557 | 7257 | | |
| RDT&E Articles (Quantity) | | | | |

MDA/MP's objective is to identify and fund manufacturing technologies and processes that benefit the BMDs by engaging in initiatives that reduce the risk and cycle time associated with the transition from R&D to production. Manufacturing technology identifies innovative and proven processes that simplify the manufacturability and improve the reliability of complex BMD Selement components. MDA/MP leverages DoD, Services, Government Agencies, and Industry programs to assess these processes and determine the viability and impact to the BMDs. Manufacturing Technology focuses on the reduction of risks, costs, and cycle times associated with the development of BMD Selements. The FY2003 Manufacturing Technology projects included design and component test risk reduction for midcourse Divert and Attitude Control System (DACS), propulsion, lasers, and radars.

FY2003:
DACS - Assess and identify producibility and manufacturing technologies associated with developing and producing propulsion components (nozzles, gas generators, injectors and flight controllers etc.) to support the risk reduction development of a DACS for missile defense interceptors/Integrate components into a flight testable unit for hot fire test/Initiate pilot production of SiC/SiC nozzles and components.

| | | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|-------------|------------|
| C. Other Program Funding Summary | | | | | | | | | | |
| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
| PE0603175C Ballistic Missile Defense Technology | 145021 | 151130 | 240820 | 205791 | 200956 | 247990 | 287864 | 306472 | | |

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| MDA Exhibit R -2 ARDT&E Project Justification | Date February 2003 |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-INOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
|---|--|

| | | | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|--|--|
| PE0603869C Meads Concepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603879C Advanced Concepts, Evaluations and Systems | 0 | 0 | 151696 | 216778 | 166308 | 193949 | 241947 | 234484 | | |
| PE0603881C Ballistic Missile Defense Terminal Defense Segment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | |
| PE0603882C Ballistic Missile Defense Midcourse Defense Segment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |
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| PE0603888C Ballistic Missile Defense Test and Targets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603889C Ballistic Missile Defense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861C Theater High -Altitude Area Defense System -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604867C Navy Area Theater Missile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0605502C Small Business Innovative Research -MDA | 145102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0901585C Pentagon Reservation | 6381 | 7432 | 14481 | 13384 | 12758 | 12850 | 13158 | 13476 | | |
| PE0901598C Management Headquarters - MDA | 30191 | 25365 | 93441 | 101373 | 114107 | 121743 | 128972 | 133499 | | |

D. Acquisition Strategy

Producibility and Manufacturing Technology adhere to MDA's capability -based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two - year capability blocks. It leverages existing industry and government effort to include the missile defense elements. This is accomplished by assessing baseline systems, identifying high -risk areas and performing an analysis to recommend to the Director what the proper course of action is to improve quality and reliability.

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|--|-----------------------|-------------------------------|----------------|--------------|---|-------------|-------------------|-------------|-----------------------------|-----------------|------------|-------------------------|
| MDAExhibitR -3RDT&EProjectCostAnalysis | | | | | | | | | Date February2003 | | | |
| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | | |
| I.ProductDevelopmentCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2 003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| SubtotalProductDevelopment | | | | | | | | | | | | |
| Remarks | | | | | | | | | | | | |
| II.SupportCostsCost(\$inThousands) | | | | | | | | | | | | |
| CostCategori es: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| Producibility | | | | | | | | | | | | |
| AOP | Other | SMDC/AL | 2513 | 3700 | 2Q | | | | | CONT. | 6213 | CONT. |
| 2ColorIRFPA | Other | Navy/PA | 2100 | 2600 | 2Q | | | | | CONT. | 4700 | CONT. |
| VLWIRFPA | Other | SAF/AQ/NM | 2000 | 1600 | 2Q | | | | | CONT. | 3600 | CONT. |
| LADAR | MIPR | Fibertek,Inc/VA | 1000 | 1500 | 2Q | | | | | CONT. | 2500 | CONT. |
| Composites/Canisters | Various | Various/Various | 548 | 1850 | 1Q | | | | | CONT. | 2398 | CONT. |
| Producibility | Various | Services/TBD | 309 | 1702 | 1/2Q | | | | | CONT. | 2011 | CONT. |
| ManufacturingTechnology | | | | | | | | | | | | |
| DACS | Other | Aerojet/CA | 2695 | 2500 | 2Q | | | | | CONT. | 5195 | CONT. |
| SubtotalSupportCosts | | | 11165 | 15452 | | 0 | | 0 | | | 26617 | |
| Remarks | | | | | | | | | | | | |
| III.TestandEvaluationCost(\$inThousands) | | | | | | | | | | | | |
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| ManufacturingTechnology | | | | | | | | | | | | |
| DACS | Other | Aerojet/CA | 0 | 500 | 2Q | | | | | CONT. | 500 | |
| ManTech | Various | Various/Various | 806 | 2922 | 1/2Q | | | | | CONT. | 3728 | |
| SubtotalTestandEvaluation | | | 806 | 3422 | | 0 | | 0 | | | 4228 | |
| Remarks | | | | | | | | | | | | |

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| MDAExhibitR -3RDT&EProjectCostAnalysis | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
|--|---|

| IV.ManagementServicesCost(\$inThousands) | | | | | | | | | | | | |
|---|-----------------------|-------------------------------|----------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-----------------|------------|-------------------------|
| CostCategories: | Contract Method &Type | Performing Activity& Location | Total PYs Cost | FY2003 Cost | FY2003 Award Date | FY2004 Cost | FY2004 Award Date | FY2005 Cost | FY2005 Award Date | Costto Complete | Total Cost | Target Valueof Contract |
| ManufacturingTechnology | | | | | | | | | | | | |
| SETA | Various | Sparta, Andrulis/VA | 1000 | 1150 | 2Q | | | | | CONT. | 2150 | CONT. |
| ManagementServices | Various | Various/Various | 112 | 185 | 1/2Q | | | | | CONT. | 297 | CONT. |
| Producibility | | | | | | | | | | | | |
| SETA | Various | Sparta, Andrulis/VA | 1000 | 1151 | 2Q | | | | | CONT. | 2151 | CONT. |
| SubtotalManagementServices | | | 2112 | 2486 | | 0 | | 0 | | | 4598 | |

Remarks

| | | | | | | | | | | | | |
|------------------|--|--|-------|-------|--|---|--|---|--|--|-------|--|
| ProjectTotalCost | | | 14083 | 21360 | | 0 | | 0 | | | 35443 | |
|------------------|--|--|-------|-------|--|---|--|---|--|--|-------|--|

Remarks

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| MDAExhibitR -4ScheduleProfile | Date February2003 |
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| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment |
|--|---|

| FiscalYear | 2002 | | | | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | | | | | |
|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|------|---|---|---|--|--|--|--|
| | 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 | 1 | 2 | 3 | 4 | | | | |
| Producibility | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2ColorIRFPA-CharacterTest | | | | | △ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AOP-DevelopmentSpecification | | | | | △ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AOP-FullCharacterModifiedAOP Equipment | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Canister-ConductedProducibility Analysis | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LADAR-AMORImageTest | | | | | △ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LADAR-ISTEFImageTest | | | | | | | | △ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VLWIRFPA-Fabricated1stRepeatability DAVIDLot | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Manufacturing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DACS-HotFireTest | | | | | | | | | △ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DACS-TDACSSystemHotFireTest | | ▲ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| MDAExhibitR -4AScheduleDetail | | | | | | Date February2003 | | |
|--|--------|---------|--------|--|--------|----------------------|--------|--------|
| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | R-INOMENCLATURE 0603880CBal listicMissileDefenseSystemSegment | | | | |
| ScheduleProfile | FY2002 | FY20 03 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
| Producibility | | | | | | | | |
| 2ColorIRFPA -Build1stFPAonnewROIC | | 1Q | | | | | | |
| 2ColorIRFPA -CharacterTest | | 1Q | | | | | | |
| 2ColorIRFPA -CompletedDesign256X256ROIC | 2Q | | | | | | | |
| AOP -DevelopmentSpecific ation | | 1Q | | | | | | |
| AOP -FullCharacterModifiedAOPEquipment | 3Q | | | | | | | |
| Canister -ConductedProducibilityAnalysis | 4Q | | | | | | | |
| Canister -DevelopedConceptsTargetedMDAProg | 4Q | | | | | | | |
| Canister -EngrAnaysisAltDesign/Matls | 3Q | | | | | | | |
| Canister -MANTECHProgramforSelected Prototypes | | 2Q | | | | | | |
| LADAR -AMORImageTest | | 1Q | | | | | | |
| LADAR -CompletionofTx/RxCharacter | 4Q | | | | | | | |
| LADAR -ISTEFImageTest | | 2Q | | | | | | |
| VLWIRFPA -Fabricated1stRepeatabilityDAVID Lot | 3Q | | | | | | | |
| Manufacturing | | | | | | | | |
| DACS -HotFireTest | | 4Q | | | | | | |
| DACS -InitiateCompositeCaseforGasGenerator | | 1Q | | | | | | |
| DACS -InsertionPolanforBraidedC -Sic | | 3Q | | | | | | |
| DACS -TDACSSystemHotFireTest | 2Q | | | | | | | |

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| MDA Exhibit R -2 ARDT & E Project Justification | Date February 2003 |
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| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | R-INOMENCLATURE 0603880C Ballistic Missile Defense System Segment |
|---|--|

| COST (\$ in Thousands) | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1090 Program Operations | 32131 | 37350 | 0 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

A. Mission Description and Budget Item Justification

Transferred in FY2004 and out to BMD System Engineering & Integration Program Element 0603887C, BMD Test & Targets Program Element 0603888C, and BMD Products Program Element 0603889C.

This project covers personnel and related support costs, statutory and fiscal requirements.

Personnel covers government civilians performing program-wide oversight functions such as contracting, program integration, safety, quality and mission assurance at Missile Defense Agency (MDA), Executing Agents within the US Army Space & Missile Defense Command, US Army PEO Air and Missile Defense, US Navy PEO for Theater Surface Combatants, Office of Naval Research, and US Air Force.

Assistance required to support Missile Defense Agency program-wide management functions is also contained in this project. Typical efforts include cost estimating; audit; technology integration across MDA projects; and assessment of schedule, cost and performance, with attendant documentation of the many related programmatic issues. The requirements for this area are based on most economical and efficient utilization of contractors versus government personnel.

Fiscal Requirements include reimbursable services acquired through the Defense Working Capital Fund (DWCF) such as accounting services provided by the Defense Finance and Accounting Services (DFAS); reserves for special termination costs on designated contracts; and provisions for terminating other programs as required. MDA has additional requirements to provide for foreign currency fluctuations on its limited number of foreign contracts. Also includes funding for charges to be canceled appropriations in accordance with Public Law 101-510.

Not that these funds are allocated across multiple Program Elements in accordance with the Fiscal Year 1996 Authorization Act, which directed these funds be allocated to the programs being supported rather than managed from a single source. This structure often makes it difficult to level -fund all PE's while maintaining an orderly fiscal structure for executing the individual Program Operation efforts.

B. Accomplishments/Planned Program

| | FY2002 | FY2003 | FY2004 | FY2005 |
|---------------------------|--------|--------|--------|--------|
| Personnel | 0 | 6834 | | |
| RDT&E Articles (Quantity) | | | | |

Provides funding for government salaries and benefits at the Missile Defense Agency that are associated with program -wide support.

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|---|--------|--------|--------|--------|---|--------|------------------------------|--------|-------------|------------|
| MDA Exhibit R -2 ARDT & E Project Justification | | | | | | | Date February 2003 | | | |
| APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P) | | | | | R-1 NOMENCLATURE 0603880C Ballistic Missile Defense System Segment | | | | | |
| | FY2002 | | FY2003 | | FY2004 | | FY2005 | | | |
| Management Support | 14947 | | 15404 | | | | | | | |
| RDT&E Articles (Quantity) | | | | | | | | | | |
| <p>Funds the contract SETAs support costs directly associated with Missile Defense Agency program - wide support organizations. This effort provides the funding for the Missile Defense Agency's executing agents (Army Space and Missile Defense Command, Army PEO -AMD, Air Force, and Navy) including government salaries & benefits, setas support, and various management/overhead costs.</p> | | | | | | | | | | |
| | FY2002 | | FY2003 | | FY2004 | | FY2005 | | | |
| Fiscal Requirements | 2263 | | 1940 | | | | | | | |
| RDT&E Articles (Quantity) | | | | | | | | | | |
| <p>This effort funds various requirements at the Missile Defense Agency, to include accounting services, special termination costs for foreign currency fluctuations, and charges from cancelled appropriations.</p> | | | | | | | | | | |
| | FY2002 | | FY2003 | | FY2004 | | FY2005 | | | |
| IM/IT Operations | 14921 | | 13172 | | | | | | | |
| RDT&E Articles (Quantity) | | | | | | | | | | |
| <p>This effort pays for Information Management/Information Technology requirements within the Missile Defense Agency. These requirements are moved to the Management Headquarters Program Element in Fiscal Years 2004 -2009.</p> | | | | | | | | | | |
| C. Other Program Funding Summary | | | | | | | | | | |
| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 | FY2009 | To Complete | Total Cost |
| PE0603889C Ballistic Missile Defense Products | 0 | 0 | 343644 | 384763 | 333636 | 343447 | 349335 | 360951 | | |
| PE0604861C Theater High -Altitude Area Defense System -TMD -EMD | 818632 | 888323 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD | 130630 | 176155 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0604867C Navy Area Theater Missile Defense -EMD | 96121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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| MDAExhibitR -2ARDT &EProjectJustification | | | | | | | Date February2003 | | | |
|--|---------|---------|---------|---|---------|---------|----------------------|---------|--|--|
| APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P) | | | | R-INOMENCLATURE 0603880CBallisticMissileDefenseSystemSegment | | | | | | |
| PE0605502CSmallBusinessInnovative Research -MDA | 145102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0901585CPentagonReservation | 6381 | 7432 | 14481 | 13384 | 12758 | 12850 | 13158 | 13476 | | |
| PE0901598CManagementHeadquarters - MDA | 30191 | 25365 | 93441 | 101373 | 114107 | 121743 | 128972 | 133499 | | |
| PE0603888CBallisticMissileDefenseTest andTargets | 0 | 0 | 611522 | 711181 | 661416 | 643302 | 639839 | 672396 | | |
| PE0603175CBallisticMissileDefense Technology | 145021 | 151130 | 240820 | 205791 | 200956 | 247990 | 287864 | 306472 | | |
| PE0603869CMeadsCo ncepts -Dem/Val | 0 | 114781 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| PE0603879CAdvancedConcepts, EvaluationsandSystems | 0 | 0 | 151696 | 216778 | 166308 | 193949 | 241947 | 234484 | | |
| PE0603881CBallisticMissileDefense TerminalDefenseSegment | 195800 | 136399 | 810440 | 924356 | 985514 | 805785 | 558071 | 371649 | | |
| PE0603882CBallisticMissileDefense MidcourseDefenseSegment | 3655089 | 3103844 | 3613266 | 3841412 | 2078522 | 1908511 | 1482389 | 1437923 | | |
| PE0603883CBallisticMissileDefenseBoost DefenseSegment | 583463 | 718036 | 626264 | 653612 | 755163 | 665772 | 477109 | 354346 | | |
| PE0603884CBallisticMissileDefense Sensors | 312973 | 350436 | 438242 | 562752 | 706514 | 1043454 | 1152740 | 1261906 | | |
| PE0603886CBallisticMissileDefense SystemInterceptors | 0 | 0 | 301052 | 541178 | 1127180 | 1729613 | 2558327 | 2904096 | | |
| PE0603890CBallisticMissileDe fense SystemEngineeringandIntegration | 0 | 0 | 483996 | 522458 | 604445 | 628594 | 703055 | 706501 | | |